Indicative changes to the National Electricity Rules made by the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021*

Note - 2 December 2021:

This document shows changes to the relevant parts of the National Electricity Rules (NER) made by the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021*. The changes are shown in a modified version of the NER that incorporates, where relevant, final rules made by 2 December 2021. This modified version of parts of the NER is provided for information only and should not be used for any other purpose. The Australian Energy Market Commission does not guarantee the accuracy, reliability or completeness of this version of the NER or the mark-up, compared to the final rule.

The document includes changes to the NER to be made by the following rules:

+ National Electricity Amendment (NEM settlement under low, zero and negative demand conditions) Rule 2021 No. 6.
+ National Electricity Amendment (Connection to dedicated connection assets) Rule 2021 No. 7.
+ National Electricity Amendment (Fast frequency response market ancillary service) Rule 2021 No. 8.
+ National Electricity Amendment (Access, pricing and incentive arrangements for distributed energy resources) Rule 2021 No. 9.
+ National Electricity Amendment (Settlement under low operational demand) Rule 2021 No. 10.
+ National Electricity Amendment (Efficient management of system strength on the power system) Rule 2021 No 11.
+ National Electricity Amendment (Generator registrations and connections) Rule 2021 No. 12.
+ National Electricity Amendment (Compensation for market participants affected by intervention events) Rule 2021 No. 14

Note – 19 June 2023:

This document shows changes to the relevant parts of the National Electricity Rules (NER) made by the National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021. The changes are shown in a modified version of the NER that incorporates, where relevant, final rules made by 2 December 2021. This modified version of parts of the NER is provided for information only and should not be used for any other purpose. The Australian Energy Market Commission does not guarantee the accuracy, reliability or completeness of this version of the NER or the mark-up, compared to the final rule.

The document includes changes to the NER to be made by the following rules:

National Electricity Amendment (NEM settlement under low, zero and negative demand conditions) Rule 2021 No. 6;

- National Electricity Amendment (Connection to dedicated connection assets) Rule 2021 No. 7;
- National Electricity Amendment (Fast frequency response market ancillary service) Rule 2021 No. 8;
- National Electricity Amendment (Access, pricing and incentive arrangements for distributed energy resources) Rule 2021 No. 9;
- National Electricity Amendment (Settlement under low operational demand) Rule 2021 No. 10;
- National Electricity Amendment (Efficient management of system strength on the power system) Rule 2021 No 11;
- National Electricity Amendment (Generator registrations and connections) Rule 2021 No. 12; and
- National Electricity Amendment (Compensation for market participants affected by intervention events) Rule 2021 No. 14.

Please note that the National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021 No. 13 (IESS Rule) has been amended by the National Electricity Amendment (Implementing integrated storage systems) Rule 2023 No. 2 (Implementation Rule). The below document does not show the changes made by the Implementation Rule. However, the table accessible here sets out the Items of the IESS Rule that have been amended by the Implementation Rule.

Please note there may be other amendments made to the IESS Rule by other AEMC made rules that are not reflected in the table.

Contents

CHAPTER 2

2. Registered Participants and Registration

2.1 Registered Participants

2.1.2 General

(a) **[Deleted]**

(b) **[Deleted]**

(c) The different categories of *Registered Participants* have different obligations under the *Rules*.

(d) Rules 2.1A~~2.2~~ to 2.7 set out the *Registered Participant* categories and requirements which a person must satisfy in order to be registered by *AEMO* in relation to each of those *Registered Participant* categories.

(e) Each prospective *Registered Participant* must apply to *AEMO* for registration in accordance with rule 2.9.

(e1) Rule 2.9A sets out the process to be followed in order to transfer a *Registered Participant's* registration to another person.

(f) Each *Registered Participant* must pay to *AEMO* the prescribed fees determined in accordance with the provisions of rule 2.11.

2.1.3 Registration information resource and guidelines

(a) *AEMO* must develop, maintain and publish a set of materials to assist *Registered Participants* engaging with *AEMO* pursuant to this Chapter 2 (the *registration information resource and guidelines*).

(b) The *registration information resource and guidelines* must include a description of:

(1) the process for applications to *AEMO* for registration and classification under this Chapter and, where relevant, the matters *AEMO* will take into account in assessing such applications;

(2) the matters *AEMO* will take into account in granting exemptions under this Chapter, whether such exemptions are automatic or require an application, and where an application is required, the process for that application;

(3) the information that *AEMO* requires applicants to provide and the information that *AEMO* will make available at each stage of an application process, and the time frames for providing that information;

(4) the circumstances under which *AEMO* will impose terms and conditions of classification or exemption (where it is permitted to do so under other provisions of this Chapter), and the nature of those terms and conditions; and

(5) the information to be contained in *energy conversion models*.

(c) *AEMO* may from time to time amend the *registration information resource and guidelines*.

(d) Subject to paragraph (e), *AEMO* must, in accordance with the *Rules consultation procedures*, consult on amendments to all materials in the *registration information resource and guidelines* that relate to:

(1) the process for applying for an exemption under clause 2.1A.2 from the requirement to register in accordance with clause 2.1A.1 ~~under clause 2.2.1(c) from the requirement to register as a *Generator*~~, and the matters *AEMO* will take into account when assessing such applications;

(2) the circumstances under which *AEMO* will impose terms and conditions in relation to classification under any of the following clauses, and the nature of those terms and conditions:

(i) clause 2.2.2(b1), (b3) or (b4);

(ii) clause 2.2.3(c); ~~in relation to the classification of a generating unit as a non-scheduled generating unit, and the nature of those terms and conditions; and~~

(iii) clause 2.2.7(c1);

(iv) clause 2.3.6(g); and

(v) clause 2.3D.1(g); and

(3) the information to be contained in *energy conversion models*.

(e) *AEMO* is not required to comply with the *Rules consultation procedures* when making minor or administrative amendments to the materials described in paragraph (d).

2.1A Obligation to register (non-network categories)

2.1A.1 Obligation to register for non-exempt generating systems and integrated resource systems

(a) Subject to clause 2.1A.2, a person must not engage in the activity of owning, controlling or operating a *generating system* that is *connected* to a *transmission system* or *distribution system* unless that person is registered in relation to that *generating system* as either an *Integrated Resource Provider* or a *Generator* at the election of the person required to register.

(b) Subject to clause 2.1A.2, a person must not engage in the activity of owning, controlling or operating an *integrated resource system* that is *connected* to a *transmission system* or *distribution system* unless that person is registered in relation to that *integrated resource system* as an *Integrated Resource Provider*.

2.1A.2 Exemptions from registration in respect of certain generating systems and integrated resource systems

(a) *AEMO* may, in accordance with the *registration information resource and guidelines*, exempt a person or class of persons from the requirement to register in accordance with clause 2.1A.1, subject to such conditions as *AEMO* deems appropriate, where (in *AEMO's* opinion) an exemption is not inconsistent with the *national electricity objective*.

(b) Without limitation, an exemption may be given which only relieves a person or class of persons from the requirement to register in accordance with clause

2.1A.1 in relation to certain specified *generating systems* or *integrated resource systems* or classes of *generating systems* or *integrated resource systems*.

(c) Nothing in rule 2.2 requires the classification of any *generating unit* or *bidirectional unit* which forms part of a *generating system* or *integrated resource system* in respect of which an exemption under paragraph (a) applies.

(d) An exemption under paragraph (a) does not exempt a person from any other requirements of this rule that may be applicable to the person.

2.1A.3 Purchasing and selling electricity directly in the market

A person must not engage in the activity of selling or purchasing electricity directly in the *market* at any *connection point*, unless that person is registered by *AEMO* as a *Market Participant* and that *connection point* is classified as one of that person's *market connection points*.

2.1A.4 Providing wholesale demand response

A person must not engage in the activity of offering and providing *wholesale demand response* in accordance with Chapter 3 unless that person is registered by *AEMO* as a *Demand Response Service Provider* and the relevant response is provided by a *wholesale demand response unit* classified by that person.

2.1A.5 Providing market ancillary services

A person must not engage in the activity of offering and providing *market ancillary services* in accordance with Chapter 3 unless that person is registered by *AEMO* as an *Ancillary Service Provider* and the relevant service is provided by an *ancillary service unit* classified by that person.

2.1B Registration in relation to the sale or purchase of electricity and services

2.1B.1 Registration as a Generator

To be eligible to register as a *Generator* in respect of a *generating system*, a person must:

(a) obtain the approval of *AEMO* in accordance with rule 2.2 to classify each of the *generating units* that form part of the *generating system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(1) a *scheduled generating unit*, a *semi-scheduled generating unit* or a *non-scheduled generating unit*; and

(2) a *market generating unit* or a *non-market generating unit*;

(b) classify the *generating units* in accordance with *AEMO's* approval as referred to in paragraph (a);

(c) satisfy *AEMO* that the *generating system* will be capable of meeting or exceeding its *performance standards*; and

(d) except where the person is classifying only *non-market generating units*, satisfy the requirements in rule 2.4 for registration as a *Market Participant*.

2.1B.2 Registration as an Integrated Resource Provider

(a) To be eligible to register as an *Integrated Resource Provider*, a person must do one or more of the following:

(1) satisfy the requirements of paragraph (b) for registration as an *Integrated Resource Provider* in respect of an *integrated resource system* or a *generating system*;

(2) satisfy *AEMO* that the person intends to classify, in accordance with clause 2.3.4(b), a *connection point* as one of its *market connection points*; or

(3) satisfy *AEMO* that the person intends to classify, in accordance with clause 2.2.8, a *small resource connection point* as one of its *market connection points*,

and except where the person is classifying only *non-market generating units* or *non-market bidirectional units*, the person must satisfy the requirements in rule 2.4 for registration as a *Market Participant*.

(b) To be eligible to register as an *Integrated Resource Provider* in respect of an *integrated resource system* or a *generating system*, a person must:

(1) in relation to an *integrated resource system*, obtain the approval of *AEMO* to classify in accordance with rule 2.2 any *bidirectional unit* that forms part of the *integrated resource system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(i) a *scheduled bidirectional unit* or a *non-scheduled bidirectional unit* or other applicable scheduling classification or classifications; and

(ii) a *market bidirectional unit* or a *non-market bidirectional unit* or other applicable market participation classification;

(2) in relation to an *integrated resource system* or *generating system*, obtain the approval of *AEMO* to classify in accordance with rule 2.2 any *generating unit* that forms part of the *integrated resource system* or *generating system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(i) a *scheduled generating unit*, a *semi-scheduled generating unit* or a *non-scheduled generating unit*; and

(ii) a *market generating unit* or a *non-market generating unit*;

(3) classify the relevant *bidirectional units* or *generating units* in accordance with *AEMO's* approval as referred to in subparagraph (1) or (2); and

(4) satisfy *AEMO* that the *integrated resource system* or *generating system* will be capable of meeting or exceeding its *performance standards*.

2.1B.3 Expected closure year notices

(a) A person registered as:

(1) a *Generator* or *Integrated Resource Provider* in respect of a *scheduled generating unit* or *semi-scheduled generating unit*; or

(2) an *Integrated Resource Provider* in respect of a *scheduled bidirectional unit,*

must notify *AEMO* of the year in which the person expects the relevant *generating unit* or *bidirectional unit* to cease supplying electricity to the *transmission network* or *distribution network* at its *connection point* (*expected closure year*).

(b) The *Generator* or *Integrated Resource Provider* in respect of a *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled bidirectional unit* must:

(1) notify *AEMO* of the *expected closure year* for the unit promptly after *AEMO* approves classification of the unit under rule 2.2; and

(2) immediately notify *AEMO* of any change to the *expected closure year* for the unit.

2.1B.4 Registration as a Customer

(a) To register as a *Customer*, a person must:

(1) satisfy the requirements in rule 2.4 for registration as a *Market Participant*; and

(2) satisfy *AEMO* (acting reasonably) that:

(i) the person intends to classify, in its capacity as a *Customer*, a *connection point* as one of its *market connection points*; or

(ii) registration is for the purpose of acting as a *RoLR*.

(b) A *Customer's* activities only relate to *connection points* it has classified (in its capacity as a *Customer*) as *market connection points* or its activities as a *RoLR* and only while it is also registered with *AEMO* as a *Customer*.

2.1B.5 Registration as a Demand Response Service Provider

(a) To register as a *Demand Response Service Provider*, a person must:

(1) satisfy the requirements in rule 2.4 for registration as a *Market Participant*; and

(2) obtain the approval of *AEMO* to classify:

(i) a *qualifying load* as a *wholesale demand response unit* in accordance with clause 2.3.6; or

(ii) *plant* as an *ancillary service unit* in accordance with clause 2.3D.1.

(b) A *Demand Response Service Provider's* activities only relate to *qualifying loads* it has classified as *wholesale demand response units* or *plant* it has classified as *ancillary service units* (in each case in its capacity as a *Demand Response Service Provider*) and only while it is also registered with *AEMO* as a *Demand Response Service Provider*.

2.2 Classification of generating units and bidirectional unitsGenerator

2.2.1 [Deleted]Registration as a Generator

(a) Subject to clause 2.2.1(c), a person must not engage in the activity of owning, controlling or operating a *generating system* that is *connected* to a *transmission system* or *distribution system* unless that person is registered *by AEMO* as a *Generator*.

(b) **[Deleted]**

(c) *AEMO* may, in accordance with guidelines issued from time to time by *AEMO*, exempt a person or class of persons from the requirement to register as a *Generator*, subject to such conditions as *AEMO* deems appropriate, where (in *AEMO's* opinion) an exemption is not inconsistent with the *national electricity objective*.

Note:

A person who is exempt from registration as a *Generator*, may register with *AEMO* as a *Small Generation Aggregator* under rule 2.3A.

(d) Without limitation, an exemption may be given which only relieves a person or class of persons from the requirement to register as a *Generator* in relation to certain specified *generating systems* or classes of *generating systems*.

(e) To be eligible for registration as a *Generator*, a person must:

(1) obtain the approval of *AEMO* to classify each of the *generating units* that form part of the *generating system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(i) a *scheduled generating unit*;

(ii) a *semi-scheduled generating unit*; or

(iii) a *non-scheduled generating unit*;

(2) classify the *generating units* in accordance with *AEMO's* approval as referred to in subparagraph (1);

(2A) if a *generating unit* is classified as a *scheduled generating unit* or a *semi-scheduled generating unit* in accordance with subparagraph (1):

(i) notify *AEMO* of the year in which the *Generator* expects the *generating unit* to cease supplying electricity to the *transmission network* or *distribution network* at its *connection point* (*expected closure year*); and

(ii) immediately notify *AEMO* of any change to the *expected closure year*; and

(3) satisfy *AEMO* that each *generating system* will be capable of meeting or exceeding its *performance standards*.

(f) Except in relation to a proposed *generating unit*, a person must also classify each of those *generating units* as either a *market generating unit* or a *non-market generating unit*.

~~(f1) A *Generator* may also classify one or more of its *generating units* as an *ancillary service generating unit* where it has obtained the approval of *AEMO* to do so.~~

~~(g) Nothing in clause 2.2.1(e) or (f) requires the classification of any *generating unit* which forms part of a *generating system* in respect of which an exemption under clause 2.2.1(e) applies.~~

2.2.2 Scheduled production units~~Scheduled Generator~~

(a) A *generating unit* which has a *nameplate rating* of 30 MW or greater or is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of 30 MW or greater must be classified as a *scheduled generating unit* unless *AEMO* approves its classification as:

(1) a *semi-scheduled generating unit* under clause 2.2.7(b); or

(2) a *non-scheduled generating unit* in accordance with clause 2.2.3(b).

(a1) A *bidirectional unit* which has a *nameplate rating* of 5 MW or greater or is part of a group of *bidirectional units connected* at a common *connection point* with a combined *nameplate rating* of 5 MW or greater must be classified as a *scheduled bidirectional unit* unless *AEMO* approves its classification as:

(1) a *non-scheduled bidirectional unit* in accordance with clause 2.2.3;

(2) a *scheduled generating unit* and a *scheduled load* in accordance with paragraph (b2);

(3) two separately classified *plant* in accordance with paragraph (b4), one being a *semi-scheduled generating unit* and the other a *scheduled bidirectional unit*; or

(4) a *semi-scheduled generating unit* in accordance with clause 2.2.7(c1).

(b) A person must not classify a *generating unit* or *bidirectional unit* as a *scheduled generating unit* or *scheduled bidirectional unit* unless it has obtained the approval of *AEMO* to do so. Where the relevant classification is required under paragraph (a) or (a1), *AEMO* must approve the classification if it is satisfied that~~ the person~~:

(1) the person has submitted data in accordance with schedule 3.1;~~ and~~

(2) the person has adequate communications and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses; and~~.~~

(3) in the case of a *bidirectional unit*, the unit is capable of transitioning linearly from consuming to producing electricity and vice versa.

(b1) *AEMO* may, on an application being made for the purposes of paragraph (b), approve the following classifications on such terms and conditions as *AEMO* considers appropriate and if it is satisfied of the matters in paragraphs (b)(1) to (3):~~In relation to an application under clause 2.2.2(b) to classify as a *scheduled generating unit*~~

(1) classification as a *scheduled generating unit* of:

(i) a *generating unit* with a *nameplate rating* of less than 30 MW;~~,~~ or

(ii) a *generating unit* that is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of less than 30 MW;~~,~~ or

(2) classification as a *scheduled bidirectional unit* of:

(i) a *bidirectional unit* with a *nameplate rating* of less than 5MW for either production or consumption; or

(ii) a group of *bidirectional units connected* at a common *connection point* with either a combined *nameplate rating* of less than 5 MW for production or a combined *nameplate rating* of less than 5 MW for consumption.

~~*AEMO* may approve the classification on such terms and conditions as *AEMO* considers appropriate.~~

(b2) *AEMO* must approve (and must only approve) an application ~~a request~~ for classification of a *bidirectional unit* as a *scheduled generating unit* if:

(1) *AEMO* is satisfied that the *bidirectional unit* is not capable of transitioning linearly from consuming to producing electricity and vice versa; and

(2) *AEMO* also approves in accordance with clause 2.3.4A the classification of that part of the *plant* that consumes electricity as a *scheduled load*.

(b3) In relation to an application under paragraph (b2) to classify a *bidirectional unit* as a *scheduled generating unit, AEMO* may approve the classification on such terms and conditions as *AEMO* considers appropriate.

(b4) *AEMO* may, on an application being made for the purposes of paragraph (a1)(3), approve on such terms and conditions as *AEMO* considers appropriate, classification of a *bidirectional unit* that is a *coupled production unit* as:

(1) a *semi-scheduled generating unit* in respect of any part of the *plant* that satisfies the criteria for classification as a *semi-scheduled generating unit* under clause 2.2.7(b); and

(2) a *scheduled bidirectional unit* in respect of any part of the *plant* that satisfies the criteria for classification under this clause or clause 2.2.3 as applicable.

(c) A person must comply with any terms and conditions imposed by *AEMO* as part of an approval under paragraph (b1), (b3) or (b4)~~clause 2.2.2(b1)~~.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) **[Deleted]**

(e) A *Generator* or *Integrated Resource Provider* is taken to be:

(1) a *Scheduled Generator* only in so far as its activities relate to any *scheduled generating unit*; and

(2) a *Scheduled Integrated Resource Provider* only in so far as its activities relate to any *scheduled bidirectional unit*.

(f) A *Scheduled Generator* must operate any *scheduled generating unit*, and a *Scheduled Integrated Resource Provider* must operate any *scheduled bidirectional unit*, in accordance with the *central dispatch* process ~~in accordance with the co-ordinated *central dispatch* process operated by *AEMO* under the provisions of Chapter 3~~.

~~(g) As described in Chapter 3, a *Scheduled Generator* must notify *AEMO* of the availability of each *scheduled generating unit* in respect of each *trading interval*.~~

~~(h) A *Scheduled Generator* may submit to *AEMO* a schedule of *dispatch offers* for each *scheduled generating unit* in respect of each *trading interval* for *dispatch* by *AEMO*.~~

2.2.3 Non-scheduled production units~~Non-Scheduled Generator~~

(a) A *generating unit* with a *nameplate rating* of less than 30 MW (not being part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of 30 MW or greater) must be classified as a *non-scheduled generating unit* unless *AEMO* approves its classification as:

(1) a *scheduled generating unit* under clause 2.2.2(b); or

(2) a *semi-scheduled generating unit* under clause 2.2.7(b).

(a1) A *bidirectional unit* with a *nameplate rating* of less than 5 MW (not being part of a group of *bidirectional units* with a combined *nameplate rating* of 5 MW or greater) must be classified as a *non-scheduled bidirectional unit* unless *AEMO* approves its classification as a *scheduled bidirectional unit* under clause 2.2.2(b).

(b) A person must not classify a *generating unit* as a *non-scheduled generating unit* or a *bidirectional unit* as a *non-scheduled bidirectional unit* unless the person has obtained the approval of *AEMO* to do so. *AEMO* must approve the classification if it is satisfied that the physical and technical attributes of the relevant *generating unit* or *bidirectional unit* are such that it is not practicable for it to participate in *central dispatch*.

(c) If, in relation to an application under paragraph (b), in *AEMO's* opinion it is necessary for any reason (including *power system security*) for the relevant *Generator* or *Integrated Resource Provider* to comply with some of the obligations of a *Scheduled Generator* or *Semi-Scheduled Generator* for that *generating unit* or *Scheduled Integrated Resource Provider* for that *bidirectional unit*, *AEMO* may approve the classification on such terms and conditions as *AEMO* considers reasonably necessary.

(d) A person must comply with any terms and conditions imposed by *AEMO* under paragraph (c).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) A *Generator* or an *Integrated Resource Provider* is taken to be a *Non-Scheduled Generator* only in so far as its activities relate to a *non-scheduled generating unit.*

(e1) An *Integrated Resource Provider* is taken to be a *Non-Scheduled Integrated Resource Provider* only in so far as its activities relate to a *non-scheduled bidirectional unit*.

(f) Subject to clause 3.8.2(e), ~~the~~ *non-scheduled generating units* ~~of a *Generator*~~ and *non-scheduled bidirectional units* do not participate in *central dispatch*, other than as *ancillary service units* where applicable~~the co-ordinated *central dispatch* process operated by *AEMO*~~.

2.2.4 Market generating units~~Market Generator~~

(a) A *generating unit* must be classified as a *market generating unit* unless *AEMO* approves its classification as a *non-market generating unit* in accordance with clause 2.2.5~~(a)~~.

(b) A *Generator* or an *Integrated Resource Provider* is taken to be a *Market Generator* only in so far as its activities relate to any *market generating units*.

(c) A *Market Generator* must sell all *sent out generation* through the *spot market* and accept payments from *AEMO* for *sent out generation* ~~at the *spot price* applicable at the *connection point* as determined for each *trading interval*~~ in accordance with the provisions of Chapter 3.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) A *Market Generator* must purchase all electricity *supplied* through the *national grid* ~~to the *Market Generator* at that~~ to the *connection point* for each of its *market generating units* from the *spot market* and make payments to *AEMO* for such electricity ~~supplied at the *connection point* as determined for each *trading interval*~~ in accordance with the provisions of Chapter 3.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

2.2.5 Non-market generating units~~Non-Market Generator~~

(a) A person must not classify a *generating unit* as a *non-market generating unit* unless the person has obtained the approval of *AEMO* to do so.

(a1) *AEMO* must approve a request for classification of a *generating unit* as a *non-market generating unit* if (and only if):

(1) the *generating unit* is classified as a *non-scheduled generating unit*; and

(2) *AEMO* is satisfied that a *Market Customer* has classified the *connection point* for the *generating unit* as one of its *market connection points* under clause 2.3.4.

~~(a) A *generating unit* whose entire output is consumed by a *market load* at the same *connection point*, at which there is not expected to be any *sent out generation*, must be classified as a *non-market generating unit*.~~

(b) A *Generator* or *Integrated Resource Provider* is taken to be a *Non-Market Generator* only in so far as its activities relate to any *non-market generating unit*.

(c) A *Non-Market Generator* is not entitled to receive payment from *AEMO* for *sent out generation* ~~except for any compensation that may be payable to it as a *Directed Participant* or *Affected Participant*~~.

2.2.5A Market bidirectional units

(a) A *bidirectional unit* must be classified as a *market bidirectional unit* unless *AEMO* approves its classification as a *non-market bidirectional unit* in accordance with clause 2.2.5B.

(b) An *Integrated Resource Provider* must sell all *sent out generation* from its *market bidirectional units* through the *spot market* and accept payments from *AEMO* for *sent out generation* from its *market bidirectional units* in accordance with the provisions of Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.2.5A(b) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(c) An *Integrated Resource Provider* must purchase all electricity *supplied* through the *national grid* to the *connection point* for each of its *market bidirectional units* from the *spot market* and make payments to *AEMO* for such electricity in accordance with the provisions of Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.2.5A(c) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

2.2.5B Non-market bidirectional units

(a) A person must not classify a *bidirectional unit* as a *non-market bidirectional unit* unless the person has obtained the approval of *AEMO* to do so.

(b) *AEMO* must approve a request for classification of a *bidirectional unit* as a *non-market bidirectional unit* if (and only if):

(1) the *bidirectional unit* is classified as a *non-scheduled bidirectional unit*; and

(2) *AEMO* is satisfied that a *Market Customer* has classified the *connection point* for the *bidirectional unit* as one of its *market connection points* under clause 2.3.4.

(c) An *Integrated Resource Provider* is taken to be a *Non-Market Integrated Resource Provider* only in so far as its activities relate to any *non-market bidirectional unit*.

(d) A *Non-Market Integrated Resource Provider* is not entitled to receive payment from *AEMO* for *sent out generation*.

2.2.6 [Deleted]~~Ancillary services generating unit~~

~~(a) If the *Market Generator* in respect of a *generating unit* wishes to use that *generating unit* to provide *market ancillary services* in accordance with Chapter 3, then the *Market Generator* must apply to *AEMO* for approval to classify the *generating unit* as an *ancillary service generating unit*.~~

~~(b) An application under clause 2.2.6(a) must be in the form prescribed by *AEMO* and specify the *market ancillary services* which the *Market Generator* wishes to provide using the relevant *generating unit*.~~

~~(c) *AEMO* must, within 5 *business days* of receiving an application under clause 2.2.6(a), advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application:~~

~~(1) is incomplete; or~~

~~(2) contains information upon which *AEMO* requires clarification.~~

~~(d) If the further information or clarification required pursuant to clause 2.2.6(c) is not provided to *AEMO's* satisfaction within 15 *business days* of the request, then the *Market Generator* will be deemed to have withdrawn the application.~~

~~(e) If *AEMO* is reasonably satisfied that:~~

~~(1) the *generating unit* is able to be used to provide the *market ancillary services* referred to in the application in accordance with the *market ancillary service specification*; and~~

~~(2) the *Market Generator* has adequate communication and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses,~~

~~then *AEMO* must approve the classification in respect of the particular *market ancillary services*.~~

~~(f) If *AEMO* approves the classification of a *generating unit* as an *ancillary service generating unit*, then *AEMO* may impose on the relevant *Market Generator* such terms and conditions as *AEMO* considers necessary to ensure that the provisions of the *Rules* applying to *market ancillary services* can be met.~~

~~(g) A *Market Generator*:~~

~~(1) must comply with any terms and conditions imposed by *AEMO* under clause 2.2.6(f);~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(2) must ensure that the *market ancillary services* provided using the relevant *ancillary services generating unit* are provided in accordance with the co-ordinated *central dispatch* process operated by *AEMO* under the provisions of Chapter 3 and in accordance with the *market ancillary service specification*;~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(3) may submit to *AEMO market ancillary service offers* in respect of the *ancillary service generating unit* in accordance with the provisions of Chapter 3; and~~

~~(4) if the *Market Generator* submits a *market ancillary service offer* in respect of the relevant *ancillary service generating unit*, must comply with the *dispatch instructions* from *AEMO* in accordance with the *Rules*.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(h) A *Market Generator* with an *ancillary service generating unit* must only sell the *market ancillary services* produced using that *ancillary service generating unit* through the *spot market* in accordance with the provisions of Chapter 3.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(i) A *Market Generator* is not entitled to receive payment from *AEMO* for *market ancillary services* except where those *market ancillary services* are produced using an *ancillary service generating unit* in accordance with Chapter 3 or pursuant to a *direction* or *clause 4.8.9 instruction*.~~

2.2.7 Semi-scheduled generating units~~Semi-Scheduled Generator~~

(a) A *generating unit* which has a *nameplate rating* of 30 MW or greater or is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of 30 MW or greater, must be classified as a *semi-scheduled generating unit* where the output of the *generating unit* is *intermittent* unless *AEMO* approves its classification as:

(1) a *scheduled generating unit* under clause 2.2.2(b); or

(2) a *non-scheduled generating unit* under clause 2.2.3(b).

(b) A person must not classify a *generating unit* as a *semi-scheduled generating unit* or (for the purposes of paragraph (c1)) a *bidirectional unit* as a *semi-scheduled generating unit* unless the person has obtained the approval of *AEMO* to do so.

(c) *AEMO* must approve a request for classification as a *semi-scheduled generating unit* if it is satisfied that the output of the *generating unit* is *intermittent* and that the person:

(1) has submitted data in accordance with schedule 3.1;

(2) has submitted an *energy conversion model*; and

(3) has adequate communications and telemetry to support the issuing of *dispatch instructions* and the audit of responses.

(c1) *AEMO* may, on an application being made for the purposes of paragraph (b), approve on such terms and conditions as *AEMO* considers appropriate, classification of a *bidirectional unit* that is a *coupled production unit* as a *semi-scheduled generating unit* if *AEMO* is satisfied that:

(1) the output of some or all *generating plant* comprised in the *bidirectional unit* is *intermittent*;

(2) except for *auxiliary load*, the *bidirectional unit* will not consume electricity delivered from the *national grid* at the *connection point* for the *bidirectional unit*; and

(3) the person:

(i) has submitted data in accordance with schedule 3.1 and paragraph (c3);

(ii) has submitted an *energy conversion model*; and

(iii) has adequate communications and telemetry to support the issuing of *dispatch instructions* and the audit of responses.

(c2) A person must comply with any terms and conditions imposed by *AEMO* as part of an approval under paragraph (c1).

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.2.7(c2) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(c3) When a person submits data under schedule 3.1 for a *coupled production unit* that it wishes to classify as a *semi-scheduled generating unit* under paragraph (c1), the maximum *generation* must be limited to the maximum *generation* of that part of the *coupled production unit* that is *intermittent.*

(d) [**Deleted**]

(e) In relation to an application under paragraph (b) to classify a *generating unit* with a *nameplate rating* of less than 30 MW, or a *generating unit* that is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of less than 30 MW, as a *semi-scheduled generating unit*, *AEMO* may approve the classification on such terms and conditions as *AEMO* considers appropriate.

(f) A person must comply with any terms and conditions imposed by *AEMO* as part of an approval under paragraph (e).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) A *Generator* or *Integrated Resource Provider* is taken to be a *Semi-Scheduled Generator* only in so far as its activities relate to a *semi-scheduled generating unit*.

(h) A *Semi-Scheduled Generator* must operate a *semi-scheduled generating unit* in accordance with the ~~co-ordinated~~ *central dispatch* process ~~operated by *AEMO* under the provisions of Chapter 3~~.

~~(i) At the time that a person makes a request for *AEMO* to classify a *semi-scheduled generating unit* under paragraph (c), that person may request to register two or more *generating units* as one *semi-scheduled generating unit* when the *generating units*:~~

~~(1) are connected at a single site with:~~

~~(i) the same *intra-regional loss factor*; or~~

~~(ii) if two *intra-regional loss factors* are determined for the site under clause 3.6.2(b)(2), the same two *intra-regional loss factors*;~~

~~(2) each have a capacity of not more than 6MW; and~~

~~(3) have similar *energy conversion models*,~~

~~and *AEMO* must approve the request unless, in *AEMO's* opinion, registering the relevant *generating units* as one *semi-scheduled generating unit* could adversely impact on *power system security*.~~

~~(j) Notwithstanding that one or more of the conditions set out in paragraph (i) may not have been fulfilled by the *Semi-Scheduled Generator*, *AEMO* may approve a request received under paragraph (i) if registration as a single *semi-scheduled generating unit* would not materially distort *central dispatch* or adversely affect *power system security*.~~

~~(k) Where *AEMO* approves a request to register two or more *generating units* as one *semi-scheduled generating unit* in accordance with paragraph (i) or (j), the *generating units* will be taken to be one *semi-scheduled generating unit* for the purposes of the *Rules*.~~

~~(l) For the avoidance of doubt, a *Semi-Scheduled Generator* which operates two or more *semi-scheduled generating units* that could have been registered as a single *semi-scheduled generating unit* under paragraph (i) but were not so registered, may subsequently aggregate those *generating units* in accordance with clause 3.8.3.~~

2.2.8 Small generating units and small bidirectional units

(a) Subject to paragraph (b), an *Integrated Resource Provider* may classify a *small resource connection point* as one of its *market connection points*.

(b) A person must not classify a *small resource connection point* as a *market connection point* unless the person satisfies the requirements of the *participating jurisdiction* in which the *connection point* is situated so that (subject to compliance with the *Rules*) the person is permitted to purchase or sell electricity (as applicable) in the *spot market* in relation to that *connection point*.

(c) An *Integrated Resource Provider* is taken to be a *Small Resource Aggregator* only in so far as its activities relate to *small resource connection points* classified as its *market connection points* under paragraph (b).

(d) A *Small Resource Aggregator* must sell all *sent out generation* from its *market connection points* through the *spot market* and accept payments from *AEMO* for the electricity in accordance with Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.2.8(d) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(e) A *Small Resource Aggregator* must purchase all electricity supplied through the *national grid* to its *market connection points* from the *spot market* and make payments to *AEMO* for the electricity in accordance with Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.2.8(e) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

2.3 Connection point and connected plant classifications~~Customer~~

2.3.1 [Deleted]~~Registration as a Customer~~

~~(a) A *Customer* is a person so registered by *AEMO* and who engages in the activity of purchasing electricity *supplied* through a *transmission system* or *distribution system* to a *connection point*.~~

~~(b) To be eligible for registration as a *Customer*, a person must satisfy *AEMO* (acting reasonably) that:~~

~~(1) the person intends to classify within a reasonable period of time its electricity purchased at one or more *connection points* as a *first-tier load*, a *second-tier load* or a *market load* or an *intending load*; or~~

~~(2) registration is for the purpose of acting as a *RoLR*.~~

~~(c) A person must not engage in the activity of purchasing electricity directly from the *market* at any *connection point*, unless that person is registered by *AEMO* as a *Market Participant* and that *connection point* is classified as one of that person's *market connection points*.~~

~~(d) A person who engages in the activity of purchasing electricity at any *connection point* otherwise than directly from the *market* may, but is not required to, apply for registration by *AEMO* as a *First-Tier Customer*, a *Second-Tier Customer* or an *Intending Participant* provided that person is entitled to classify its electricity purchased at that *connection point* based on the threshold criteria set out in clause 2.3.1(e).~~

~~(e) A person may not classify its electricity purchased at any *connection point* unless the person satisfies the requirements of the *participating jurisdiction* in which the *connection point* is situated so that (subject to compliance with the *Rules*) the person is permitted to purchase electricity in the *spot market* in relation to that *connection point*.~~

~~(f) A *Market Customer* may classify one or more of its *market loads* as an *ancillary service load* in accordance with clause 2.3.5.~~

2.3.1A Jurisdictional requirements

(a) A person must not classify any *connection point* as a *market connection point* under this rule 2.3 unless the person satisfies the requirements of the *participating jurisdiction* in which the *connection point* is situated so that

(subject to compliance with the *Rules*) the person is permitted to purchase or sell electricity (as applicable) in the *spot market* in relation to that *connection point*.

(b) A person must not classify any *connection point* as a *market connection point* under clause 2.3.4(b) or (i), unless the person has any authorisations or exemptions required by the legislation of a *participating jurisdiction* or by the *NERL* in relation to the sale of electricity to end users.

2.3.2 [Deleted]~~First-Tier Customer~~

~~(a) If any electricity *supplied* through the *national grid* is purchased by a person at a *connection point* directly and in its entirety from the *Local Retailer*, the *load* at that *connection point* may be classified by that person as a *first-tier load*.~~

~~(b) A *Customer* is taken to be a *First-Tier Customer* only in so far as its activities relate to any *first-tier load*.~~

~~(c) A *First-Tier Customer* must not participate in the *spot market* for any *first-tier load*.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

2.3.3 [Deleted]~~Second-Tier Customer~~

~~(a) Subject to clause 2.3.3(d), if any electricity *supplied* through the *national grid* is purchased by a person at a *connection point* other than directly from the *Local Retailer* or the *spot market* all electricity purchased by that person at that *connection point* may be classified by that person as a *second-tier load*.~~

~~(b) A *Customer* is taken to be a *Second-Tier Customer* only in so far as its activities relate to any *second-tier load*.~~

~~(c) A *Second-Tier Customer* must not participate in the *spot market* for any of its *second-tier loads*.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(d) A person's purchase of electricity at a *connection point* may only be classified as a *second-tier load* while a *Market Customer*, from whom the person directly or indirectly purchases the electricity, classifies the *connection point* as one of its *market loads*.~~

2.3.4 Market connection point classification ~~Market Customer~~

(a) A *connection point*:

(1) which *connects* any *market generating unit* to the *national grid*, is taken to be a *market connection point* of the *Market Participant* which has classified the *generating unit* as a *market generating unit*;

(2) which *connects* any *market bidirectional unit* to the *national grid*, is taken to be a *market connection point* of the *Market Participant* which has classified the *bidirectional unit* as a *market bidirectional unit*;

(3) which has been classified by an *Integrated Resource Provider* under clause 2.2.8(a), is a *market connection point* of the *Integrated Resource Provider* (in its capacity as a *Small Resource Aggregator*); or

(4) where the *network service connected* at that *connection point* is a *market network service*, is taken to be a *market connection point* of the *Market Participant* that has classified the *network service* as a *market network service*.

(b) Subject to paragraph (c), if electricity *supplied* through the *national grid* to or from a *connection point* is purchased or sold by any person (**end user**), that *connection point* must be classified as a *market connection point* of:

(1) the end user (if registered as a *Customer* or an *Integrated Resource Provider*); or

(2) with the consent of the end user, a *Customer* or an *Integrated Resource Provider*.

(c) Paragraph (b) does not apply to any *connection point*:

(1) taken to be a *market connection point* of another *Market Participant* under paragraph (a); or

(2) classified by a *Local Retailer* in accordance with paragraph (i).

(d) A *Customer* is taken to be a *Market Customer* only in so far as its activities relate to any *market connection point* it has classified under paragraph (b) or (i).

(e) An *Integrated Resource Provider* is taken to be a *Market Customer* only in so far as its activities relate to any *market connection point* it has classified under paragraph (b).

(f) A *Market Customer* must purchase all electricity *supplied* to its *market connection points* from the *spot market* and make payments to *AEMO* for the electricity in accordance with Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.3.4(f) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(g) A *Market Customer* must sell all *sent out generation* from its *market connection points* through the *spot market* and accept payments from *AEMO* for the electricity in accordance with Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.3.4(g) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

~~(a) If electricity, *supplied* through the *national grid* to any person *connected* at a *connection point*, is purchased other than by a *franchise customer* from the *Local Retailer*, that *load* at the *connection point* must be classified by that~~

~~person or, with the consent of that person, by some other person as a *market load*.~~

~~(b) A *Customer* is taken to be a *Market Customer* only in so far as its activities relate to any *market load* and only while it is also registered with *AEMO* as a *Market Customer*.~~

~~(c) A *Market Customer* must purchase all electricity *supplied* at that *connection point* from the *spot market* and make payments to *AEMO* for electricity supplied at the *connection point* as determined for each *trading interval* in accordance with provisions of Chapter 3.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(d) A *Market Customer* may request *AEMO* to classify any of its *market loads* (excluding a *load* that has been classified as a *wholesale demand response unit*) as a *scheduled load*.~~

~~(e) *AEMO* must classify a *market load* as a *scheduled load* if it is satisfied that the *Market Customer*:~~

~~(1) has submitted data in accordance with schedule 3.1;~~

~~(2) has adequate communications and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses; and~~

~~(3) has requested that the *load* be so classified and has not withdrawn that request.~~

~~(f) A *Market Customer* may submit *dispatch bids* in respect of *scheduled loads* in accordance with the provisions of Chapter 3.~~

~~(g) A *Market Customer* who submits *dispatch bids* for *scheduled loads* and makes its *scheduled loads* available for *central dispatch* must comply with the *dispatch instructions* from *AEMO* in accordance with the *Rules*.~~

(h) [**Deleted**]

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) A *Customer* who is also a *Local Retailer* must classify any *load* at a *connection point* in its *local area* as a *market connection point* ~~*market load*~~ if electricity *supplied* through the *national grid* to or from that *connection point* is purchased or sold by a *franchise customer*.

2.3.4A Scheduled load classification

(a) A *Market Customer* or an *Integrated Resource Provider* may with the approval of *AEMO* classify *plant* (excluding *generating plant*) *connected* at one of its *market connection points* as a *scheduled load*.

(b) A *bidirectional unit* that is to be classified as a *scheduled generating unit* with *AEMO's* approval under clause 2.2.2(b2) must be classified as a *scheduled load* in relation to that part of the *plant* that consumes electricity.

(c) *AEMO* must approve a request to classify *plant* (subject to paragraph (b), excluding *generating plant*) as a *scheduled load* if it is satisfied that the *Market Customer* or *Integrated Resource Provider*:

(1) has submitted data in accordance with schedule 3.1;

(2) has adequate communications and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses; and

(3) is required by paragraph (b) to classify the *plant* as a *scheduled load* or has requested that the *plant* be so classified and has not withdrawn that request.

2.3.5 [Deleted]~~Ancillary services load~~

~~(a) If a *Demand Response Service Provider* in respect of a *load*, or the *Market Customer* in respect of a *market load*, wishes to use that *load* or *market load* to provide *market ancillary services* in accordance with Chapter 3, then the *Demand Response Service Provider* or *Market Customer* (as the case may be) must apply to *AEMO* for approval to classify the *load* or *market load* as an *ancillary service load*.~~

~~(b) An application under paragraph (a) must be in the form prescribed by *AEMO* and:~~

~~(1) specify the *market ancillary services* which the *Demand Response Service Provider* in respect of a *load* or *Market Customer* in respect of a *market load* (as the case may be) wishes to provide using the relevant *load* or *market load*;~~

~~(2) in the case of an application made by a *Demand Response Service Provider*, not be in respect of a *market load* that is a *scheduled load*;~~

~~(3) identify each of the *loads* to be used by the applicant to provide *market ancillary services*; and~~

~~(4) demonstrate how the *loads* identified in subparagraph (3) have the required equipment to be used to provide *market ancillary services* and will be capable of meeting or exceeding the relevant *performance standards* and specifications to *AEMO's* satisfaction.~~

~~(c) *AEMO* must, within 5 *business days* of receiving an application under paragraph (a), advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application:~~

~~(1) is incomplete; or~~

~~(2) contains information upon which *AEMO* requires clarification.~~

~~(d) If the further information or clarification required pursuant to paragraph (c) is not provided to *AEMO's* satisfaction within 15 *business days* of the request, then the *Demand Response Service Provider* or *Market Customer* (as applicable) will be deemed to have withdrawn the application.~~

~~(e) If *AEMO* is reasonably satisfied that:~~

~~(1) the *load* is able to be used to provide the *market ancillary services* referred to in the application in accordance with the *market ancillary service specification*;~~

(1A) the *Demand Response Service Provider* or the *Market Customer* (as the case may be) has an arrangement with the *retail customer* at the relevant *connection point* for the supply of *market ancillary services*; and

(2) the *Demand Response Service Provider* or the *Market Customer* (as the case may be) has adequate communications and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses,

then subject to paragraph (e1), *AEMO* must approve the classification in respect of the particular *market ancillary services*.

(e1) *AEMO* must not give approval to a person under paragraph (e) in respect of a *load* that is classified as a *wholesale demand response unit* by a different person.

(f) If *AEMO* approves the classification of a *load* as an *ancillary service load*, then *AEMO* may impose on the relevant *Demand Response Service Provider* or *Market Customer* (as the case may be) such terms and conditions as *AEMO* considers necessary to ensure that the provisions of the *Rules* applying to *market ancillary services* can be met.

(g) A *Demand Response Service Provider* and *Market Customer* (as applicable):

(1) must comply with any terms and conditions imposed by *AEMO* under paragraph (f);

Note

This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) must ensure that the *market ancillary services* provided using the relevant *ancillary services load* are provided in accordance with the co-ordinated *central dispatch* process operated by *AEMO* under the provisions of Chapter 3 and in accordance with the *market ancillary service specification*;

Note

This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(3) may submit to *AEMO market ancillary service offers* in respect of the *ancillary service load* in accordance with the provision of Chapter 3; and

(4) if the *Demand Response Service Provider* or *Market Customer* (as applicable) submits a *market ancillary service offer* in respect of the relevant *ancillary service load*, must comply with the *dispatch instructions* from *AEMO* in accordance with the *Rules*.

Note

This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) A *Demand Response Service Provider* or *Market Customer* (as applicable) with an *ancillary service load* must only sell the *market ancillary services*

~~produced using that *ancillary service load* through the *spot market* in accordance with the provisions of Chapter 3.~~

~~**Note**~~

~~This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(i) A *Demand Response Service Provider* or *Market Customer* (as applicable) is not entitled to receive payment from *AEMO* for *market ancillary services* except where those *market ancillary services* are produced using an *ancillary service load* in accordance with Chapter 3 or pursuant to a *direction* or *clause 4.8.9 instruction*.~~

~~(j) A *Demand Response Service Provider* and *Market Customer* (as applicable) must immediately notify *AEMO* if a *load* it has classified as an *ancillary service load* ceases to meet the requirements for classification under this clause 2.3.5.~~

2.3.6 Wholesale demand response units

(a) If a *Demand Response Service Provider* in respect of a *qualifying load* wishes to use the *qualifying load* ~~*load*~~ to provide *wholesale demand response* in accordance with the *Rules*, the *Demand Response Service Provider* must apply to *AEMO* for approval to classify the *qualifying load* as a *wholesale demand response unit*.

(b) An application under paragraph (a) must be in the form prescribed by *AEMO* and must:

(1) identify the *qualifying load*;

(2) specify the proposed *maximum responsive component* of the *wholesale demand response unit*; and

(3) specify the proposed *baseline methodology* and *baseline settings* to apply to the *wholesale demand response unit*.

(c) *AEMO* must, within 5 *business days* of receiving an application under paragraph (a), advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO*'s reasonable opinion, the application:

(1) is incomplete; or

(2) contains information upon which *AEMO* requires clarification.

(d) If the further information or clarification required pursuant to paragraph (c) is not provided to *AEMO's* satisfaction within 15 *business days* of the request, *AEMO* may, on notice to the *Demand Response Service Provider* at any time after expiry of that period, elect to treat the application as withdrawn and the *Demand Response Service Provider* will be deemed to have withdrawn the application.

(e) *AEMO* must, subject to paragraph (f), approve the classification request under paragraph (a)~~of a *load* as a *wholesale demand response unit*~~ if *AEMO* is reasonably satisfied that:

(1) the request is made in respect of~~*load* is~~ a *qualifying load*;

(2) the *qualifying load*~~*load*~~ is able to be used to provide *wholesale demand response* in accordance with the *Rules*;

(3) the *qualifying load*~~*load*~~ is capable of providing a quantity of *wholesale demand response* at least equal to the *maximum responsive component*;

(4) the *Demand Response Service Provider* has adequate communications and/or telemetry in place to support the issuing of *dispatch instructions* in respect of the *qualifying load*~~*load*~~;

(5) the *baseline methodology*~~,~~, when applied to the *qualifying load*~~*load*~~ and using the proposed *baseline settings* and historical *metering data* for the *qualifying load*~~*load*~~:

(i) produces a *baseline* that satisfies the *baseline methodology metrics*; and

(ii) otherwise qualifies for application to the *wholesale demand response unit* having regard to any criteria in the *wholesale demand response guidelines*;

(6) the *Demand Response Service Provider* has submitted data in accordance with schedule 3.1; and

(7) the *qualifying load*~~*load*~~ satisfies each other requirement in the *wholesale demand response guidelines* for classification as a *wholesale demand response unit*.

(f) *AEMO* must not give approval to a person under paragraph (e) in respect of a *qualifying load*~~*load*~~ that is classified as an *ancillary service unit* ~~*ancillary service load*~~ by a different person.

(g) If *AEMO* approves the classification of a *qualifying load*~~*load*~~ as a *wholesale demand response unit*, *AEMO* may impose on the relevant *Demand Response Service Provider* such terms and conditions as *AEMO* considers necessary to ensure that the provisions of the *Rules* applying to *wholesale demand response* can be met.

(h) A *Demand Response Service Provider* must comply with any terms and conditions imposed by *AEMO* under paragraph (g) in respect of its *wholesale demand response unit*.

(i) [**Deleted**]~~If a *Demand Response Service Provider* submits a *dispatch bid* in respect of a *wholesale demand response unit*, the *Demand Response Service Provider* must comply with *dispatch instructions* from *AEMO* in accordance with the *Rules*~~.

(j) A *Demand Response Service Provider* is not entitled to receive payment from *AEMO* for *wholesale demand response* except where the *wholesale demand response* is provided by a *wholesale demand response unit* in accordance with Chapter 3 or pursuant to a *clause 4.8.9 instruction*.

(k) A *Demand Response Service Provider* must notify *AEMO* if any of its ~~a *load* the *Demand Response Service Provider* has classified as a~~ *wholesale demand response unit*s ceases to be a *qualifying load* as soon as practicable and in any event no later than 10 *business days* after becoming aware that the *wholesale demand response unit* ~~*load*~~ ceases to be a *qualifying load*.

(l) Where a *Demand Response Service Provider* gives *AEMO* a notice under paragraph (k) in respect of a *wholesale demand response unit*~~*load*~~, the *wholesale demand response unit* ~~*load*~~ ceases to be classified as a *wholesale demand response unit* from the time the notice is given.

(m) In this Chapter~~clause 2.3.6~~:

(1) ~~the *load*~~ a *connection point* is a *qualifying load* if:

(i) the *connection point*~~the *load*~~ comprises a single *connection point* or a *parent connection point* in respect of all its associated *child connection points* that are not *market connection points*;

(ii) if the *connection point* is a *child connection point*, it is also a *market connection point*;

(iii) ~~no *connection point* associated with the *load* is a *connection point* for a~~ the *connection point* is not a *small customer load*;

(iv) the *connection point*~~*load*~~ is not a *market connection point* for~~*market load* that is~~ a *scheduled load*;

(v) the *Demand Response Service Provider* has the consent of the *retail customer* at the *connection point* to provide *wholesale demand response* by means of that *connection point*~~*load*~~;

(vi) the *Demand Response Service Provider* has arrangements for the provision of *wholesale demand response* by means of that *connection point* ~~*load*~~; and

(vii) the *connection point* has a type 1, 2, 3, or 4 *metering installation*; and

(2) a ~~*load*~~ *connection point* is a *small customer load* if a *retail customer* at the~~a~~ *connection point*, or any *connection point* associated with the *connection point* ~~for the *load*~~ (including any *child connection point*):

(i) is or would be a *small customer* in relation to premises delivered electrical power at the *connection point*; and

(ii) the *retail customer* has not entered into an agreement with its retailer in accordance with rule 5(2)(a) of the *National Energy Retail Rules* to aggregate the premises referred to in subparagraph (2)(i) with other premises.

Note

Only a business customer within the meaning of the *National Energy Retail Law* can enter into an agreement with its *retailer* in accordance with rule 5(2)(a) of the *National Energy Retail Rules*.

2.3A [Deleted]~~Small Generation Aggregator~~

~~2.3A.1 Registration~~

~~(a) A person who intends to supply electricity from one or more *small generating units* to a *transmission system* or *distribution system* may, upon application for registration by that person in accordance with rule 2.9, be registered by *AEMO* as a *Small Generation Aggregator*.~~

~~(b) To be eligible for registration as a *Small Generation Aggregator*, a person must satisfy *AEMO* that the person intends to classify, within a reasonable amount of time, one or more *small generating units* each as a *market generating unit*, with each *market generating unit* having a separate *connection point*.~~

~~(c) A person must not engage in the activity of selling electricity directly to the *market* at any *connection point*, unless that person is registered by *AEMO* as a *Market Participant* and that *connection point* is classified as one of that person's *market connection points*.~~

~~(d) A person must not classify a *small generating unit* as a *market generating unit* for electricity supplied from any *connection point* unless the person satisfies the requirements of the *participating jurisdiction* in which the *connection point* is situated so that (subject to compliance with the *Rules*) the person is permitted to supply electricity in the *spot market* in relation to that *connection point*.~~

~~(e) A *Market Small Generation Aggregator* must classify each *small generating unit* from which it proposes to supply electricity as a *market generating unit*, with each *market generating unit* having a separate *connection point*.~~

~~(f) A *Market Small Generation Aggregator's* activities only relate to *small generating units* it has classified as *market generating units*, and only while it is also registered with *AEMO* as a *Small Generation Aggregator*.~~

~~(g) A *Market Small Generation Aggregator* must sell all *sent out generation* through the *spot market* and accept payments from *AEMO* for all *sent out generation* at the *spot price* applicable at the *connection point* for which it is *financially responsible* as determined for each *trading interval* in accordance with the provisions of Chapter 3.~~

~~**Note**~~

~~This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

~~(h) A *Market Small Generation Aggregator* must purchase all electricity *supplied* through the *national grid* to the *Market Small Generation Aggregator* at that *connection point* from the *spot market* and make payments to *AEMO* for such electricity *supplied* at the *connection point* for which it is *financially responsible* as determined for each *trading interval* in accordance with the provisions of Chapter 3.~~

~~**Note**~~

~~This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)~~

2.3B [Deleted]~~Demand Response Service Provider~~

~~2.3B.1 Registration~~

~~(a) A person must not engage in the activity of offering and providing *wholesale demand response* or *market ancillary services* in accordance with Chapter 3 as a *Demand Response Service Provider* unless that person is registered by *AEMO* as a *Demand Response Service Provider*.~~

~~(b) To be eligible for registration as a *Demand Response Service Provider*, a person must obtain the approval of *AEMO* to classify a *load* as an *ancillary service load* in accordance with clause 2.3.5 or as a *wholesale demand response unit* in accordance with clause 2.3.6.~~

~~(c) A *Demand Response Service Provider's* activities only relate to *loads* it has classified (in its capacity as a *Demand Response Service Provider*) as *ancillary service loads* or as *wholesale demand response units*, and only while it is also registered with *AEMO* as a *Demand Response Service Provider*.~~

2.3C [Not used]

2.3D Ancillary Service Units and Ancillary Service Providers

2.3D.1 Classification of ancillary service units

(a) Subject to paragraph (b), if a:

(1) *Market Participant* in respect of *plant connected* at a *market connection point* for which it is the *financially responsible Market Participant*; or

(2) *Demand Response Service Provider* in respect of *plant connected* at a *market connection point*,

wishes to use the *plant* to provide *market ancillary services* in accordance with Chapter 3, the *Market Participant* must apply to *AEMO* for approval to classify the relevant *plant* as an *ancillary service unit*.

(b) *Plant* is not eligible for classification by a person as an *ancillary service unit* where:

(1) the *plant* is *connected* at a *connection point* that a different person has classified as a *wholesale demand response unit*;

(2) the *plant* is *connected* at a *market connection point* at which a different person has classified an *ancillary service unit*; or

(3) the person is a *Demand Response Service Provider* and the *plant* is a *scheduled load*.

(c) An application under paragraph (a) must be in the form prescribed by *AEMO* and must:

(1) specify the *market ancillary services* which the applicant wishes to provide using the relevant *plant*;

(2) identify the relevant *plant* at the *connection point* to be used by the applicant to provide *market ancillary services*; and

(3) demonstrate how the relevant *plant* identified in subparagraph (2) has the required capability to be used to provide *market ancillary services* in accordance with the *market ancillary service specification* and the other matters in paragraph (f).

(d) *AEMO* must, within 5 *business days* of receiving an application under paragraph (a), advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application:

(1) is incomplete; or

(2) contains information upon which *AEMO* requires clarification.

(e) If the applicant does not provide further information or clarification required pursuant to paragraph (d) to *AEMO's* satisfaction within 15 *business days* of the request, *AEMO* may, on notice to the applicant at any time after expiry of that period, elect to treat the application as withdrawn and the applicant will be taken to have withdrawn the application.

(f) If *AEMO* is reasonably satisfied that:

(1) the relevant *plant* is able to be used by the applicant to provide the *market ancillary services* referred to in the application in accordance with this clause 2.3D.1 and the *market ancillary service specification*;

(2) the applicant has adequate communication and/or telemetry to support the issuing of *dispatch instructions* and the audit of responses; and

(3) in the case of an application made by a *Market Customer* or *Demand Response Service Provider*, the applicant has an arrangement with the *retail customer* at the relevant *connection point* for the supply of *market ancillary services*,

AEMO must approve the classification of the *ancillary service unit* in respect of the particular *market ancillary services*.

(g) If *AEMO* approves the classification of *plant* as an *ancillary service unit*, *AEMO* may impose on the relevant applicant such terms and conditions as *AEMO* considers necessary to ensure that the provisions of the *Rules* applying to *market ancillary services* can be met.

(h) A *Market Participant* is taken to be an *Ancillary Service Provider* only in so far as its activities relate to *plant* it has classified as an *ancillary service unit*.

2.3D.2 Ancillary Service Providers

(a) An *Ancillary Service Provider* must comply with any terms and conditions imposed by *AEMO* under clause 2.3D.1(g).

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.3D.2(a) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(b) An *Ancillary Service Provider* must ensure that the *market ancillary services* provided using the relevant *ancillary service unit* are provided in accordance with the *central dispatch* process and in accordance with the *market ancillary service specification*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.3D.2(b) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(c) An *Ancillary Service Provider* with an *ancillary service unit* must only sell the *market ancillary services* produced using that *ancillary service unit* in accordance with Chapter 3.

[For information purposes only - Note

The AEMC proposes to recommend that clause 2.3D.2(c) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(d) An *Ancillary Service Provider* is not entitled to receive payment from *AEMO* for *market ancillary services* except where those *market ancillary services* are produced using an *ancillary service unit* in accordance with Chapter 3 or pursuant to a *direction* or *clause 4.8.9 instruction*.

(e) A *Market Participant* must immediately notify *AEMO* if *plant* it has classified as an *ancillary service unit* ceases to meet the requirements for classification under clause 2.3D.1.

2.4 Market Participant

2.4.1 Registration as a category of Market Participant

(a) A *Market Participant* is a person ~~registered by *AEMO* as~~ in any one or more of the following categories:

(1) *Market Generator*;

(2) *Integrated Resource Provider* (other than a *Non-Market Integrated Resource Provider)*;

(3) *Market Customer*;

(4) *Demand Response Service Provider*;

(5) *Market Network Service Provider*.

~~(1) *Market Customer*;~~

~~(1A) *Market Small Generation Aggregator*;~~

~~(1B) *Demand Response Service Provider*;~~

~~(2) *Market Generator*;~~

~~(3) *Market Network Service Provider*.~~

(b) **[Deleted]** ~~A *Market Participant* may only participate in the *market* in the category in which it has been registered.~~

(c) A *Market Participant* may only participate in any of the *markets* or trading activities conducted by *AEMO* if that *Market Participant* satisfies the relevant *prudential requirements* set out in Chapter 3 applicable to the relevant trading activity.

2.4.2 Eligibility

To be eligible to be registered as any category of *Market Participant*, a person must:

(a) satisfy *AEMO* that it is and will be able to satisfy the *prudential requirements* as set out in rule 3.3 applicable to all *Market Participants* and those applicable to the relevant category of *Market Participant* in which that person wishes to participate in the *market*, taking into account the classifications intended by the applicant and notified at the time of registration;

(b) [**Deleted**]; ~~satisfy *AEMO* that it meets any relevant requirements imposed under relevant *jurisdictional electricity legislation*;~~

(c) also be registered as a *Network Service Provider*, for registration as a *Market Network Service Provider*;~~satisfy *AEMO* that it is also registered:~~

~~(1) as a *Generator*, for registration as a *Market Generator*;~~

~~(2) as a *Customer*, for registration as a *Market Customer*;~~

~~(2A) as a *Small Generation Aggregator*, for registration as a *Market Small Generation Aggregator*; or~~

~~(3) as a *Network Service Provider*, for registration as a *Market Network Service Provider*;~~

(d) satisfy *AEMO* that it is complying and will comply with other relevant obligations set out in the *Rules*, taking into account the classifications intended by the applicant and notified at the time of registration; and

(e) pay the prescribed fees determined in accordance with rule 2.11.

2.4A Metering Coordinator

2.4A.2 Eligibility

(a) To be eligible for registration as a *Metering Coordinator*, a person must:

(1) subject to paragraph (b), not be a *Market Customer*;

(2) satisfy *AEMO* that it is complying with and will comply with the *Rules* and the procedures authorised under the *Rules*;

(3) in respect of a *Metering Coordinator* who is appointed, or is proposed to be appointed, as *Metering Coordinator* at a *small customer metering installation*, have appropriate processes in place to determine that a person seeking access to a service listed in the *minimum services specification* is an *access party* in respect of that service;

(4) subject to paragraph (c), ensure that there is an appropriate security control management strategy and associated infrastructure and communications systems for the purposes of preventing unauthorised local access or remote access to *metering installations*, services provided by *metering installations* and *energy data* held in *metering installations*;

(5) have insurance as considered appropriate by *AEMO*; and

(6) pay the prescribed fees determined in accordance with rule 2.11.

(b) Clause 2.4A.1(c) and subparagraph (a)(1) do not apply to:

(1) a person who is only appointed, or is proposed to be only appointed, as *Metering Coordinator* in respect of one or more *connection points* or proposed *connection points* on a *transmission network*; or

(2) a *Generator* or *Integrated Resource Provider* who is only appointed, or is proposed to be only appointed, as *Metering Coordinator* in respect of one or more *connection points* or proposed *connection points* that *connect* a *Generator's* or *Integrated Resource Provider's* *generating unit* or *bidirectional unit* to a *distribution network* (excluding, to avoid

doubt, any *small resource connection point* classified by an *Integrated Resource Provider* in its capacity as a *Small Resource Aggregator*).

(c) Subparagraph (a)(4) does not apply to a *Generator* or *Integrated Resource Provider* who is only appointed, or is proposed to be only appointed, as *Metering Coordinator* in respect of one or more *connection points* or proposed *connection points* that *connect* a *Generator's* or *Integrated Resource Provider's* *generating unit* or *bidirectional unit* to a *distribution network*.

2.5 Network Service Provider

2.5.3 Scheduled Network Service

(a) All *market network services* must be classified as *scheduled network services*.

(b) A *network service* must not be classified as a *scheduled network service* unless it is also a *market network service*.

(c) A *Network Service Provider* is taken to be a *Scheduled Network Service Provider* only in so far as its activities relate to the provision of *scheduled network services*.

(d) *AEMO* may impose on a *Scheduled Network Service Provider* such terms and conditions as *AEMO* considers necessary to ensure that the provisions of the *Rules* applying to *scheduled network services* can be met.

(e) A *Scheduled Network Service Provider*:

(1) must comply with any terms and conditions imposed by *AEMO* under clause 2.5.3(d);

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) must ensure that the *scheduled network services* are provided in accordance with the ~~co-ordinated~~ *central dispatch* process ~~operated by *AEMO* under the provisions of Chapter 3~~;

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(3) must ensure that *AEMO* is notified of the availability of the *scheduled network services* in accordance with the provisions of Chapter 3; and

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(4) must submit to *AEMO* a schedule of *dispatch bids*~~*dispatch offers*~~ for the *scheduled network services* in accordance with the provisions of Chapter 3.

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

2.7 Intention to Commence Activities or Functions

(a) Any person intending to act in any *Registered Participant* category may, on application for registration by that person in accordance with rule 2.9, be registered by *AEMO* as an *Intending Participant* if that person can reasonably satisfy *AEMO* that it intends to carry out an activity in respect of which it must or may be registered as a *Registered Participant*.

(b) *AEMO*:

(1) may from time to time require a person registered by *AEMO* as an *Intending Participant* to satisfy *AEMO* that it continues to meet the criteria for registration in clause 2.7(a) (the **registration criteria**); and

(2) must, no less than annually and by no later than 1 October of the relevant year, conduct a review of the registration status of *Intending Participants* to determine if they continue to meet the registration criteria.

(b1) If an *Intending Participant* is unable to satisfy *AEMO* that it continues to meet the registration criteria then it will cease to be registered as an *Intending Participant* on the date specified by *AEMO* by written notice to the *Intending Participant* concerned.

(c) An *Intending Participant* is taken to be an *Intending Participant* only in so far as its activities relate to its intention to commence an activity in respect of which it must or may be registered as a *Registered Participant*.

(d) As a *Registered Participant*, an *Intending Participant* may exercise such rights and is bound by such obligations under the *Rules* as are specified by *AEMO* (on the basis of whether the *Intending Participant* intends to become a *Customer*, *Generator*, *Integrated Resource Provider*, *Network Service Provider* or *Special Participant*) and approved by the *AEMC*.

2.8 Registered Participant Rights and Obligations

2.8.1 Rights and obligations

(a) A *Registered Participant* must not act in any one of the categories listed in rules 2.1A~~2.2~~ to 2.7 unless the *Registered Participant* is registered by *AEMO* in that category in accordance with the requirements of the *Rules*.

(a1) A *Registered Participant* must comply with the provisions of the *Rules* applicable to that *Registered Participant*.

(b) A *Registered Participant* may act in more than one of the categories described in rules 2.1A~~2.2~~ to 2.7 provided that the *Registered Participant* is registered by *AEMO* in relation to each of the relevant *Registered Participant* categories.

2.9 Application to be Registered as a Registered Participant

2.9.1 Applications for Registration

(a) Applications to be registered in any category of *Registered Participant* must be submitted to *AEMO* in the form prescribed by *AEMO*.

(b) *AEMO* must, within 5 *business days* of receiving an application, advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application:

(1) is incomplete; or

(2) contains information upon which *AEMO* requires clarification.

(c) If the further information or clarification required pursuant to clause 2.9.1(b) is not provided to *AEMO's* satisfaction within 15 *business days* of the request, *AEMO* may, on notice to the applicant at any time after expiry of that period, elect to treat the application as withdrawn and the person will be deemed to have withdrawn the application.

2.9.2 Registration as a Registered Participant

(a) In this clause 2.9.2:

receiving date means the later date of *AEMO* receiving:

(1) an application for registration referred to in clause 2.9.1;

(2) further information or clarification referred to in clause 2.9.1(b); or

(3) in relation to an application for registration as a *Generator* or *Integrated Resource Provider*, the information requested under clause S5.2.4(b).

(b) *AEMO* must, within 15 *business days* of the receiving date, determine that an applicant is to be registered in the category of *Registered Participant* applied for if *AEMO* is reasonably satisfied that:

(1) the applicant meets the eligibility requirements specified for the category of *Registered Participant* to which the application relates;

(2) if the application relates to registration in one of the categories of *Market Participant*, the applicant is and will be able to fulfil the applicable financial obligations under Chapter 3 of the *Rules*; and

(3) the applicant has demonstrated an ability to comply with the *Rules*.

(c) If *AEMO* determines that an applicant does not satisfy the requirements referred to in paragraph (b), *AEMO* must determine that the applicant is not qualified to be registered as a *Registered Participant* in the relevant category and provide reasons for that determination.

2.9.3 Registration as an Intermediary

(a) A person (the "*applicant*") who is required to be registered under the *NEL* or under the *Rules* as a *Generator*, *Integrated Resource Provider* or a *Network Service Provider* may apply to *AEMO* or the *AER*, as applicable, ~~respectively~~ for an exemption from that requirement to register.

(b) *AEMO* or the *AER* (as the case may be) must allow that exemption if:

(1) the applicant notifies *AEMO* or the *AER* (as the case may be) of the identity of a person (an "*intermediary*") to be registered instead of the applicant;

(2) the applicant provides *AEMO* or the *AER* (as the case may be) with the written consent of the *intermediary* to act as *intermediary* in a form reasonably acceptable to *AEMO* or the *AER*; and

(3) **[Deleted]**

(4) *AEMO* or the *AER* (as the case may be) notifies the applicant that it approves of the *intermediary*.

(c) *AEMO* or the *AER* (as the case may be) must approve an *intermediary* if the applicant establishes to *AEMO's* reasonable satisfaction that, from a technical perspective, the *intermediary* can be treated for the purpose of the *Rules* as the applicant with respect to the relevant *generating system*, *integrated resource system*, *distribution system* or *transmission system* with which the applicant is associated.

(d) If the exemption is granted by *AEMO* or the *AER* (as the case may be) then:

(1) provided the *intermediary* satisfies all relevant registration requirements that the applicant would have been required to satisfy, *AEMO* must register the *intermediary* as a *Registered Participant* as if it were the applicant;

(2) the *intermediary* will be considered for the purposes of the *Rules* to be the applicant;

(3) all references in the *Rules* to the applicant will be deemed to be references to the *intermediary* (unless the context requires otherwise);

(4) all acts, omissions, statements, representations and notices of the *intermediary* in its capacity as a *Registered Participant* under the *Rules* will be deemed to be the acts, omissions, statements, representations and notices of the applicant;

(5) the *intermediary* and the applicant will be jointly and severally liable for the acts, omissions, statements, representations and notices of the *intermediary* in its capacity as a *Registered Participant* under the *Rules*; and

(6) *AEMO* or any other *Registered Participant* may fulfil any obligations to the applicant under the *Rules* by performing them in favour of the *intermediary*.

(e) The applicant may revoke the appointment of the *intermediary* by giving notice of such revocation to *AEMO*, whereupon *AEMO* must advise the *AER* that such notice has been given.

(f) At 4.30 am, 2 *business days* after *AEMO* receives notice of such revocation, the *intermediary* will cease to be considered the applicant's *intermediary* for the purposes of the *Rules* and the applicant will not be liable under clause 2.9.3(d)(5) for any acts, omissions, statements, representations or notices of the *intermediary* occurring after that time.

(g) If the applicant revokes the appointment of an *intermediary*, the exemption granted by *AEMO* or the *AER* (as the case may be) to the applicant as

contemplated by clause 2.9.3(b) ceases at the time the *intermediary* ceases to be the applicant's *intermediary* in accordance with clause 2.9.3(f).

(h) The applicant may notify *AEMO* or the *AER* (as the case may be) that the *intermediary* is the applicant's *intermediary* for part only of the applicant's business (provided that that part represents one or more discrete *generating systems*, *integrated resource systems*, *distribution systems* or *transmission systems*).

(i) Nothing in the *Rules* requires the *intermediary* to be the agent of the applicant.

2.9A Transfer of Registration to another person

2.9A.2 Applications for Transfer of Registration

(a) If a Transferor wishes to transfer its registration to the Transferee, then the Transferor and Transferee must apply to *AEMO* for approval to do so.

(b) An application under clause 2.9A.2(a) must be submitted to *AEMO* by the Transferor and Transferee in the form prescribed by *AEMO*.

(c) *AEMO* must, within 5 *business days* of receiving an application under clause 2.9A.2(a), advise the Transferor and Transferee of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application:

(1) is incomplete; or

(2) contains information upon which *AEMO* requires clarification.

(d) If the further information or clarification required pursuant to clause 2.9A.2(c) is not provided to *AEMO's* satisfaction within 15 *business days* of the request, then *AEMO* may, on notice to the Transferor and Transferee at any time after expiry of that period, elect to treat the application as withdrawn and the Transferor and Transferee will be deemed to have withdrawn the application.

2.9B Transfer to Integrated Resource Provider ~~and reclassification~~

(a) A person registered as a *Generator* in respect of a *generating system* for which all *generating units* are at the time of application classified in accordance with this Chapter may apply to *AEMO* to change its registration category to *Integrated Resource Provider* in respect of the *generating system*.

(b) A person registered as a *Customer* may apply to *AEMO* to change its registration category to *Integrated Resource Provider* in respect of all its *market connection points*.

(c) An application under paragraph (a) or (b) must be submitted to *AEMO* in the form prescribed by *AEMO*.

(d) *AEMO* must, within 5 *business days* of receiving an application under this rule, advise the applicant of any further information or clarification which is required in support of its application if, in *AEMO's* reasonable opinion, the application is incomplete or contains information upon which *AEMO* requires clarification.

(e) If the further information or clarification required pursuant to paragraph (d) is not provided to *AEMO's* satisfaction within 15 *business days* of the request,

AEMO may, on notice to the applicant at any time after expiry of that period, elect to treat the application as withdrawn and the applicant will be taken to have withdrawn the application.

(f) *AEMO* must, within 15 *business days* of receiving an application under this rule (or where applicable, the further information or clarification requested by *AEMO* under this rule), determine to change the applicant's registration category if *AEMO* is reasonably satisfied that:

(1) where the applicant is a *Generator*, the applicant meets the eligibility requirements for registration as an *Integrated Resource Provider* in clause 2.1B.2(b); and

(2) where the applicant is a *Customer*, the applicant will at the time of the change satisfy applicable requirements referred to in clause 2.3.1A in relation to its *market connection points*.

(g) If *AEMO* determines that an applicant does not satisfy the requirements referred to in paragraph (f), *AEMO* must determine that the applicant is not qualified to be registered as a *Registered Participant* in the relevant category and provide reasons for that determination.

(h) A change of registration category does not affect any rights or liabilities of a *Registered Participant* or *AEMO* arising, or in respect of any period, prior to the change taking effect.

2.10 Ceasing to be a Registered Participant

2.10.1 Notification of intention

(a) A person:

(1) may notify *AEMO* in writing that it wishes to cease to be registered in any category of *Registered Participant* or that it wishes to terminate any of its classifications of ~~loads,~~ *generating units* or *bidirectional units* (other than a *generating unit* or *bidirectional unit* specified in subparagraph (2)), other *plant* or *network services*; and

(2) who is a *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator*~~,~~ or *Scheduled Integrated Resource Provider* must notify *AEMO* in writing if it wishes to terminate any of its classifications of *generating units* or *bidirectional units*.

(b) A person is not entitled to notify *AEMO* that it wishes to cease to be registered in relation to any category for which that person is required to be registered under the *NEL* or under the *Rules*.

(c) In any notice given under subparagraph (a)(1), the *Registered Participant* must specify a date upon which it wishes to cease to be so registered or for an existing classification to be terminated and, in the case of a *Market Participant*, the date upon which it will cease to *supply* or acquire electricity or trade directly in the *market* and whether entirely or in relation to one or more *connection points* or *market network services*.

(c1) In any notice given under subparagraph (a)(2), the *Registered Participant*:

(1) must specify a date (the *closure date*) by which:

(i) the classification of the *generating unit* or *bidirectional unit* will be terminated; and

(ii) it will cease to *supply* or acquire electricity or trade directly in the *market* whether entirely or in relation to one or more *connection points*; and

~~(i) for a *Non-Market Generator*, by which the classification of the *generating unit* will be terminated; and~~

~~(ii) for a *Market Generator*, by which:~~

~~(A) the classification of the *generating unit* will be terminated; and~~

~~(B) it will cease to supply electricity or trade directly in the *market* whether entirely or in relation to one or more *connection points*; and~~

(2) must provide an updated notice to *AEMO* under subparagraph (a)(2) of any amendments to the *closure date*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c2) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator*~~'s~~ or *Scheduled Integrated Resource Provider* must not specify a ~~first notified~~ *closure date* for a *generating unit* or *bidirectional unit* that is~~must be no~~ earlier than 42 months from the date of the notice given under subparagraph (a)(2), except where the relevant *Generator* or *Integrated Resource Provider* has applied for, and is granted an exemption by the *AER* under paragraph (c4).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c3) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator*~~'s~~ or *Scheduled Integrated Resource Provider* giving ~~amended *closure date* for a *generating unit* provided in~~ a notice to *AEMO* under subparagraph (c1)(2) (**amended notice**):

(1) may specify an amended *closure date* ~~be a date~~ that is later than the most recent *closure date* provided to *AEMO* under paragraph (a)(2); and

(2) must not specify an amended *closure date* ~~be a date~~ that is earlier than the most recent *closure date* provided to *AEMO* under paragraph (a)(2) except where:

(i) the amended *closure date* is no earlier than 42 months from the date the amended notice is provided to *AEMO*; or

(ii) the *Generator* or *Integrated Resource Provider* has applied for, and is granted, an exemption by the *AER* under paragraph (c4).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c4) The *AER* may, in accordance with guidelines issued from time to time by the *AER*, exempt any *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* from the requirement to provide the *closure date* in accordance with paragraph (c2) and (c3).

(c5) The *AER*, in accordance with the *Rules consultation procedures*:

(1) must develop and *publish* guidelines referred to in paragraph (c4) that include:

(i) the information to be provided by a *Generator* or *Integrated Resource Provider* to the *AER* when requesting an exemption; and

(ii) procedures for handling requests for exemption received from *Generators* or *Integrated Resource Providers*; and

(2) may amend these guidelines from time to time.

(c6) The *AER* may make minor and administrative amendments to the guidelines under clause (c5) without complying with the *Rules consultation procedures*.

(d) *AEMO* may reject a notice from a *Market Customer* that it wishes to terminate its classification of a *connection point* as one of its *market connection points*~~*market loads*~~ or otherwise cease to be a *Market Customer* in relation to any of its *market connection points*~~*market loads*~~ unless *AEMO* is satisfied that:

(1) another person has classified the *connection point* as one of its *market connection points*~~*market loads*~~ and is registered as a *Market Customer*;

(2) the relevant *Local Retailer* has agreed or is otherwise required by laws of the relevant *participating jurisdiction* to assume responsibility for payments to *AEMO* for electricity *supplied* to that *connection point*; or

(3) the *load* at that *connection point* will be *disconnected* on and from the date specified and, taking into consideration any relevant guidelines and procedures specified by the relevant *participating jurisdiction* to *AEMO*, that *disconnection* is not inappropriate.

(d1) *AEMO* may reject a notice from a *Small Resource Aggregator* ~~a *Market Small Generation Aggregator* which states~~ that it wishes to terminate its classification of a *small resource connection point* as one of its *market connection points*~~*small generating unit* as a *market generating unit*, or otherwise cease to be a *Market Small Generation Aggregator* in relation to any of its *market generating units*~~ unless *AEMO* is satisfied that:

(1) another person has classified the *small resource connection point* as one of its *market connection points*~~*small generating unit* as one of its *market generating units* and that person is registered as a *Small Generation Aggregator* and a *Market Small Generation Aggregator*~~;

(2) the relevant *Local Retailer* has agreed or is otherwise required by laws of the relevant *participating jurisdiction* to assume responsibility for

payments with *AEMO* for electricity *supplied* to or from the *small resource connection point*~~*connection points* of the *market generating units*~~; or

(3) the *small generating unit* or *small bidirectional unit* at that *small resource connection point* ~~*connection point*~~ will be *disconnected* on and from the date specified in the notice, and, after having regard to any relevant guidelines and procedures specified by the relevant *participating jurisdictions* to *AEMO*, *disconnection* is appropriate.

(e) Upon receiving a notice which complies with clause 2.10.1 from a person who wishes to cease to be registered in any category of *Market Participant*, or to terminate the classification of any of its *market connection points*~~*market loads*~~, *market generating units*, *market bidirectional units* or *market network services*, *AEMO* must deliver a notice to the *AER* and the *AEMC* and notify all *Registered Participants* stating that:

(1) *AEMO* has received a notice under clause 2.10.1(a); and

(2) the person who gave the notice has stated that, from the date specified in the notice, the person intends to cease *supplying* or acquiring electricity or trading directly in the *market* and whether entirely or in relation to certain *connection points* or *market network services*.

(f) If a *Market Customer* that is a *retailer* gives a notice under this clause, *AEMO* must, before deciding whether to reject the notice under paragraph (d), consult with the *AER*.

2.12 Interpretation of rReferences to various entities~~Various Registered Participants~~

(a) A person may register in more than one of the categories of *Registered Participant*.

(b) Notwithstanding anything else in the *Rules*, a reference to:

(1) a "*Generator*" applies to a person registered as a *Generator* only in so far as it is applicable to matters connected with the person's *scheduled generating units*, *semi-scheduled generating units*, *non-scheduled generating units*, *market generating units* or *non-market generating units*;

~~(1A) a "*Small Generation Aggregator*" applies to a person registered as a "*Small Generation Aggregator*" only in so far as it is applicable to matters connected with the person's *small generating units* or *market generating units*;~~

(1A) a "*Small Resource Aggregator*" applies to a person registered as an *Integrated Resource Provider* only in so far as it is applicable to matters connected with the person's *small resource connection points* classified under clause 2.2.8(a);

(1B) a "*Demand Response Service Provider*" applies to a person registered as a "*Demand Response Service Provider*" only in so far as it is applicable to matters connected with the person's *ancillary service units* ~~*ancillary service load*~~ or *wholesale demand response units*;

(2) a "*Scheduled Generator*", "*Semi-Scheduled Generator*", "*Non-Scheduled Generator*", "*Market Generator*" or "*Non-Market Generator*" applies to a person only in so far as it is applicable to matters connected with the person's *scheduled generating units*, *semi-scheduled generating units*, *non-scheduled generating units*, *market generating units* or *non-market generating units* respectively;

(2A) a "*Scheduled Integrated Resource Provider*", "*Non-Scheduled Integrated Resource Provider*" or "*Non-Market Integrated Resource Provider*" applies to a person only in so far as it is applicable to matters connected with the person's *scheduled bidirectional units*, *non-scheduled bidirectional units* or *non-market bidirectional units*, respectively;

(3) a "*Customer*" applies to a person registered as a *Customer* only in so far as it is applicable to matters connected with *connection points* the person has classified (in its capacity as a *Customer*) as *market connection points* or its activities as a *RoLR*~~*matters* connected with the person's *first-tier loads*, *second-tier loads* or *market loads*~~;

(3A) an "*Ancillary Service Provider*" applies to a person only in so far as it is applicable to matters connected with the person's *ancillary service units*;

(4) a ~~"*First Tier Customer*", "*Second Tier Customer*" or~~ "*Market Customer*" applies to a *Customer* or *Integrated Resource Provider* ~~person~~ only in so far as it is applicable to matters connected with the person's *market connection points* classified under clause 2.3.4(b) or (i) ~~*first-tier loads*, *second-tier loads* or *market loads* respectively~~;

(4A) a "*Trader*" applies to a person only in so far as it is applicable to matters connected with the person's activities as a *Trader*;

(4B) a "*Reallocator*" applies to a person only in so far as it is applicable to matters connected with the person's activities as a *Reallocator*;

(5) subject to clause 2.5.1A(f), a "*Network Service Provider*" applies to a person registered as a *Network Service Provider* only in so far as it is applicable to matters connected with the person's *network services*, including *market network services* and *scheduled network services*;

(6) a "*Market Network Service Provider*" or "*Scheduled Network Service Provider*" applies to a person only in so far as it is applicable to matters connected with the person's *market network services* or *scheduled network services* respectively;

(7) a "*Market Participant*" applies to a person who is a *Market Participant* and:

(i) where the person is a *Market Generator*, *Integrated Resource Provider*, *Market Customer* or *Demand Response Service Provider*, in so far as it is applicable to its *market connection points* or *plant* it has classified under this Chapter;

~~(i) where that person is registered as a *Market Generator*, in so far as it is applicable to matters connected with the person's *market generating units* or *ancillary services generating units*; and~~

(i1) [**Deleted**];~~where that person is registered as a *Market Small Generation Aggregator*, in so far as it is applicable to matters connected with the person's *market generating units*; and~~

(i2) [**Deleted**];~~where that person is registered as a *Demand Response Service Provider*, in so far as it is applicable to matters connected with the person's *ancillary service load* or *wholesale demand response unit*; and~~

(ii) [**Deleted**];~~where that person is registered as a *Market Customer*, in so far as it is applicable to matters connected with the person's *market loads* or *market ancillary service loads*; and~~

(iii) where that person is registered as a *Market Network Service Provider*, in so far as it is applicable to matters connected with the person's *market network services*; and

(iv) where that person is registered in any category of *Market Participant* additional to a *Market Generator*, *Integrated Resource Provider*, and/or a *Market Customer* and/or a *Market Network Service Provider*, to the extent to which the reference would otherwise apply to the person if it were not taken to be a *Market Generator*, *Integrated Resource Provider*, *Market Customer* or *Market Network Service Provider*; and

(8) a "*Registered Participant*" applies to a person who is registered under Chapter 2 and:

(i) where the person is registered as a *Generator*, *Integrated Resource Provider*, *Customer* or *Demand Response Service Provider*, in so far as it is applicable to its *market connection points* or *plant* it has classified under this Chapter; and

~~(i) where that person is registered as a *Generator*, in so far as it is applicable to matters connected with any of the *Generator's scheduled generating units*, *semi-scheduled generating units*, *non-scheduled generating units*, *market generating units* and *non-market generating units*;~~

(ii) [**Deleted**];~~where that person is registered as a *Customer*, in so far as it is applicable to matters connected with any of the *Customer's first-tier loads*, *second-tier loads* or *market loads*; and~~

(iii) where that person is registered in any other *Registered Participant* category, to the extent to which the reference would apply to the person if it were not registered in another *Registered Participant* category.

(c) In rule 2.12, "*matter*" includes any assets, liabilities, acts, omissions or operations (whether past, present or future).

CHAPTER 3

3. Market Rules

3.2 AEMO's Market Responsibilities

3.2.2 Spot market

AEMO must do all things necessary to operate and administer a *spot market* for the sale and purchase of electricity and *market ancillary services* in accordance with this Chapter including:

(a) ~~the provision of facilities for the receipt and processing of *dispatch bids*, *dispatch offers* and *market ancillary service offers* for the *spot market*;~~the provision of facilities for the receipt and processing of *dispatch bids* and *market ancillary service bids* for the *spot market*;

(b) the management of a centralised national *dispatch* process, including the publication of *pre-dispatch schedules* and *spot price forecasts*;

(c) the determination and publication of a *regional reference price* for each *region* for each *trading interval*;

(c1) [**Deleted**]

(d) the compilation and publication of *spot market* trading statistics;

(e) the identification of *regions* and *regional reference nodes* for *spot price* and *ancillary service price* determination;

(f) the determination and publication of *inter-regional loss factors* and *intra-regional loss factors*;

(g) the suspension of the *spot market* under conditions prescribed in rule 3.14; and

(h) the collection and dissemination of information necessary to enable the *market* to operate efficiently.

3.3 Prudential Requirements

3.3.14 Potential value of a transaction

At any time, the *potential value* of a *transaction*, or of any bid ~~or offer~~ by a *Market Participant* to effect a *transaction*, under which the *trading amount* payable to *AEMO* is determined by reference to one or more specified *regional reference prices* or *ancillary service prices*, is the dollar amount determined by this procedure:

(a) the *transaction* is first tested to determine the *trading amount* which would result for the *Market Participant* if the *regional reference price* or *ancillary service price* applicable to the *transaction* was equal to the *scheduled high price*;

(b) the *transaction* is then tested to determine the *trading amount* which would result for the *Market Participant* if the *regional reference price* or *ancillary service price* applicable to the *transaction* was equal to the *scheduled low price*;

(c) if the *trading amount* resulting for both tests is a positive amount or zero, then the *potential value* of the *transaction* is zero;

(d) if the *trading amount* resulting for either test is a negative amount, then the *potential value* of the *transaction* is the absolute value of the negative amount (or, where both tests produce a negative amount, the *potential value* of the *transaction* is the absolute value of the most negative amount).

3.3.16 Limitation on entry of transactions

(a) A *Market Participant* must not submit any bid ~~or offer~~ to effect any *transaction* with *AEMO* where the *potential value* of that *transaction*, plus the *potential value* of all other *uncompleted transactions*, exceeds the *trading margin* for the *Market Participant*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) A *transaction* is an *uncompleted transaction* if some or all of the *trading intervals* to which that *transaction* relates have not yet occurred.

3.6 Network Losses and Constraints

3.6.1 Inter-regional losses

(a) *Inter-regional losses* are *electrical energy losses* due to a notional transfer of electricity through *regulated interconnectors* from the *regional reference node* in one *region* to the *regional reference node* in an adjacent *region*.

(b) *Inter-regional loss factors*:

(1) describe the *marginal electrical energy losses* for electricity transmitted through *regulated interconnectors* from a *regional reference node* in one *region* to the *regional reference node* in an adjacent *region* for a particular time period and a defined range of operating conditions;

(2) to apply between each pair of adjacent *regional reference nodes* are to be determined as part of the *central dispatch* process using *inter-regional loss factor* equations derived in accordance with the methodology determined by *AEMO* pursuant to clause 3.6.1(c); and

(3) are to be used in the *central dispatch* process as a notional adjustment to relate the *regional reference prices* in adjacent *regions* so as to reflect the cost of *inter-regional losses*.

(c) *AEMO* must determine, *publish* and maintain, in accordance with the *Rules consultation procedures*, a methodology for the determination of *inter-regional loss factor* equations for a *financial year*, describing *inter-regional loss factors* between each pair of adjacent *regional reference nodes* in terms of significant variables.

(d) In preparing the methodology for the determination of *inter-regional loss factor* equations referred to in clause 3.6.1(c), *AEMO* must implement the following principles:

(1) *Inter-regional loss factor* equations are to apply for a *financial year*.

(2) *Inter-regional loss factor* equations must be suitable for use in *central dispatch*.

(3) *Inter-regional loss factors* are determined as part of the *central dispatch* process using *inter-regional loss factor* equations. The *inter-regional loss factors* must:

(i) as closely as is reasonably practicable, describe the *marginal electrical energy losses* for electricity transmitted through the relevant *regulated interconnector* between the 2 relevant *regional reference nodes* in adjacent *regions* for each *trading interval* of the *financial year* in respect of which the relevant *inter-regional loss factor* equations apply; and

(ii) ~~aim to minimise the impact on the *central dispatch* process of *generation* and *scheduled load* as compared to the *dispatch* of *generation* and *scheduled load* which would result from a fully optimised dispatch process taking into account the effect of losses.~~aim to minimise the impact on *dispatch* of *scheduled resources* as compared to the *dispatch* of *scheduled resources* which would result from a fully optimised *central dispatch* process taking into account the effect of losses.

~~(4) *Inter-regional loss factor* equations are determined using forecast *load* and *generation* data and, if required, modelled *load* and *generation* data for the *financial year* in which the *inter-regional loss factor* equations are to apply. The forecast *load* and *generation* data and modelled *load* and *generation* data, if any, used must be that *load* and *generation* data prepared by *AEMO* pursuant to clause 3.6.2A.~~

(4) *Inter-regional loss factor* equations are determined using:

(i) forecast *load* and *generation* data; and

(ii) if required, modelled *load* and *generation* data,

prepared by *AEMO* pursuant to clause 3.6.2A for the *financial year* in which the *inter-regional loss factor* equations are to apply.

(5) *Inter-regional loss factor* equations are determined by using the *load* and *generation* data referred to in clause 3.6.1(d)(4) to determine:

(i) the variables which have a significant effect on the *marginal electrical energy losses* for electricity transmitted through each *regulated interconnector* for both directions of flow on those *regulated interconnectors*; and

(ii) the parameters that represent the relationship between each of those variables and the *marginal electrical energy losses*.

(e) *AEMO* must determine the *inter-regional loss factor* equations used to calculate *inter-regional loss factors* in each *financial year* in accordance with the methodology prepared and *published* by *AEMO* under clause 3.6.1(c).

(f) *AEMO* must *publish* the *inter-regional loss factor* equations determined under clause 3.6.1(e) by 1 April prior to the *financial year* in which they are to apply.

3.6.2 Intra-regional losses

(a) *Intra-regional losses* are *electrical energy losses* that occur due to the transfer of electricity between a *regional reference node* and *transmission network connection points* in the same *region*.

(b) *Intra-regional loss factors*:

(1) notionally describe the *marginal electrical energy losses* for electricity transmitted between a *regional reference node* and a *transmission network connection point* in the same *region* for a defined time period and associated set of operating conditions;

(2) will be either:

(i) two *intra-regional loss factors* where *AEMO* determines, in accordance with the methodology determined under clause 3.6.2(d), that one *intra-regional loss factor* does not, as closely as is reasonably practicable, describe the average of the *marginal electrical energy losses* for electricity transmitted between a *transmission network connection point* and the *regional reference node* for the *active energy* generation and consumption at that *transmission network connection point*; or

(ii) one static *intra-regional loss factor* in all other circumstances;

(2A) must be determined in accordance with the methodology determined by *AEMO* under clause 3.6.2(d) for each *transmission network connection point*;

(2B) apply for a *financial year*; and

(3) may, with the agreement of the *AER*, be averaged over an adjacent group of *transmission network connection points* within a single *region*. If averaging is used, the relevant *transmission network connection points* will be collectively defined as a *virtual transmission node* with a *loss factor* calculated as the volume weighted average of the *intra-regional loss factors* of the constituent *transmission network connection points*.

(b1) If *AEMO* determines two *intra-regional loss factors* for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* must apply the *intra-regional loss factors* in *central dispatch* and *spot market transactions* in accordance with the procedure determined by *AEMO* under clause 3.6.2(d1).

(c) An *intra-regional loss factor* is to be used as a price multiplier that can be applied to the *regional reference price* to determine the *spot price* at each *transmission network connection point* and *virtual transmission node*.

(d) *AEMO* must determine, *publish* and maintain, in accordance with *Rules consultation procedures*, a methodology for the determination of *intra-regional loss factors* to apply for a *financial year* for each *transmission network connection point*.

(d1) *AEMO* must determine, *publish* and maintain, in consultation with *Registered Participants*, a procedure that includes a description of the manner in which *AEMO* will, if two *intra-regional loss factors* apply to a *transmission network*

connection point, apply two *intra-regional loss factors* in *central dispatch* and *spot market transactions*. The procedure determined under this paragraph (d1) must describe how *AEMO* will identify and measure the *generation* and *load* at each *transmission network connection point* and apply the relevant *intra-regional loss factor* against that *generation* or *load*.

(e) In preparing the methodology referred to in clause 3.6.2(d), *AEMO* must implement the following principles:

(1) *Intra-regional loss factors* are to apply for a *financial year*.

(2) An *intra-regional loss factor* must, as closely as is reasonably practicable, describe the average of the *marginal electrical energy losses* for electricity transmitted between a *transmission network connection point* and the *regional reference node* in the same *region* for each *trading interval* of the *financial year* in which the *intra-regional loss factor* applies.

(2A) ~~*Intra-regional loss factors* must aim to minimise the impact on the *central dispatch* process of *generation* and *scheduled load* compared to that which would result from a fully optimised dispatch process taking into account the effect of losses.~~*Intra-regional loss factors* must aim to minimise the impact on the *dispatch* of *scheduled resources* as compared to the *dispatch* of *scheduled resources* which would result from a fully optimised *central dispatch* process taking into account the effect of losses.

(3) An *intra-regional loss factor* is to be determined using forecast *load* and *generation* data prepared by *AEMO* pursuant to clause 3.6.2A for the *financial year* in which the *intra-regional loss factor* is to apply.~~Forecast *load* and *generation* data for the *financial year* for which the *intra-regional loss factor* is to apply must be used. The forecast *load* and *generation* data used must be that *load* and *generation* data prepared by *AEMO* pursuant to clause 3.6.2A.~~

(4) The *load* and *generation* data referred to in clause 3.6.2(e)(3) must be used to determine *marginal loss factors* for each *transmission network connection point* for the *financial year* to which the ~~*load* and *generation*~~ data relates.

(5) An *intra-regional loss factor* for a *transmission network connection point* is determined using a volume weighted average of the *marginal loss factors* for the *transmission network connection point*.

(f) *AEMO* must calculate *intra-regional loss factors* for each *transmission network connection point* for each *financial year* in accordance with the methodology prepared and published by *AEMO* under clause 3.6.2(d).

(f1) By 1 April in each year, *AEMO* must *publish* the *intra-regional loss factors* revised under clause 3.6.2(f) and to apply for the next *financial year*.

(g) *AEMO* must, in accordance with the *Rules consultation procedures*, determine, *publish* and maintain the methodology which is to apply to the calculation of average *intra-regional loss factors*, determined in accordance with clause 3.6.2(b)(3), for each *virtual transmission node* proposed by a *Distribution Network Service Provider*.

(h) As soon as practicable after the *publication* of the methodology referred to in clause 3.6.2(g), and thereafter by 1 April in each year, *AEMO* must calculate and *publish* the *intra-regional loss factors* for each *virtual transmission node*, determined in accordance with clause 3.6.2(b)(3), that are to apply for the next *financial year*.

(i) Notwithstanding clauses 3.6.2(a) to (f1), *AEMO* must:

(1) determine an *intra-regional loss factor* in the *financial year* in which an *intra-regional loss factor* is to apply for a *transmission network connection point* which is established in that *financial year* in accordance with the procedure for establishing *connection* set out in rule 5.3, provided that *AEMO* did not determine an *intra-regional loss factor* for the *transmission network connection point* pursuant to clause 3.6.2(f1) in the *financial year* preceding that in which the *connection point* is established; or

(2) revise an *intra-regional loss factor* in the *financial year* in which an *intra-regional loss factor* is to apply for a *transmission network connection point* which is modified in that *financial year* in accordance with the procedure for modifying *connection* set out in rule 5.3, provided that, in *AEMO's* reasonable opinion, the modification to that *connection point* results in a material change in the capacity of the *connection point*.

(j) *AEMO* must, where required to determine an *intra-regional loss factor* for an established or modified *transmission network connection point* under clause 3.6.2(i), do so as far as practicable in accordance with the methodology *published* by *AEMO* pursuant to clause 3.6.2(d).

(k) For the purposes of clause 3.6.2(j), the forecast *load* and *generation* data used to calculate an *intra-regional loss factor* for the *transmission network connection point* must be determined using the forecast *load* and *generation* data determined by *AEMO* under clause 3.6.2A for other *transmission network connection points* in the same *region* for that *financial year* adjusted to take into account the effect of the established or modified *connection point*. Notwithstanding this clause 3.6.2(k), *Registered Participants* must comply with their obligations with respect to the provision of information to *AEMO*, for the purpose of determining new or revised *intra-regional loss factors* for *connection points* that are established or modified during the *financial year* in which the *intra-regional loss factors* are to apply, specified by the methodology developed and *published* by *AEMO* under clause 3.6.2A.

(l) In the case of a *connection point* that is established in the *financial year* in which an *intra-regional loss factor* is to apply:

(1) an *intra-regional loss factor* determined by *AEMO* in accordance with clause 3.6.2(i) will apply from the time an *intra-regional loss factor* is determined and *published* by *AEMO*; and

(2) *AEMO* must use reasonable endeavours to determine and *publish* an *intra-regional loss factor* at least 45 *business days* prior to the commencement of operation of the established *connection point*, where the relevant *Registered Participants* comply with any applicable

requirements and deadlines for the provision of information to *AEMO* specified by the methodology *published* by *AEMO* under clause 3.6.2A.

(m) In the case of a *connection point* that is modified in the *financial year* in which an *intra-regional loss factor* is to apply:

(1) an *intra-regional loss factor* determined by *AEMO* in accordance with clause 3.6.2(i) will apply from the date when the modification to the *connection point* takes effect; and

(2) *AEMO* must use reasonable endeavours to *publish* an *intra-regional loss factor* at least 45 *business days* prior to the date when the modification to the *connection point* takes effect, where the relevant *Registered Participants* comply with any applicable requirements and deadlines for the provision of information to *AEMO* specified by the methodology *published* by *AEMO* under clause 3.6.2A.

(n) For the avoidance of doubt, where *AEMO* determines an *intra-regional loss factor* for a *transmission network connection point* under clause 3.6.2(i), which is to apply in the *financial year* in which the *transmission network connection point* is established or modified, the *intra-regional loss factors* for all other *transmission network connection points* for that *financial year*, determined in accordance with clauses 3.6.2(a) to (g), must remain unchanged.

3.6.2A Load and generation data used to determine inter-regional loss factor equations and intra-regional loss factors

(a) *AEMO* must prepare *load* and *generation* data for each *financial year* to be used in both the determination of *inter-regional loss factor* equations under clause 3.6.1 and *intra-regional loss factors* under clause 3.6.2 in accordance with the methodology determined, *published* and maintained by *AEMO* for this purpose, under clause 3.6.2A(b).

(b) *AEMO* must determine, *publish* and maintain, in accordance with the *Rules consultation procedures*, a methodology for:

(1) forecasting the *load* and *generation* data to be used in both the determination of *inter-regional loss factor* equations and *intra-regional loss factors*, including new or revised *intra-regional loss factors* for *connection points* that are established or modified, respectively, during the *financial year* in which the *intra-regional loss factors* are to apply;

(2) modelling additional *load* and *generation* data, where required, to be used in determining *inter-regional loss factor* equations; and

(3) the collection of relevant data from *Registered Participants*, including without limitation deadlines for the provision of that data by *Registered Participants*.

(c) The methodology developed and *published* by *AEMO* under clause 3.6.2A(b) must specify information reasonably required by *AEMO* to fulfil its obligations under clause 3.6.2A, including without limitation historic *load* and *generation* data, forecast *energy* and *maximum demand* data for a *connection point* and *load* forecast data for any new *connection points*~~*loads*~~. In particular, the methodology must specify information to be provided by

Registered Participants that is in addition to the information provided by those *Registered Participants* under other provisions of the *Rules*.

(d) In preparing the methodology for forecasting and modelling *load* and *generation* data under clause 3.6.2A(b), *AEMO* must implement the following principles:

(1) The forecast *load* and *generation* data must be representative of expected *load* and *generation* in the *financial year* in which the *inter-regional loss factor* equations or *intra-regional loss factors* are to apply having regard to:

(i) actual *load* and *generation* data available for a 12 month period defined by the methodology with the objective to use the most recent *load* and *generation* data practicable;

(ii) projected ~~*load* growth~~ changes in *load* between each calendar month to which the actual *load* and *generation* data referred to in clause 3.6.2A(d)(1)(i) relates and the same calendar month in the *financial year* for which the forecast *load* and *generation* data is determined; and

(iii) the projected *network* configuration and projected *network* performance for the *financial year* in which the *inter-regional loss factor* equation or *intra-regional loss factor*, as the case may be, is to apply.

(2) Additional modelled *load* and *generation* data sets must only be used:

(i) in the determination of *inter-regional loss factor* equations under clause 3.6.1; and

(ii) where the range of forecast *load* and *generation* data is not sufficient to derive *inter-regional loss factor* equations to apply over the full range of transfer capability of the *regulated interconnector*.

(e) *Registered Participants* must comply with the obligations to provide information set out in the methodology developed and *published* by *AEMO* under this clause 3.6.2A, including the deadlines for the provision of that information and any other obligations with respect to the provision of that information set out in the methodology.

3.6.3 Distribution losses

(a) *Distribution losses* are *electrical energy losses* incurred in the conveyance of electricity over a *distribution network*.

(b) *Distribution loss factors*:

(1) notionally describe the *average electrical energy losses* for electricity transmitted on a *distribution network* between a *distribution network connection point* and a *transmission network connection point* or *virtual transmission node* for the financial year in which they apply;

(2) will be either:

(i) a site specific *distribution loss factor* derived in accordance with the methodology determined by the *AER* or the *Distribution Network Service Provider* pursuant to clause 3.6.3(h), for each *distribution network connection point* of the following types:

(A) a *connection point* for ~~*an embedded generating unit*~~ *a distribution connected unit* with actual *generation* of more than 10MW, based on the most recent data available for a consecutive 12 month period at the time of determining the *distribution loss factor*. Where relevant data is not available for a consecutive 12 month period as a *distribution network connection point* is newly established or has been modified, a *Network Service Provider* may determine whether ~~*an embedded generating unit*~~ *a distribution connected unit* has *generation* of more than 10MW, based on its best projection of *generation* in the *financial year* in which the *distribution loss factor* is to apply, taking into account the terms of the relevant *connection agreement*;

(B) a *connection point* for an end-user with actual or forecast ~~*load*~~ annual consumption of electricity of more than 40GWh or ~~an electrical demand~~actual or forecast *maximum demand* of more than 10MW, based on the most recent data available for a consecutive 12 month period at the time of determining the *distribution loss factor*. Where relevant data is not available for a consecutive 12 month period as a *distribution network connection point* is newly established or has been modified, a *Network Service Provider* may determine whether an end-user has ~~*load*~~ forecast annual consumption of electricity of more than 40GWh or forecast *maximum demand* ~~*peak load*~~ of more than 10MW, based on its best projection of *load* in the *financial year* in which the *distribution loss factor* is to apply, taking into account the terms of the relevant *connection agreement*;

(C) a *connection point* for a *Market Network Service Provider*; and

(D) a *connection point* between two or more *distribution networks*; or

(ii) derived, in accordance with the methodology determined by the *AER* or the *Distribution Network Service Provider* pursuant to clause 3.6.3(h), using the volume weighted average of the *average electrical energy loss* between the *transmission network connection point* or *virtual transmission node* to which it is assigned and each *distribution network connection point* in the relevant *voltage* class (determined in accordance with clause 3.6.3(d)(2)) assigned to that *transmission network connection point* or *virtual transmission node*, for all *connection points* on a *distribution network* not of a type described in clause 3.6.3(b)(2)(i);

Note

This subparagraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(3) are to be used in the settlement process as a notional adjustment to the electrical *energy*, expressed in MWh, flowing at a *distribution network connection point* in a *trading interval* to determine the *adjusted gross energy* amount for that *connection point* in that *trading interval*, in accordance with clause 3.15.4.

Note

This subparagraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) Where a *Generator*, ~~or a *Small Generation Aggregator*~~*Integrated Resource Provider* or *Small Resource Aggregator*~~,~~ meets the reasonable cost of the *Distribution Network Service Provider* in performing the necessary calculation in respect of a *distribution connected unit* ~~*generating unit*~~ of actual or forecast annual production of electricity of up to 40GWh or *rated active power* of up to 10MW~~of up to 10MW or 40GWh per annum capacity~~, the *Distribution Network Service Provider* must calculate a site specific *distribution loss factor* that, notwithstanding any other provision of the *Rules* to the contrary, for the purposes of the *Rules* is to apply in respect of that ~~*generating unit*~~ *distribution connected unit* as though the *distribution connected unit* were a unit of more than 10MW *rated active power* or more than 40GWh annual production~~on the same basis as applies for a *generating unit* of more than 10MW or 40GWh per annum capacity as though the *generating unit* were a unit of more than 10MW or 40GWh per annum capacity~~.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) Each *Distribution Network Service Provider* must assign each *connection point* on its *distribution network*, of a type described in clause 3.6.3(b)(2)(i), to a single *transmission network connection point* taking into account normal *network* configurations and predominant *load* flows.

(d) Each *Distribution Network Service Provider* must assign each *connection point* on its *distribution network*, not of a type described in clause 3.6.3(b)(2)(i):

(1) where practicable, to a single *transmission network connection point* or otherwise, to a *virtual transmission node*, taking into account normal network configurations and predominant *load* flows; and

(2) to a class of *distribution network connection points* based on the location of, *voltage* of and pattern of electrical *energy* flows at the *distribution network connection point*.

(e) So far as practicable, the assignment of *connection points* on the *distribution network* to:

(1) *transmission network connection points* under clause 3.6.3(c); or

(2) *transmission network connection points* or *virtual transmission nodes* and a class of *distribution network connection points* under clause 3.6.3(d),

must be consistent with the geographic boundaries of the *pricing zones* for use in *distribution service* pricing, and the *voltage* levels incorporated within those *pricing zones*.

(f) The assignment of *connection points* on a *distribution network*:

(1) to a single *transmission network connection point* under clause 3.6.3(c); or

Note

This subparagraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) to a *transmission network connection point* or *virtual transmission node* and a class of *distribution network connection points* under clause 3.6.3(d),

is subject to the approval of the *AER* and the *Distribution Network Service Provider* must inform *AEMO* of such approved assignments.

(g) *Distribution loss factors* must be determined by a *Distribution Network Service Provider* for all *connection points* on its *distribution network* either individually, for all connection points assigned to a single *transmission network connection point* under clause 3.6.3(c), or collectively, for all *connection points* assigned to a *transmission network connection point* or a *virtual transmission node* and a particular *distribution network connection point* class under clause 3.6.3(d), in accordance with:

(1) the methodology developed, *published* and maintained by the *AER* for the determination of *distribution loss factors*; or

(2) where the *AER* has not *published* a methodology under clause 3.6.3(g)(1), the methodology developed, *published* and maintained by the *Distribution Network Service Provider* for the determination of *distribution loss factors*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) The methodology for the determination of *distribution loss factors* referred to in clause 3.6.3(g) must be developed having regard to the following principles:

(1) The aggregate of the *adjusted gross energy* amounts for a *distribution network*, determined in accordance with clause 3.15.4 using the *distribution loss factors* for the *financial year* in which the *distribution loss factors* are to apply should equal, as closely as is reasonably practicable, the sum of:

(i) the amount of electrical *energy*, expressed in MWh, flowing at all *connection points* in the *distribution network* in the *financial year* in which the *distribution loss factors* are to apply; and

(ii) the total *electrical energy losses* incurred on the *distribution network* in the *financial year* in which the *distribution loss factors* are to apply.

(2) The methodology used to determine *distribution loss factors* for a *financial year* should incorporate provisions requiring a *Distribution Network Service Provider* to undertake a reconciliation between the aggregate of the *adjusted gross energy* amounts for its *distribution network* for the previous *financial year* determined in accordance with clause 3.15.4 using the *distribution loss factors* that applied for *connection points* in that *distribution network* in the previous *financial year* and the sum of:

(i) the amount of electrical *energy*, expressed in MWh flowing, at all *connection points* in its *distribution network* in the previous *financial year*; and

(ii) the total *electrical energy losses* incurred on its *distribution network* in the previous *financial year*.

(3) The *distribution loss factor* for a *distribution network connection point*, other than those described in clause 3.6.3(b)(2)(i), is determined using a volume weighted average of the *average electrical energy loss* between the *transmission network connection point* or *virtual transmission node* to which it is assigned and each *distribution network connection point* in the relevant class of *distribution network connection points* assigned to that *transmission network connection point* or *virtual transmission node* for the *financial year* in which the *distribution loss factor* is to apply.

(4) The *distribution loss factor* for a *distribution network connection point* described in clause 3.6.3(b)(2)(i) is determined using the *average electrical energy loss* between the *distribution network connection point* and the *transmission network connection point* to which it is assigned in the *financial year* in which the *distribution loss factor* is to apply.

(5) In determining the *average electrical energy losses* referred to in clauses 3.6.3(h)(3) and (4), the *Distribution Network Service Provider* must use the most recent actual *load* and *generation* data available for a consecutive 12 month period but may adjust this *load* and *generation* data to take into account projected ~~*load* and / or *generation* growth~~ changes in *load* and/or *generation* in the *financial year* in which the *distribution loss factors* are to apply.

(6) In determining *distribution loss factors*, flows in *network elements* that solely or principally provide *market network services* will be treated as invariant, as the methodology is not seeking to calculate the *marginal losses* within such *network elements*.

(i) Each year the *Distribution Network Service Provider* must determine the *distribution loss factors* to apply in the next *financial year* in accordance with clause 3.6.3(g) and provide these to *AEMO* for *publication* by 1 April. Before providing the *distribution loss factors* to *AEMO* for *publication*, the *Distribution Network Service Provider* must obtain the approval of the *AER* for the *distribution loss factors* it has determined for the next *financial year*.

3.6.4 Network constraints

(a) Conveyance of electricity between *regions* through a *regulated interconnector* is *constrained* when for operational reasons it is not acceptable for the *regulated interconnector* to transfer the level of electricity between *regions* that would be transferred if the limitation was removed and the condition impacts on the *dispatch* of other *regulated interconnectors* or *scheduled resources*~~, *generation*, *scheduled network services* or *loads*~~.

(a1) Conveyance of electricity between *regions* by means of a *scheduled network service* is *constrained* when the *dispatch* of the relevant *scheduled network service* is limited by the notified *available capacity* or *ramp rate* and the limitation impacts on the *dispatch* of ~~*generation*,~~ *regulated interconnectors* or *scheduled resources*~~, other *scheduled network services* or *loads*~~.

(b) Conveyance of electricity within a *region* is *constrained* when for operational reasons it is not acceptable for a *network* to transfer the level of electricity between different parts of the *region* that would be transferred if the limitation was removed and the condition impacts on the *dispatch* of ~~*generation*, *scheduled network services* or *loads*~~*scheduled resources*.

(c) For every *trading interval AEMO* must record any *constraints* including a description and the duration of the *constraint*.

(d) Any *constraints* which occur within a *region* or between *regions* must be taken into account in the *dispatch* process under clause 3.8.10.

3.6.5 Settlements residue due to network losses and constraints

Definitions

(a0) In this clause 3.6.5:

importing region means the *region* to which electricity is transferred during the relevant *trading interval* from another *region* through *regulated interconnectors*.

(a) *Settlements residue* will be allocated, and distributed or recovered by *AEMO* in accordance with the following principles:

(1) full effect is to be given to the *jurisdictional derogations* contained in Chapter 9 relating to *settlements residue*;

(2) the portion of the *settlements residue* attributable to *regulated interconnectors* (as adjusted to take into account the effect of any applicable *jurisdictional derogations* referred to in subparagraph (1) will be distributed or recovered in accordance with rule 3.18;

(3) the remaining *settlements residue*, including the portion of *settlements residue* due to *intra-regional loss factors*, will be distributed to or

recovered from the appropriate *Transmission Network Service Providers* (which will not include *Market Network Service Providers*);

(3A) **[Deleted]**

(4) if the *settlements residue* arising in respect of a *trading interval*, after taking into account any relevant adjustment in accordance with clauses 5.7.7(aa)(3) or (ab), is a negative amount then, in respect of the *billing period* in which the negative *settlements residue* arises ~~then~~:

(i) *AEMO* must recover the amount from the appropriate *Transmission Network Service Provider* at a payment time, interval, and by a method, determined by *AEMO* following consultation with *Transmission Network Service Providers*. *AEMO* may determine that the appropriate *Transmission Network Service Provider* is to pay the negative *settlements residue* amount by a date prior to the date for payment of *final statements* under clause 3.15.16;

(ii) the appropriate *Transmission Network Service Provider* must pay the negative *settlements residue* amount in accordance with *AEMO's* determination under subparagraph (4)(i);

(4A) if interest costs are incurred by *AEMO* in relation to any unrecovered negative *settlements residue* amount referred to in subparagraph (4), then, in respect of the *billing period* in which the negative *settlements residue* arises ~~then~~:

(i) *AEMO* must recover the interest costs from the appropriate *Transmission Network Service Provider* at a payment time, interval, and by a method, determined by *AEMO* following consultation with *Transmission Network Service Providers*. *AEMO* may determine that the appropriate *Transmission Network Service Provider* is to pay the interest cost amount by a date prior to the date for payment of *final statements* under clause 3.15.16; and

(ii) the appropriate *Transmission Network Service Provider* must pay the interest cost amount in accordance with *AEMO's* determination under subparagraph (4A)(i);

(4B) for the purposes of subparagraphs (3), (4) and (4A), the appropriate *Transmission Network Service Provider* is:

(i) in the case of *inter-regional settlements residue*:

(A) if there is more than one *Transmission Network Service Provider* in the importing region, the *Co-ordinating Network Service Provider*; or

(B) if there is no *Co-ordinating Network Service Provider* in the importing region, the *Transmission Network Service Provider* to which a *transmission determination* currently applies in that *region*;

(ii) in the case of *intra-regional settlements residue*:

(A) if there is more than one *Transmission Network Service Provider* in the *region*, the *Co-ordinating Network Service Provider*; or

(B) if there is no *Co-ordinating Network Service Provider* in the *region*, the *Transmission Network Service Provider* to which a *transmission determination* currently applies in that *region*;

(4C) **[Deleted]**

(4D) **[Deleted]**

(5) **[Deleted]**

(6) any portion of *settlements residue* distributed to a *Network Service Provider* or amount paid on that portion under clause 3.15.10A (if any), or rule 3.18 to a *Network Service Provider*, including any such payments as adjusted by a *routine revised statement* or *special revised statement* issued under rule 3.15, net of any portion of *settlements residue* recovered from the *Network Service Provider* in accordance with clause 3.6.5(a)(4), will be used to offset *network service* charges.

(b) A *Transmission Network Service Provider* or its jurisdictional delegate is a *Market Participant* for the purposes of clause 3.3.1 and rule 3.15 (excluding clause 3.15.1(b)) but not otherwise.

(c) In relation to *settlements residue* that accrue on *designated network assets*, the *Primary Transmission Network Service Provider* will calculate the relevant amounts to be distributed to or recovered from the owners of *designated network assets* in accordance with clause 3.6.2B(f).

3.7 Projected Assessment of System Adequacy

3.7.1 Administration of PASA

(a) *AEMO* must administer medium term and short term *projected assessment of system adequacy processes* to be known as *PASA*.

(b) The *PASA* is a comprehensive program of information collection, analysis, and disclosure of medium term and short term *power system security* and reliability of *supply* prospects so that *Registered Participants* are properly informed to enable them to make decisions about *supply*, demand and *outages* of *transmission networks* in respect of periods up to 2 years in advance (or up to 3 years in advance, where specified).

(c) On a weekly basis *AEMO* must:

(1) collect and analyse information from all *Scheduled Generators*, *Scheduled Integrated Resource Providers*, *Market Customers*, *Transmission Network Service Providers* and *Market Network Service Providers* about their intentions for:

(i) ~~*generation*, *transmission* and *market network service*~~*plant* maintenance scheduling;

(ii) intended *plant* availabilities;

(iii) *energy constraints*;

(iv) other *plant* conditions which could materially impact upon *power system security* and reliability of *supply*; and

(v) significant changes to *load* forecasts previously notified to *AEMO*,

for the following 24 months in respect of subparagraphs (i), (iii), (iv) and (v), and for the following 36 months in respect of subparagraph (ii);

(2) prepare the *unconstrained intermittent generation forecasts* for the following 24 months; and

(3) following analysis and assessment of the information referred to in subparagraphs (1) and (2), *publish* information that will inform the *market* regarding forecasts of *supply* and demand.

(d) *AEMO* must use its reasonable endeavours to ensure that it publishes sufficient information to allow the *market* to operate effectively with a minimal amount of intervention by *AEMO*.

3.7.2 Medium term PASA

(a) The *medium term PASA* covers the 24 month period (or, in the case of paragraphs (d)(1)(i) and (f)(5) the 36 month period), commencing from the Sunday after the *day* of publication with a daily resolution. Every week, *AEMO* must review and *publish* the outputs of the *medium term PASA* in accordance with the *timetable*.

(b) *AEMO* may publish additional updated versions of the *medium term PASA* in the event of changes which, in the judgment of *AEMO*, are materially significant.

(c) The following *medium term PASA inputs* are to be prepared by *AEMO*:

(1) forecast *load* information for each *region* which is:

(i) forecasts of the 10% probability of exceedence daily *peak load*, forecasts of the most probable daily *peak load* and forecasts of the time of the peak, on the basis of past trends, day type and special events, including all forecast *scheduled load* and other *load* except for ~~pumped storage *loads*~~*plant* classified as *scheduled load* in accordance with clause 2.3.4A(b) and *load* of *scheduled bidirectional units*;

(ii) subsequently to be adjusted by an amount anticipated in the forecast as ~~*scheduled load* by *load* bidders; and~~ the *dispatched load* of *scheduled bidirectional units* or *scheduled load*; and

(iii) an indicative half hourly *load* profile for each day type for each *region* for each month of the year;

(2) the capabilities of *generating units* or *bidirectional units* for which formal commitments have been made for construction or installation;

(3) forecast *network constraints* known to *AEMO* at the time;

(4) an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *day*.

(d) The following *medium term PASA inputs* must be submitted by each relevant ~~*Scheduled Generator or*~~ *Market Participant* in accordance with the *timetable* and must represent the ~~*Scheduled Generator's or*~~ *Market Participant's* current intentions and best estimates:

(1) *PASA availability* of each *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled load* or *scheduled network service* for each *day* taking into account the ambient weather conditions forecast at the time of the 10% probability of exceedence *peak load* (in the manner described in the procedure prepared under paragraph (h)):

(i) for a 36 month period in respect of each *scheduled generating unit* and *scheduled bidirectional unit*; and

(ii) for a 24 month period in respect of each *scheduled load* or *scheduled network service*; and

(2) weekly *energy constraints* applying to each *scheduled generating unit*, *scheduled bidirectional unit* or *scheduled load* for a 24 month period.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) *Network Service Providers* must provide to *AEMO* an outline of planned *network outages* in accordance with the *timetable* and provide to *AEMO* any other information on planned *network outages* that is reasonably requested by *AEMO* to assist *AEMO* to meet its obligations under paragraph (f)(6).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) *AEMO* must prepare and *publish* the following information in respect of each *day* (unless otherwise specified in subparagraphs (1) to (6)) covered by the *medium term PASA* in accordance with clause 3.13.4(a):

(1) forecasts of the 10% probability of exceedence *peak load*, and most probable *peak load*, excluding the relevant aggregated MW allowance referred to in subparagraph (2), and adjusted to make allowance for *scheduled loads* and the *load* of *scheduled bidirectional units*;

(1A) the maximum and minimum values of the forecasts of the 10% probability of exceedence *peak load* and the forecasts of the most probable *peak load*, prepared by *AEMO* in accordance with paragraph (c)(1);

(2) the aggregated MW allowance (if any) to be made by *AEMO* for *generation* from *non-scheduled generating systems* and *non-scheduled integrated resource systems* in each of the forecasts of the 10% probability of exceedence *peak load* and most probable *peak load* referred to in subparagraph (1);

(3) in respect of each of the forecasts of the 10% probability of exceedence *peak load* and most probable *peak load* referred to in subparagraph (1), a value that is the sum of that forecast and the relevant aggregated MW allowance referred to in subparagraph (2);

(4) forecasts of the most probable weekly *energy* for each *region*;

(5) for a 36 month period, aggregate *PASA availability* of *generating units* and *bidirectional units* to produce electricity for each *region* and *PASA availability* of each *scheduled generating unit* and *scheduled bidirectional unit;*~~for a 36 month period, aggregate *generating unit PASA availability* for each *region* and individual *scheduled generating unit PASA availability*;~~

(5A) aggregate capacity for each *region* that can be *generated* continuously, calculated by adding the following categories:

(i) the *generation* capacity of *scheduled generating units* and *scheduled bidirectional units* in the *region* that are able to operate at the *PASA availability*; and

(ii) the forecast *generation* of *semi-scheduled generating units* in the *region* as provided by the *unconstrained intermittent generation forecasts*;

(5B) aggregate electricity production capacity for each *region* that cannot be *generated* continuously at the *PASA availability* of the *scheduled generating units* or *scheduled bidirectional units* in the *region* due to specified weekly *energy constraints*;

(5C) the adjusted maximum and minimum aggregate *PASA availability* of *scheduled generating units* and *scheduled bidirectional units* for each *region* following adjustment for the inclusion of *Scheduled Generator* and *Scheduled Integrated Resource Provider* probabilistic forced outage information; and~~the adjusted maximum and minimum aggregate *scheduled generating unit PASA availability* for each *region* following adjustment for the inclusion of *Scheduled Generator* probabilistic forced outage information; and~~

(6) identification and quantification of:

(i) any projected *violations* of *power system security*;

(ii) any projected failure to meet the *reliability standard* as assessed in accordance with the *reliability standard implementation guidelines*;

(iii) **[Deleted]**

(iv) forecast *interconnector* transfer capabilities and the discrepancy between forecast *interconnector* transfer capabilities and the forecast capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only; and

(v) when and where *network constraints* may become binding on the *dispatch* of ~~*generation* or *load*~~*scheduled resources*.

(g) For the purpose of paragraph (f) (other than subparagraphs (f)(4) and (f)(6)), *AEMO* must *publish* forecast information in a format consistent with the format of the demand information published under clause 3.13.4(x).

(h) *AEMO* must publish the procedure it uses for preparation of the *medium term PASA*.

3.7.3 Short term PASA

(a) The *short term PASA* must be *published* at least daily by *AEMO* in accordance with the *timetable*.

(b) The *short term PASA* covers the period of six *trading days* starting from the end of the *trading day* covered by the most recently *published pre-dispatch schedule* with a *30-minute period* resolution.

(c) *AEMO* may *publish* additional updated versions of the *short term PASA* in the event of changes which, in the judgement of *AEMO*, are materially significant.

(d) The following *short term PASA inputs* are to be prepared by *AEMO*:

(1) forecast *load* information for each *region* which is to include:

(i) the 10% probability of exceedence half-hourly *load* and most probable half hourly *load* on the basis of past trends, day type, and special events; and

(ii) all *scheduled load* and other *load* (including *wholesale demand response units*) except for *plant* classified as *scheduled load* in accordance with clause 2.3.4A(b) and *load* of *scheduled bidirectional units*~~pumped storage *loads*~~,

which must subsequently be adjusted in accordance with *dispatch bids* for *scheduled load* and *dispatch bids* for *wholesale demand response units*;

(2) **[Deleted]**

(3) forecast *network constraints* known to *AEMO* at the time; and

(4) an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *30-minute period*.

(e) The following *short term PASA inputs* must be submitted by each relevant ~~*Scheduled Generator* and~~ *Market Participant* in accordance with the *timetable* and must represent the ~~*Scheduled Generator's* or~~ *Market Participant's* current intentions and best estimates:

(1) *available capacity* of each *scheduled generating unit*, *scheduled bidirectional unit*, *wholesale demand response unit*, *scheduled load* or *scheduled network service* for each *30-minute period* under expected *market* conditions;

(2) *PASA availability* of each *scheduled generating unit*, *scheduled bidirectional unit*, *wholesale demand response unit*, *scheduled load* or *scheduled network service* for each *30-minute period*;

(3) projected daily *wholesale demand response* availability for *wholesale demand response units* that are *wholesale demand response constrained*; and

(4) projected daily *energy* availability for *energy constrained scheduled generating units*, *energy constrained scheduled bidirectional units* and *energy constrained scheduled loads*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) If *AEMO* considers it reasonably necessary for adequate *power system* operation and the maintenance of *power system security* and reliability of *supply*, *Registered Participants* who may otherwise be exempted from providing inputs for the *PASA* must do so to the extent specified by *AEMO*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) *Network Service Providers* must provide to *AEMO* an outline of planned *network outages* in accordance with the *timetable* and provide to *AEMO* any other information on planned *network outages* that is reasonably requested by *AEMO* to assist *AEMO* to meet its obligations under clause 3.7.3(h)(5).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) *AEMO* must prepare and *publish* the following information for each *30-minute period* (unless otherwise specified in subparagraphs (1) to (5)) in the period covered by the *short term PASA* in accordance with clause 3.13.4(c):

(1) forecasts of the most probable *load* (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) plus *reserve* requirement (as determined under clause 3.7.3(d)(2)), adjusted to make allowance for *scheduled load*, and for *wholesale demand response units* for each *region*;

(2) forecasts of *load* (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region* with 10% and 90% probability of exceedence;

(3) forecasts of the most probable *energy* (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region* and *trading day*;

(4) aggregate ~~*generating unit*~~ availability of *generating units* and *bidirectional units* (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region*;

(4AA) aggregate electricity production capacity (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each

region, after allowing for the impact of *network constraints*, that can be *generated* continuously, calculated by adding the following categories:

(i) the *available capacity* of *scheduled generating units* and *scheduled bidirectional units* to produce electricity that are able to operate at the availability as notified to ~~AEMO~~ *AEMO* under paragraph (e)(1); and

(ii) the forecast *generation* of *semi-scheduled generating units* as provided by the *unconstrained intermittent generation forecasts*;

(4AB) aggregate capacity (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region*, after allowing for the impact of *network constraints*, that cannot be *generated* continuously at the *available capacity* referred to in subparagraph (4AA)(i) due to specified daily *energy constraints*;

(4A) aggregate ~~*generating unit*~~ *PASA availability* of *generating units* and *bidirectional units* to produce electricity (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region*;

(4B) the aggregated MW allowance (if any) to be made by *AEMO* for generation from *non-scheduled generating systems* and *non-scheduled integrated resource systems* in each forecast:

(i) of the most probable *load* referred to in clause 3.7.3(h)(1); and

(ii) referred to in clauses 3.7.3(h)(2), (3), (4), (4A), (4AA) and (4AB);

(4C) in respect of each forecast:

(i) of the most probable *load* referred to in clause 3.7.3(h)(1);

(ii) referred to in clauses 3.7.3(h)(2), (3), (4), (4A), (4AA) and (4AB),

a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.7.3(4B); and

(5) identification and quantification of:

(i) any projected *violations* of *power system security*;

(ii) any projected failure to meet the *reliability standard* as assessed in accordance with the *reliability standard implementation guidelines*;

(iii) **[Deleted]**

(iv) forecast *interconnector* transfer capabilities and the discrepancy between forecast *interconnector* transfer capabilities and the forecast capacity of the relevant *interconnector* in the absence of outages on the relevant *interconnector* only; and

(v) when and where *network constraints* may become binding on ~~the~~ *dispatch* ~~of *generation* or *load*~~.

(i) If in performing the *short term PASA AEMO* identifies any projected failure to meet the *reliability standard* in respect of a *region* as assessed in accordance with the *reliability standard implementation guidelines*, then

AEMO must use its reasonable endeavours to advise the *Jurisdictional System Security Coordinator* who represents a *participating jurisdiction* in that *region* of any potential requirements during such conditions to shed *sensitive loads*.

(j) *AEMO* must publish the procedure it uses for preparation of the *short term PASA*.

3.7B Unconstrained intermittent generation forecast

(a) *AEMO* must prepare a forecast of the *available capacity* of each *semi-scheduled generating unit* (to be known as an *unconstrained intermittent generation forecast*) in accordance with this rule 3.7B for the purposes of:

(1) the *PASA*;

(2) *dispatch*; and

(3) *pre-dispatch*.

(b) A *Semi-Scheduled Generator* must:

(1) submit to *AEMO*, in accordance with the *timetable*, the *plant availability* for each *semi-scheduled generating unit* for the purpose of paragraph (a) as soon as the *Semi-Scheduled Generator* becomes aware that the *plant availability* of the unit is at least 6MW below or above the *nameplate rating* of the unit; and

(2) where the *Semi-Scheduled Generator* has submitted *plant availability* in accordance with subparagraph (1), notify *AEMO* in accordance with the *timetable* as soon as the *Semi-Scheduled Generator* becomes aware of any changes to the *plant availability* of that *semi-scheduled generating unit* until such time as the *plant availability* of that *semi-scheduled generating unit* is no longer at least 6MW below or above the *nameplate rating* of the unit.

Note

This rule is classified as a civil penalty provision under the National Electricity (South Australia) Regulations.

(c) When preparing an *unconstrained intermittent generation forecast* for the purposes referred to in paragraph (a), *AEMO* must take into account:

(1) the maximum *generation* of the *semi-scheduled generating unit* provided by the *Semi-Scheduled Generator* as part of its ~~*bid and offer validation data*~~*bid validation data*;

(2) the *plant availability* of the *semi-scheduled generating unit* submitted by the *Semi-Scheduled Generator* under paragraph (b);

(3) the information obtained for the *semi-scheduled generating unit* from the *remote monitoring equipment* specified in clause S5.2.6.1;

(4) the forecasts of the energy available for input into the electrical power conversion process for each *semi-scheduled generating unit*;

(5) the *energy conversion model* for each *semi-scheduled generating unit*;

(6) the assumption that there are no *network constraints* otherwise affecting *supply* ~~the *generation*~~ from that *semi-scheduled generating unit*; and

(7) the timeframes of:

(i) *pre-dispatch*;

(ii) *dispatch*,

(iii) *medium term PASA*; and

(iv) *short term PASA*.

(d) *NEMMCO* must prepare the first *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* by 31 March 2009 and there must be an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* available at all times after that date.

3.7C Energy Adequacy Assessment Projection

Purpose of EAAP

(a) The purpose of the *EEAP* is to make available to *Market Participants* and other interested persons an analysis that quantifies the impact of *energy constraints* on *energy* availability over a 24 month period under a range of scenarios.

EAAP principles

(b) The *EAAP* must:

(1) cover a 24 month period; ;

(2) be *published* at least once in every 12 month period and more frequently if required under paragraph (d);

(3) provide a probabilistic assessment of projected *energy* availability for each *region*;

(4) provide projected *unserved energy* levels for each *region* with a monthly resolution;

(5) provide aggregated information on the adequacy of *energy* availability for each scenario that *AEMO* defines for the purposes of the *EAAP*, based on information received from *Registered Participants* and on anticipated *power system* constraints;

(6) take into account:

(A) where relevant, the information and *medium term PASA* inputs referred to in clauses 3.7.1 and 3.7.2;

(B) where relevant, the matters *AEMO* considers in, and for the purposes of, preparing the *Integrated System Plan*;

(C) *Generator Energy Limitation Frameworks* provided in accordance with paragraph (g), including *GELFs* that apply to more than one *scheduled generating unit* or *scheduled bidirectional unit* under clause 3.7C(k)(6) where those *GELFs*

adequately represent the relevant *scheduled generating units* or *scheduled bidirectional units*; and

(D) *GELF parameters* for each *GELF* which are provided in accordance with the *EAAP guidelines* and are updated in accordance with the *timetable*.

(c) *AEMO* must comply with the *EAAP principles* in preparing the *EAAP*.

Administration of EAAP

(d) *AEMO* must *publish* the *EAAP*:

(1) at least once in every 12 month period in accordance with the *timetable*; and

(2) as soon as practicable after becoming aware of any new information that may materially alter the most recently published *EAAP*.

(e) For the purposes of preparing the *EAAP*, a *Scheduled Generator* or *Scheduled Integrated Resource Provider* must provide *AEMO* with the following information in accordance with the *timetable*:

(1) updated *GELF parameters* for each *GELF* provided by it in accordance with paragraph (g); and

(2) other information that supplements the data provided under subparagraph (1) that is reasonably required by *AEMO* to study the scenarios defined in the *EAAP guidelines*.

(f) In considering whether information referred to in subparagraph (e)(2) is reasonably required, *AEMO* must have regard to the likely costs that may be incurred by the *Scheduled Generator* or *Scheduled Integrated Resource Provider* in preparing and providing that information compared to the likely benefits from the use of that information for the purposes of the *EAAP*.

Generator Energy Limitation Framework

(g) A *Scheduled Generator* or *Scheduled Integrated Resource Provider* must prepare and submit to *AEMO*, in accordance with the *EAAP guidelines* and for the purposes of the *EAAP*, a description of the *energy constraints* that affect the ability of each of its *scheduled generating units* or *scheduled bidirectional units* to produce~~generate~~ electricity (*GELF* or *Generator Energy Limitation Framework*). The *GELF* must be in a form that adequately represents that *scheduled generating unit* or *scheduled bidirectional unit* sufficient for *AEMO* to include the *GELF* in the *EAAP*.

(h) A *GELF* submitted under paragraph (g) must be supplemented by *GELF parameters* for that *GELF as* defined in the *EAAP guidelines*, and those parameters must be updated:

(1) at least every 12 months in accordance with the *timetable*; and

(2) in accordance with the *EAAP guidelines*, if *AEMO* is required to *publish* an *EAAP* under paragraph (d)(2).

(i) Without limiting paragraph (h), if a *Scheduled Generator* or *Scheduled Integrated Resource Provider* has submitted a *GELF* under paragraph (g) and there has been a material change to any of its *scheduled generating units* or

scheduled bidirectional units which has an impact on the *energy constraints* associated with that *GELF*, the *Scheduled Generator* or *Scheduled Integrated Resource Provider* must revise and re-submit the *GELF* in accordance with that paragraph.

(j) Subject to paragraph (r), a *GELF* or information provided in relation to a *GELF* to *AEMO* must be treated by *AEMO* as *confidential information*.

EAAP guidelines

(k) *AEMO* must develop and *publish* guidelines (the *EAAP guidelines*) that:

(1) define scenarios that *AEMO* must study in preparing the *EAAP*, including any scenarios that the *Reliability Panel* has identified for study for the purposes of preparing the *EAAP*;

(2) define modelling assumptions for the *EAAP*;

(3) define the components of a *GELF* that a *Scheduled Generator* or *Scheduled Integrated Resource Provider* must include in a *GELF* submitted under paragraph (g);

(4) provide detail on the forms of the *GELF* sufficient for a *Scheduled Generator* or *Scheduled Integrated Resource Provider* to meet the requirements of paragraph (g);

(5) define variable parameters specific to a *GELF* (*GELF parameters*) that are likely to have a material impact on the *GELF* and therefore the *EAAP*, and which may include, but are not limited to, parameters in relation to:

(i) hydro storage including pump storage;

(ii) thermal generation fuel;

(iii) cooling water availability; and

(iv) gas supply limitations;

(6) define circumstances where a *GELF* submitted under paragraph (g) can apply to a collection of *scheduled generating units* or *scheduled bidirectional units* that face common *energy constraints* due to their geographic location, access to fuel source or another similar reason;

(7) define the form of information to be submitted by each *Scheduled Generator* or *Scheduled Integrated Resource Provider* in accordance with paragraph (e);

(8) define arrangements for managing the confidentiality of information submitted to *AEMO* under this rule 3.7C; and

(9) specify when a *Scheduled Generator* or *Scheduled Integrated Resource Provider* is required to update a *GELF* under paragraph (h)(2).

(l) The scenarios that are defined for the purposes of subparagraph (k)(1) may include, but are not limited to:

(1) water conditions such as normal rainfall and drought;

(2) material restrictions on the supply of a significant fuel source;

(3) other limits on a fuel source for a major form of ~~generation~~electricity production; and

(4) any other scenario that *AEMO* reasonably considers will have a material impact on the *EAAP*.

(m) *AEMO* must comply with the *EAAP principles* in preparing the *EAAP guidelines*.

(n) *AEMO* must comply with the *EAAP guidelines* in preparing the *EAAP*.

(o) *AEMO* must develop and *publish* the *EAAP guidelines* in accordance with the *Rules consultation procedures*.

(p) **[Deleted]**

(q) *AEMO* may from time to time in accordance with the *Rules consultation procedures* amend or replace the *EAAP guidelines*.

Provision of information to Scheduled Generators and Scheduled Integrated Resource Providers

(r) *AEMO* must provide to each *Scheduled Generator* and *Scheduled Integrated Resource Provider*, based on the relevant *GELF*, an estimate of the total *energy* production of ~~the~~ its *scheduled generating units* or *scheduled bidirectional units* ~~of that *Scheduled Generator*~~ for the period of the *EAAP*.

Review

(s) **[Deleted]**.

3.7D Demand side participation information

Definitions

(a) In this rule:

contracted demand side participation means, in relation to a *Registered Participant*, a contractual arrangement under which a person and the *Registered Participant* agree to the adjustment of *non-scheduled load* or the provision of unscheduled generation in certain specified circumstances, or the provision of *wholesale demand response* by a *wholesale demand response unit*.

demand side participation information guidelines means the guidelines as made and amended by *AEMO* in accordance with paragraphs (e) to (i).

~~**unscheduled generation** means *generation* from a *generating system* connected to a *transmission system* or *distribution system* which is not a *scheduled generating system* or *semi-scheduled generating system*.~~**unscheduled generation** means *generation* from the following *plant connected* to a *transmission system* or *distribution system*:

(1) a *generating system* which is not a *scheduled generating system* or *semi-scheduled generating system*; and

(2) an *integrated resource system* which is not a *scheduled integrated resource system*.

Registered Participants to provide demand side participation information to AEMO

(b) A *Registered Participant* must provide to *AEMO* in accordance with the demand side participation information guidelines:

(1) *demand side participation information*; or

(2) if the *Registered Participant* has no *demand side participation information* to report in respect of the relevant period, a statement to that effect.

AEMO to report on demand side participation information

(c) *AEMO* must *publish*, no less than annually, an analysis of volumes and types of demand response reported under paragraph (b), which must include:

(1) information on the types of tariffs used by *Network Service Providers* to facilitate demand response and the proportion of *retail customers* on those tariffs; and

(2) an analysis of trends, including year-on-year changes, in the information reported under paragraph (b), in respect of each relevant category of *Registered Participant*.

(d) *AEMO* must *publish* details, no less than annually, on the extent to which, in general terms, *demand side participation information* received under this rule 3.7D has informed *AEMO's* development or use of *load* forecasts for the purposes of the exercise of its functions under the *Rules*.

Note

AEMO is required under clause 4.9.1(c) to take into account *demand side participation information* received under this rule 3.7D when developing *load* forecasts.

Demand side participation information guidelines

(e) *AEMO* must develop, maintain and *publish* guidelines that specify:

(1) the information *Registered Participants* must provide to *AEMO* in relation to:

(i) *contracted demand side participation*; and

(ii) to the extent not covered by subparagraph (1)(i), the adjustment of *non-scheduled load* or the provision of *unscheduled generation* in response to the demand for, or price of, electricity,

which may include, but is not limited to:

(iii) the circumstances under which *non-scheduled load* may be adjusted or *unscheduled generation* or *wholesale demand response* may be provided;

(iv) the location at which *non-scheduled load* may be adjusted or *unscheduled generation* or *wholesale demand response* may be provided;

(v) the quantity of *non-scheduled load* that may be adjusted or *unscheduled generation* or *wholesale demand response* that may be provided; and

(vi) historic or current information;

(2) when *Registered Participants* must provide and update *demand side participation information*;

(3) how *demand side participation information* is to be provided, including, for example:

(i) the format in which the information must be provided; and

(ii) any information *AEMO* requires to assess the accuracy of the information;

(4) *AEMO*'s methodology for assessing the accuracy of *demand side participation information* provided to it under this rule 3.7D;

(4A) the requirements for a statement under paragraph (b)(2), if a *Registered Participant* has no *demand side participation information* to report; and

(5) the manner and form in which *AEMO* will *publish* details, in accordance with paragraph (d), on the extent to which *demand side participation information* has informed its *load* forecasts.

(f) In developing and amending the demand side participation information guidelines, *AEMO* must:

(1) have regard to the reasonable costs of efficient compliance by *Registered Participants* with the guidelines compared to the likely benefits from the use of *demand side participation information* provided under this rule 3.7D in forecasting *load* for the purposes of the exercise of its functions under the *Rules*; and

(2) subject to paragraph (g), consult with:

(i) *Registered Participants*; and

(ii) such other persons who, in *AEMO's* reasonable opinion, have, or have identified themselves to *AEMO* as having, an interest in the demand side participation information guidelines,

in accordance with the *Rules consultation procedures*.

(g) *AEMO* is not required to comply with the *Rules consultation procedures* when making minor or administrative amendments to the demand side participation information guidelines.

(h) The demand side participation information guidelines must include a minimum period of 3 months between the date of *publication* and the date when the guidelines commence other than when the guidelines are amended under paragraph (g), in which case the guidelines may commence on the date of *publication*.

(i) There must be demand side participation information guidelines in place at all times after the first demand side participation information guidelines are published by *AEMO* under the *Rules*.

3.7E Register of DER information

Definitions

(a) In this rule:

emergency means an emergency due to the actual or imminent occurrence of an event (such as fire, flood, storm, earthquake, explosion, accident, act of terrorism or cyber attack) that in any way endangers or threatens to endanger the safety or health of any person or animal, or that destroys or damages, or threatens to destroy or damage, any property.

emergency services agency means an agency or person prescribed, approved or accredited under jurisdictional emergency management legislation as an emergency services agency or equivalent (and includes without limitation the ambulance service, state emergency service, police force, fire and rescue service, community and rural fire agencies, and first responder agencies).

jurisdictional emergency management legislation means legislation of a *participating jurisdiction* that relates to the management of emergencies.

AEMO must establish a DER register

(b) *AEMO* must establish, maintain and update a *DER register*. The *DER register*:

(1) must include *DER generation information* reported to *AEMO* by *Network Service Providers* in accordance with paragraph (d);

(2) must include any *demand side participation information* provided to *AEMO* by *Registered Participants* in accordance with rule 3.7D(b) which in *AEMO's* reasonable opinion will assist *Network Service Providers* to meet their *regulatory obligations or requirements* and/or assist *AEMO* in the exercise of its statutory functions under the *Rules*; and

(3) may include information of a type similar to the information referred to in subparagraphs (1) and (2) provided to *AEMO* by any person in connection with the performance of *AEMO's* statutory functions and which in *AEMO's* reasonable opinion will assist *Network Service Providers* to meet their *regulatory obligations or requirements*.

(c) *AEMO* will be taken to satisfy the requirement to establish and maintain a *DER register* in paragraph (b) if it stores *DER register information* in one or more databases, including without limitation the databases it maintains under the *Market Settlement and Transfer Solution Procedures*.

Obligation on NSPs to provide DER generation information to AEMO

(d) *Network Service Providers* must provide to *AEMO* in accordance with the *DER register information guidelines*, *DER generation information* in relation to *connection points* on their *network* which they are entitled to collect under the *Rules*, including but not limited to *DER generation information* they are entitled to collect under clauses 5.3.3(c)(4a), 5.3A.5(c)(1a), 5A.B.2, 5A.B.4, or 5A.C.3.

AEMO may use DER register information in performing its functions

(e) For the avoidance of doubt, *AEMO* may use *DER register information* for the purpose of the exercise of its statutory functions under the *NEL* or *Rules*, including performing its *power system security* responsibilities.

Note

Under section 53D of the *NEL*, *AEMO* may use information it collects under the *Rules* for any purpose connected with its statutory functions unless otherwise specified in the *NEL*, these *Rules* or the Regulations made under the *NEL*.

(f) *AEMO* must *publish* details, no less than annually, on the extent to which, in general terms, *DER register information* has informed *AEMO*'s development or use of *load* forecasts, or the performance of its *power system security* responsibilities under the *Rules*.

Note

AEMO is required under clause 4.9.1(c) to take into account *DER register information* received under this rule 3.7E when developing *load* forecasts.

DER register information guidelines

(g) *AEMO* must develop, maintain and *publish* guidelines that specify:

(1) details of the *DER generation information* that *Network Service Providers* must provide to *AEMO* under paragraph (d), including any minimum size of *small generating units* or *small bidirectional units* for which a *Network Service Provider* is required to provide *DER generation information*;

(2) the type of *demand side participation information* provided to *AEMO* by *Registered Participants* under rule 3.7D(b) that *AEMO* will include in the *DER register*;

(3) when *Network Service Providers* must provide and update *DER generation information*;

(4) how *DER generation information* should be provided to *AEMO* by *Network Service Providers*, including, for example:

(i) the format in which the information must be provided; and

(ii) any additional information *AEMO* requires to assess the accuracy of the information;

(5) how the information in the *DER register* is stored by *AEMO*;

(6) the manner and form in which *AEMO* will publish details, in accordance with paragraph (f), on the extent to which *DER register information* has informed its *load* forecasts or the performance of its *power system security* responsibilities;

(7) details of how *AEMO* will provide *Network Service Providers* with access to *DER register information* under paragraph (n);

(8) the contents, form and timing of the *DER register report* to be published by *AEMO* in accordance with paragraph (l) and how the *DER register information* to be included in that report will be aggregated; and

(9) *AEMO*'s approach to the protection of any *confidential information* and personal information contained in the *DER register*.

(h) In developing and amending the *DER register information guidelines*, *AEMO* must:

(1) have regard to the reasonable costs of efficient compliance by *Network Service Providers* with the guidelines compared to the likely benefits from the use of *DER generation information* as contemplated under this rule 3.7E;

(2) consider any risk of unauthorised use or disclosure of *confidential information* or personal information that may arise from including information in the *DER register* compared to the likely benefits of including that information in the register; and

(3) subject to paragraph (i), comply with the *Rules consultation procedures*.

(i) *AEMO* is not required to comply with the *Rules consultation procedures* when making minor or administrative amendments to the *DER register information guidelines*.

(j) The *DER register information guidelines* must include a minimum period of 3 months between the date of *publication* and the date when the guidelines commence other than when the guidelines are amended under paragraph (i), in which case the guidelines may commence on the date of *publication*.

(k) There must be *DER register information guidelines* in place at all times after the first *DER register information guidelines* are published by *AEMO* under the *Rules*.

Reporting by AEMO

(l) *AEMO* must prepare and publish on its website a report of aggregated *DER register information* (*DER register report*) in accordance with the *DER register information guidelines*.

(m) The information in the *DER register report* must be aggregated such that it does not:

(1) directly or indirectly disclose *confidential information*; or

(2) result in a breach of applicable privacy legislation.

Enabling access to DER register information

(n) *AEMO* must provide or give access to *DER register information* to each *Network Service Provider* in relation to that *Network Service Provider*'s *network* in accordance with the *DER register information guidelines*.

(o) A *Network Service Provider* must only use the *DER register information* it receives or accesses under paragraph (n) for the purposes of meeting a *regulatory obligation or requirement*.

(p) Any information received or accessed by a *Network Service Provider* under paragraph (n) must be treated as *confidential information* by the *Network Service Provider*.

AEMO may provide DER register information to emergency services

(q) If requested by an emergency services agency, *AEMO* may provide relevant *DER register information* to that emergency services agency for the purpose of the agency's response to an emergency or for planning in relation to emergency responses.

Protection of DER register information

(r) Nothing in this rule 3.7E:

(1) requires *AEMO* to make available *DER register information* where the collection, use or disclosure of that information by *AEMO* would breach applicable privacy laws; or

(2) precludes *AEMO* from disclosing *confidential information* in the circumstances in which disclosure of *confidential information* is permitted under the *NEL* or the *Rules*.

3.7F Generation information page

(a) *AEMO* must establish, maintain and publish on its website an information resource to inform *Registered Participants* and other interested persons of the extent and nature of *generating plant connected*, or proposed to be *connected*, to the *national grid*.

Content of generation information page

(b) The *generation information page* must contain at least the following information:

(1) a list of all *scheduled generating units*, *semi-scheduled generating units* and *non-scheduled generating units*, including information on their respective capabilities and whether the *generating units* are in service;

(1a) a list of all *scheduled bidirectional units* and *non-scheduled bidirectional units*, including information on their respective capabilities and whether the *bidirectional units* are in service;

(2) a list of *generating units* and *bidirectional units* for which formal commitments have (and have not) been made for construction or installation, to the extent it is reasonably practicable to do so;

(3) *key connection information* received by *AEMO* pursuant to paragraph (g); and

(4) in respect of *key connection information* received by *AEMO* pursuant to paragraph (g):

(i) the name of the *Transmission Network Service Provider* from whom *AEMO* received that *key connection information*; and

(ii) a statement as to whether the *Transmission Network Service Provider* received the *key connection information* in a valid *connection* enquiry under rule 5.3, a valid *application to connect* under rule 5.3, or under clause 5.3.8(d1) or 5.3.8(e).

(c) For the avoidance of doubt and without limiting *AEMO's* obligations under rule 8.6, *AEMO* may include information on the *generation information page*

in addition to the information set out in paragraph (b) including, without limitation, *key connection information* that is received by *AEMO* other than *key connection information* received pursuant to paragraph (g).

(d) *AEMO* must update the information contained on the *generation information page* no less than quarterly.

Generation information guidelines

(e) *AEMO* must develop, publish on its website and maintain, in accordance with the *Rules consultation procedures*, guidelines in relation to the *generation information page*, which must include:

(1) the type of information set out in paragraphs (b) and (c) to be included on the *generation information page* and the source of that information;

(2) the intervals for updating the *generation information page*;

(3) the manner, timing, and format in which *key connection information* is to be provided by *Transmission Network Service Providers* to *AEMO* under paragraph (g); and

(4) guidance as to the evidence that is required to be submitted to *AEMO* for the purposes of clause 3.13.3AA(c).

(f) *AEMO* may make minor or administrative amendments to the *generation information guidelines* without complying with the *Rules consultation procedures*.

Provision of key connection information

(g) A *Transmission Network Service Provider* must provide *key connection information* received:

(1) in a valid *connection* enquiry under rule 5.3;

(2) in a valid *application to connect* under rule 5.3; and

(3) under clause 5.3.8(d1) or 5.3.8(e),

to *AEMO* in accordance with the *generation information guidelines*.

3.8 Central Dispatch and Spot Market Operation

3.8.1 Central Dispatch

(a) *AEMO* must operate a *central dispatch* process to *dispatch* ~~*scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services*~~*scheduled resources* and *market ancillary services* in order to balance *power system supply* and demand, using its reasonable endeavours to maintain *power system security* in accordance with Chapter 4 and to maximise the value of *spot market* trading on the basis of ~~*dispatch offers* and~~ *dispatch bids*.

(b) The *central dispatch* process should aim to maximise the value of *spot market* trading i.e. to maximise the value of electricity consumption ~~*dispatched load*~~ based on *dispatch bids* less the combined cost of electricity production, *wholesale demand response*, *market network services* and *market ancillary services* based on *dispatch bids* and *market ancillary service bids* ~~*dispatched*~~

~~*generation* based on *generation dispatch offers*, *dispatched network services* based on *network dispatch offers*, *dispatched wholesale demand response* based on *wholesale demand response dispatch bids*, and *dispatched market ancillary services* based on *market ancillary service offers*~~ subject to:

(1) ~~*dispatch offers*, *dispatch bids*~~ and *market ancillary service bids*~~*market ancillary service offers*~~;

(2) *constraints*:

(i) due to availability and *commitment*; or

(ii) in the case of *semi-scheduling generating units*, identified by the *unconstrained intermittent generation forecast*;

(3) *non-scheduled load* requirements in each *region*;

(4) *power system security* requirements determined as described in Chapter 4 and the *power system security standards*;

(5) *network constraints*;

(6) *intra-regional losses* and *inter-regional losses*;

(7) *constraints* consistent with *dispatch bid* ~~and *dispatch offer*~~ data;

(8) current levels of *dispatched generation*, *dispatched wholesale demand response*, *load* and *market network services*;

(9) *constraints* imposed by *ancillary services* requirements;

(10) arrangements designed to ensure pro-rata loading of tied *dispatch bid* ~~and *dispatch offer*~~ data; and

(11) the management of negative *settlements residue*, in accordance with clause 3.8.10 and any guidelines issued by *AEMO* under clause 3.8.10(c).

(c) *AEMO* must establish procedures to allow relaxation of *power system constraints* listed in clause 3.8.1(b) in order to resolve infeasible *dispatch* solutions, subject to the following principles:

(1) the procedures are developed in consultation with *Registered Participants* to achieve a reasonable *dispatch* outcome while maintaining consistency with *AEMO's* obligations to maintain *power system security* and the pricing principles listed in clause 3.9.1; and

(2) *AEMO* must report to *Registered Participants* any events requiring the relaxation of these *constraints*.

(d) *AEMO* must develop and *publish* a *dispatch algorithm* to be used by *AEMO* for the purpose of *central dispatch* and pricing in accordance with rules 3.8 and 3.9.

(e) *AEMO* must use the *dispatch algorithm* to determine the *loading level* in MW for each ~~*scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~*scheduled resource* in each *trading interval* in accordance with the principles set out in clause 3.8.1(b).

(e1) *AEMO* must use the *dispatch algorithm* to determine the quantity of each *market ancillary service* which will be *enabled* for each *ancillary service unit*~~*ancillary service generating unit* or *ancillary service load*~~.

(e2) When *AEMO* determines the quantity of each *market ancillary service* which will be *enabled*, *AEMO* must determine:

(1) the required quantity of each *market ancillary service* that may be sourced from any *region* (referred to as the *global market ancillary service requirement*); and

(2) any required quantity of such *market ancillary service* which must only be sourced from one or more nominated *regions* (referred to as a *local market ancillary service requirement*).

(f) *AEMO* may investigate from time to time:

(1) the scope for further development of the *dispatch algorithm* beyond the minimum requirements specified in clause 3.8.1(b); and

(2) the sufficiency of the *dispatch algorithm* in meeting the minimum requirements specified in clause 3.8.1(b),

and following compliance with the *Rules consultation procedures*, *publish* a report setting out its recommendations.

3.8.2 Participation in central dispatch

(a) A *Generator* or *Integrated Resource Provider* must submit ~~*generation dispatch offers*~~ *dispatch bids* in respect of its *scheduled generating units*, ~~or~~ *semi-scheduled generating units* or *scheduled bidirectional units* (as the case may be) for each *trading day* in accordance with clause 3.8.6.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) ~~*Generation dispatch offers*~~*Dispatch bids* for a *scheduled generating unit* must include a specified *self-dispatch level* and may include prices and MW quantities for increased or decreased levels of *generation* above or below this *self-dispatch level*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) A *Scheduled Network Service Provider* must submit ~~*network dispatch offers*~~ *dispatch bids* in respect of each of its *scheduled network services* for each *trading day* in accordance with clause 3.8.6A.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) Subject to clause 3.8.2(d), *dispatch bids* may be submitted by *Market Participants* in respect of *scheduled loads*, in accordance with clause 3.8.7,

and may specify prices and MW quantities for any *trading interval* either for reductions or increases in *load*.

(c1) *Market ancillary service bids*~~*Market ancillary service offers*~~ may be submitted by *Ancillary Service Providers* in respect of *market ancillary services* in accordance with clause 3.8.7A.

(d) *Dispatch bids* and *market ancillary service bids*~~*market ancillary service offers*~~ will only be included in the *central dispatch* process by *AEMO* if it is satisfied that adequate communication and/or telemetry is available to support the issuing of *dispatch instructions* and the audit of responses.

(e) If *AEMO* considers it reasonably necessary for adequate system operation and the maintenance of *power system security*, *Registered Participants* who may otherwise be exempted from participating in the *central dispatch* process must do so to the extent and in the capacity specified by *AEMO*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

3.8.3 Central dispatch aggregation guidelines~~Bid and offer aggregation guidelines~~

(a) ~~*Scheduled Generators, Semi-Scheduled Generators* or~~ *Market Participants* who wish to aggregate any of their ~~relevant~~ *generating units*, *bidirectional units*, *scheduled network services* or *scheduled loads* for the purpose of *central dispatch* must apply to *AEMO* to do so.

(a1) *Market Participants* ~~*Market Customers or Demand Response Service Providers* (as applicable)~~ who wish to aggregate two or more *ancillary service units* ~~*loads*~~ so they are treated as one *ancillary service unit* ~~*ancillary service load*~~ for the purpose of *central dispatch*, must apply to *AEMO* to do so.

(a2) *Demand Response Service Providers* who wish to aggregate two or more *wholesale demand response units* so they are treated as one *wholesale demand response unit* for the purpose of *central dispatch* must apply to *AEMO* to do so.

Note

Wholesale demand response units are not aggregated for the purposes of clause 3.15 and calculations under that clause even if aggregated for the purpose of *central dispatch*.

(b) *AEMO* must approve applications for aggregation made under paragraph (a) if the following conditions are fulfilled:

(1) aggregated *generating units*, *bidirectional units* or *scheduled loads* must be:

(i) *connected* at a single site with the same *intra-regional loss factor* or, if two *intra-regional loss factors* are determined for the site under clause 3.6.2(b)(2), the same two *intra-regional loss factors*; ~~and~~

(ii) operated by a single ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant*; and

(iii) the same technology type and classification and (where relevant) have similar *energy conversion models*;

(2) aggregated *scheduled network services* must be *connected* at the same two sites, have the same *intra-regional loss factors*, have the same *distribution loss factors* where applicable and be operated by the same ~~*Generator* or~~ *Market Participant*;

(3) *power system security* must not be materially affected by the proposed aggregation; and

(4) *control systems* such as *AGCs* must satisfy the *Rules* after aggregating.

(b1) *AEMO* must approve applications for aggregation made under paragraph (a1) if the following conditions are fulfilled:

(1) aggregated *ancillary service units* ~~*ancillary services loads*~~ must be *connected* within a single *region* and be operated by a single person (whether or not in the same *Market Participant* capacity~~in its capacity as a *Market Customer*, *Demand Response Service Provider* or both~~);

(2) *power system security* must not be materially affected by the proposed aggregation; and

(3) *control systems* must satisfy the requirements of clause ~~2.3.5(e)(1)~~2.3D.1(f)(1) and (2) after aggregating.

(b2) *AEMO* must approve applications for aggregation made under paragraph (a2) if the following conditions are fulfilled:

(1) aggregated *wholesale demand response units* must be *connected* within a single *region* and must have been classified under clause 2.3.6 by a single person in its capacity as a *Demand Response Service Provider*;

(2) *power system security* must not be materially affected by the proposed aggregation;

(3) *control systems* must satisfy the requirements of clause 2.3.6(e) after aggregation; and

(4) each other requirement for aggregation in the *wholesale demand response guidelines* must have been satisfied in respect of the proposed aggregation.

(b3) If *AEMO* approves an application for aggregation made under paragraph (a2), *AEMO* may impose on the relevant *Demand Response Service Provider* such terms and conditions as *AEMO* determines, which may include specification of the *maximum responsive component* of the aggregated *wholesale demand response units* and the circumstances in which *AEMO* may require aggregated *wholesale demand response units* to be disaggregated.

(b4) A *Demand Response Service Provider* must comply with any conditions imposed by *AEMO* under paragraph (b3) in respect of its *wholesale demand response unit*.

(c) Notwithstanding that one or more of the conditions set out in paragraph (b) may not have been fulfilled by the ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant*, *AEMO* may approve an application for aggregation provided that such aggregation would not materially distort *central dispatch*.

(d) Subject to paragraph (f), for the purposes of Chapter 3 (except rule 3.7B) and rule 4.9, a reference to a *generating unit*, *scheduled bidirectional unit*, *scheduled load* and *scheduled network service* is only taken as a reference to aggregated *generating units*, aggregated *bidirectional units*, aggregated *scheduled network services* and aggregated *scheduled loads* aggregated in accordance with this clause 3.8.3.

(e) *AEMO* must evaluate applications for aggregation and reply within 20 *business days* of receipt of the application setting out whether the application is to be approved and the conditions that apply to the proposed approval.

(f) ~~*Scheduled Generators* and~~ *Market Participants* that have been granted aggregated status must, if required by *AEMO*, declare individual *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled network service* or *scheduled load* availability and operating status to *AEMO* in the *PASA* under rule 3.7 to allow *power system security* to be effectively monitored.

(f1) *Demand Response Service Providers* that have been granted aggregated status with respect to *wholesale demand response units* must, if required by *AEMO*, declare individual *wholesale demand response unit* availability and operating status to *AEMO* in the *short term PASA* process under clause 3.7.3 to allow *power system security* to be effectively monitored.

(g) If a ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant's* application for aggregation is denied by *AEMO*, *AEMO* must provide that applicant with reasons for that denial.

(h) ~~*AEMO* must maintain a database of aggregated *scheduled generating units*, *semi-scheduled generating units*, *wholesale demand response units*, *scheduled network services*, *scheduled loads* and *ancillary services loads* and their components.~~*AEMO* must maintain a database of aggregated *scheduled resources* and aggregated *ancillary service units* and their components.

(i) For the avoidance of doubt, *semi-scheduled generating units* which are registered as a single *semi-scheduled generating unit* under clause 2.2.7 are not aggregated *semi-scheduled generating units* for the purposes of Chapter 3 and rule 4.9.

3.8.3A Ramp rates

~~(a) This clause 3.8.3A applies to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* with *generating units*, *scheduled network services* and/or *scheduled loads* providing *ramp rates* to *AEMO* in accordance with the following clauses:~~

(a) This clause 3.8.3A applies to a *Registered Participant* who is required to provide *ramp rates* to *AEMO* for its *scheduled resource* in accordance with the following clauses:

(1) with respect to notification of scheduled capacity prior to *dispatch*:

(i) clause 3.8.4(c);

(ii) clause 3.8.4(e);

(iii) clause 3.8.4(d);

(2) with respect to ~~offers for *dispatch*~~*dispatch bids*:

(i) clause 3.8.6(a)(2);

(ii) clause 3.8.6(g);

(iii) clause 3.8.6A(b);

(iv) clause 3.8.7(c); and

(3) with respect to *rebids*, clause 3.8.22(b).

(b) Subject to clauses 3.8.3A(c) and 3.8.3A(i), a ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* to which this clause 3.8.3A applies must provide an up *ramp rate* and a down *ramp rate* to *AEMO* for each *generating unit*, *scheduled bidirectional unit* (in respect of *generation* and consumption), *scheduled network service* and/or *scheduled load* that is:

(1) at least the *minimum ramp rate* for the scheduled resource, determined as follows:

(i) in the case of a *scheduled resource* ~~*scheduled network service* or *scheduled load*~~ that is not aggregated in accordance with clause 3.8.3, the *minimum ramp rate* is equal to the applicable ~~3MW/minute; or~~ *minimum ramp rate requirement*; or

(ii) in the case of a *scheduled network service* ~~or *scheduled load*~~ that is aggregated in accordance with clause 3.8.3, the *minimum ramp rate* is the amount equal to the product of the *minimum ramp rate requirement* and ~~3MW/minute and~~ the number of individual *scheduled network services* ~~or individual *scheduled loads*~~ (and for the avoidance of doubt clause 3.8.3 does not apply to this subparagraph (ii)~~paragraph (b)(1)(ii)~~; or

(iii) **[deleted]**~~in the case of a *scheduled generating unit*, or *semi-scheduled generating unit* that is not aggregated in accordance with clause 3.8.3, the *generating unit minimum ramp rate requirement*; or~~

(iv) in the case of a *scheduled resource* ~~*scheduled generating unit*, or *semi-scheduled generating unit*,~~ that is aggregated in accordance with clause 3.8.3, the *minimum ramp rate* is equal to the sum of the ~~*generating unit minimum ramp rate requirements* for each individual *generating unit*~~ *minimum ramp rate requirement* for each individual *scheduled resource* (and for the avoidance of doubt clause 3.8.3 does not apply to this subparagraph (iv)~~paragraph (b)(1)(iv)~~); and

(2) at most the relevant *maximum ramp rate* provided in accordance with clause 3.13.3(b).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

~~(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies may provide a *ramp rate* to *AEMO* that is less than that specified in clause 3.8.3A(b)(1) if the *ramp rate* is affected by an event or other occurrence that:~~

~~(1) physically prevents the relevant *generating unit*, *scheduled load* or *scheduled network service* from attaining a *ramp rate* of at least that specified in clause 3.8.3A(b)(1); or~~

~~(2) makes it unsafe for the relevant *generating unit*, *scheduled load* or *scheduled network service* to operate at a *ramp rate* of at least that specified in clause 3.8.3A(b)(1),~~

~~for the period of time in which the *ramp rate* is so affected by that event or other occurrence.~~

(c) A *Market Participant* to which this clause 3.8.3A applies may provide a *ramp rate* to *AEMO* for its *scheduled resource* that is less than the *minimum ramp rate* if the *ramp rate* is affected by an event or other occurrence that:

(1) physically prevents the relevant *generating unit*, *scheduled bidirectional unit*, *scheduled load* or *scheduled network service* from attaining a *ramp rate* of at least the *minimum ramp rate*; or

(2) makes it unsafe for the relevant *generating unit*, *scheduled bidirectional unit*, *scheduled load* or *scheduled network service* to operate at a *ramp rate* of at least the *minimum ramp rate*,

for the period of time in which the *ramp rate* is so affected by that event or other occurrence.

(d) If a ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* to which this clause 3.8.3A applies provides a *ramp rate* that is less than the *minimum ramp rate* ~~that specified in clause 3.8.3A(b)(1)~~, it must provide a *ramp rate* to *AEMO* that is the maximum the relevant *generating unit*, *scheduled bidirectional unit*, *scheduled load* or *scheduled network service* can safely attain at that time.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

~~(e) If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies provides a *ramp rate* that is less than that specified in clause 3.8.3A(b)(1), it must simultaneously provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below that specified in clause 3.8.3A(b)(1).~~ If a *Market Participant* to which this clause applies provides a *ramp rate* that is less than the *minimum ramp rate*, it must simultaneously provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below the *minimum ramp rate*.

(f) The *AER* may require, upon written request, the ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* to provide such additional information as it may require from time to time to substantiate and verify the reason provided in clause 3.8.3A(e).

(g) The *AER* must exercise its powers under clause 3.8.3A(f) in accordance with any guidelines issued by the *AER* from time to time in accordance with the *Rules consultation procedures*.

(h) ~~If a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to which this clause 3.8.3A applies provides a *maximum ramp rate* in accordance with clause 3.13.3(b) of less than that specified in clause 3.8.3A(b)(1), it must provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below that specified in clause 3.8.3A(b)(1).~~If a *Market Participant* to which this clause applies provides a *maximum ramp rate* in accordance with clause 3.13.3(b) of less than the *minimum ramp rate*, it must provide *AEMO* with a brief, verifiable and specific reason why the *ramp rate* is below the *minimum ramp rate.*

(i) Clauses 3.8.3A(b), 3.8.3A(c) and 3.8.3A(e) do not apply to a ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* to which this clause 3.8.3A applies if:

(1) it has provided a *maximum ramp rate* in accordance with clause 3.13.3(b) which is less than ~~that specified in clause 3.8.3A(b)(1)~~the *minimum ramp rate*; and

(2) it has notified *AEMO* of this in accordance with clause 3.8.3A(h).

(j) In addition to the obligations in clause 3.8.3A(d), if clause 3.8.3A(i) applies, the ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* must only provide *ramp rates* that are, at most, the *maximum ramp rate* for the relevant *generating unit*, *scheduled bidirectional unit*, *scheduled load* or *scheduled network service* in accordance with clause 3.13.3(b).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

3.8.4 Notification of scheduled capacity

~~All *Scheduled Generators* and *Market Participants* with *scheduled generating units*, *wholesale demand response units*, *scheduled network services* and/or *scheduled loads* must inform *AEMO* of their *available capacity* as follows in accordance with the *timetable*:~~A *Market Participant* must inform *AEMO* of the *available capacity* of each of its *scheduled resources* (other than its *semi-scheduled generating units*) as follows in accordance with the *timetable*:

(a) ~~*Scheduled Generators* and~~ a *Market Participant*~~s~~ must notify *AEMO* of the *available capacity* of each of its *scheduled resources* ~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* and/or *scheduled* load~~ for each *trading interval* of the *trading day*;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) subsequent changes may only be made to the information provided under clause 3.8.4(c), (d), (e) and (f) in accordance with clause 3.8.22;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) for ~~*Scheduled Generators*~~*scheduled generating units* and *scheduled bidirectional units*, two *days* ahead of each *trading day*:

(1) for a *scheduled generating unit*, a MW capacity profile that specifies the MW available for each of the 288 *trading intervals* in the *trading day*;

(1A) for a *bidirectional unit*, for each of *generation* and consumption, a MW capacity profile that specifies the MW available for each of the 288 *trading intervals* in the *trading day*;

(2) estimated *commitment* or *decommitment* times for *scheduled generating units*;

(3) daily *energy* availability for *energy constrained scheduled generating units* and *energy constrained scheduled bidirectional units*; ~~and~~

(4) for a *scheduled generating unit*, an up *ramp rate* and a down *ramp rate*; and

(5) for a *scheduled bidirectional unit*, an up *ramp rate* and a down *ramp rate* for *generation* from the *bidirectional unit* and an up *ramp rate* and a down *ramp rate* for consumption by the *bidirectional unit*;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) for *scheduled loads*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the MW available for *dispatch* for each of the 288 *trading intervals* in the *trading day*;

(2) daily *energy* availability for *energy constrained scheduled load*; and

(3) an up *ramp rate* and a down *ramp rate*;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) for *scheduled network services*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the *power transfer capability* in each direction available for each of the 288 *trading intervals* in the *trading day*; and

(2) an up *ramp rate* and a down *ramp rate*; and

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) for *wholesale demand response units*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that (subject to clauses 3.8.2A(b), (c), (d) and (e)) specifies the *wholesale demand response* available for *dispatch* for each of the 288 *trading intervals* in the *trading day*; and

(2) an up *ramp rate* and a down *ramp rate*.

3.8.5 Submission timing

(a) To be valid for inclusion in the *central dispatch* process, a *dispatch bid* or *market ancillary service bid* ~~*dispatch offer* or *market ancillary service offer*~~ must be submitted according to the *timetable*.

(b) Subject to clause 3.8.22, changes to the MW quantities in a *dispatch bid* may be made after the relevant deadline in the *timetable*.~~:~~

~~(1) MW quantities in the *dispatch bids*;~~

~~(2) MW quantities and *off-loading prices* in the *generation dispatch offers*; and~~

~~(3) MW quantities in the *network dispatch offers*,~~

~~may be made after the relevant deadline in the *timetable*.~~

(c) The submission of *dispatch bids*~~, *dispatch offers*~~ and *market ancillary service bids*~~*market ancillary service offers*~~ to *AEMO* must be made using the *electronic communication system* unless otherwise approved by *AEMO*.

3.8.6 Dispatch bids - generating units and bidirectional units~~Generating unit offers for dispatch~~

(a0) A *Scheduled Generator*, *Semi-Scheduled Generator* and *Scheduled Integrated Resource Provider* must comply with the applicable requirements of this clause 3.8.6 when submitting a *dispatch bid*.

~~Scheduled Generator~~Scheduled generating units

(a) A *dispatch bid* for a *scheduled generating unit*~~*Scheduled Generator's dispatch offer*~~ must:

(1) contain its intended *self-dispatch level* for each *trading interval*, and may contain up to 10 *price bands* which may be for:

(i) possible *dispatch* above the intended *self-dispatch level*; or

(ii) possible *off-loading* below the intended *self-dispatch level*,

by *dispatch instruction*;

(2) specify for each of the 288 *trading intervals* in the *trading day*:

(i) a MW capacity for the intended *self-dispatch level*;

(ii) an incremental MW amount for each *price band* specified in the *dispatch bid*~~*dispatch offer*~~; and

(iii) an up *ramp rate* and a down *ramp rate*;

(3) where the ~~offer~~ *dispatch bid* specifies a *self-dispatch level* of more than zero, specify at least one *price band* for *off-loading* below the intended *self-dispatch level* and the total MW quantity in *price bands* specified for *off-loading* in each *trading interval* must equal the MW quantity of the *self-dispatch level* for that *trading interval* to enable possible *off-loading* to a zero *dispatch* level; and

(4) specify a *loading price* or an *off-loading price* for each *price band* specified in the *dispatch bid*~~*dispatch offer*~~, in dollars and whole cents per MWh, and this price is to apply to the *price band* throughout the *trading day*.

(b) A *Scheduled Generator's* ~~*dispatch offer* may~~ *dispatch bid* must specify the daily *energy* available for *energy constrained scheduled generating units*.

(c) ~~A *Scheduled Generator's loading prices* offered must be equal to or greater than $0/MWh and may not exceed the product of the *market price cap* multiplied by the relevant *intra-regional loss factor* at the *Scheduled Generator's transmission network connection point* for the *scheduled generating unit*.~~The *loading price* for a *scheduled generating unit* must be equal to or greater than $0/MWh and may not exceed the product of the *market price cap* and the relevant *intra-regional loss factor* at the *transmission network connection point* for the *scheduled generating unit*.

(d) A *loading price* ~~of a *Scheduled Generator*~~ specified for a *price band* is to be interpreted as the minimum price at which up to the specified MW increment is to be loaded in the *central dispatch* process.

(e) ~~A *Scheduled Generator's off-loading prices* must be less than $0/MWh, that is, negative in sign and may not be less than the product of the *market floor price* multiplied by the relevant *intra-regional loss factor* at the *Scheduled Generator's transmission network connection point* for the *scheduled generating unit*.~~The *off-loading prices* for a *scheduled generating unit* must be less than $0/MWh, that is, negative in sign and may not be less than the product of the *market floor price* and the relevant *intra-regional loss factor* at the *transmission network connection point* for the *scheduled generating unit*.

(f) An *off-loading price* ~~of a *Scheduled Generator*~~ specified for a *price band* is to be interpreted as the maximum price payable to *AEMO* by the *Scheduled Generator* in respect of the *scheduled generating unit's* ~~*generating unit's*~~ *sent out generation* with the *scheduled generating unit's*~~*generating unit's*~~ output reduced below its specified *self-dispatch level* in the *central dispatch* process by an amount less than the specified MW increment.

~~Semi-Scheduled Generator~~Semi-scheduled generating units

~~(g) A *Semi-Scheduled Generator's dispatch offer* may contain up to 10 *price bands* and must specify for each of the 288 *trading intervals* in the *trading day*:~~

~~(1) an incremental MW amount for each *price band* specified in the *dispatch offer*; and~~

~~(2) an up *ramp rate* and a down *ramp rate*.~~

(g) A *dispatch bid* for a *semi-scheduled generating unit* may contain up to 10 *price bands* and must:

(1) specify for each of the 288 *trading intervals* in the *trading day*:

(i) an incremental MW amount for each *price band* specified in the *dispatch bid*; and

(ii) an up *ramp rate* and a down *ramp rate*; and

(2) specify a price for each *price band* specified in the *dispatch bid*, in dollars and whole cents per MWh, and this price is to apply to the *price band* throughout the *trading day*.

Scheduled bidirectional units

(g1) A *dispatch bid* for a *scheduled bidirectional unit* may contain up to 10 *price bands* for production from the *bidirectional unit* and up to 10 *price bands* for consumption by the *bidirectional unit* and must:

(1) specify for each of the 288 *trading intervals* in the *trading day*:

(i) an incremental MW amount for each *price band* specified in the *dispatch bid*; and

(ii) an up *ramp rate* and a down *ramp rate* for *generation* and an up *ramp rate* and a down *ramp rate* for consumption; and

(2) specify a price for each *price band* specified in the *dispatch bid*, in dollars and whole cents per MWh, and this price is to apply to the *price band* throughout the *trading day*.

(g2) A *Scheduled Integrated Resource Provider's dispatch bid* must specify the daily *energy* available for *energy constrained scheduled bidirectional units*.

Scheduled and semi-scheduled generating units and scheduled bidirectional units~~Semi-Scheduled and Scheduled Generators~~

(h) ~~A *dispatch offer* of a *Semi-Scheduled Generator* or *Scheduled Generator* must meet the following requirements:~~A *dispatch bid* for a *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled bidirectional unit* must meet the following requirements:

(1) ~~the MW quantities specified are to apply at the terminals of the *semi-scheduled generating unit* or *scheduled generating unit* or, with *AEMO's* agreement, at any other point in the relevant *Generator's* electrical installation or on the *network*;~~the MW quantities specified are to apply at the terminals of the *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled bidirectional unit* or, with *AEMO's* agreement, at any other point in the relevant *Generator's* or *Scheduled Integrated Resource Provider's* electrical installation or on the *network*;

(2) prices specified for each *price band* specified in the *dispatch bid*~~*dispatch offer*~~ must increase monotonically with an increase in available MWs;

(3) prices specified are to apply at the *connection point* of the ~~*semi-scheduled generating unit* or the~~ *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled bidirectional unit* (as the case may be) and for the purposes of *central dispatch* shall be referred to the *regional reference node* to which that *connection point* is assigned as follows:

RP = DOP ÷ LF

where

RP is the price specified in the *dispatch bid*~~*dispatch offer*~~ when referred to the appropriate *regional reference node* and must not be greater than the *market price cap* or less than the *market floor price*;

DOP is the price as specified in the *dispatch bid*~~*dispatch offer*~~; and

LF where the *connection point*:

(i) is a *transmission network connection point*, is the relevant *intra-regional loss factor* at that *connection point*; or

(ii) is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* ~~multiplied by~~and the relevant *intra-regional loss factor* at the *transmission network connection point* to which it is assigned; and

(4) the MW quantity specified in each *price band* in each *trading interval* must be specified in whole MW.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra-regional loss factor* for use under this clause in accordance with the procedure determined under clause 3.6.2(d1).

3.8.6A Scheduled network service dispatch bids ~~Scheduled network service offers for dispatch~~

~~The following requirements apply to a *network dispatch offer* to provide *scheduled network services*:~~*Scheduled Network Service Providers* must comply with the following requirements when submitting a *dispatch bid* to provide *scheduled network services*:

(a) the *dispatch bid*~~*network dispatch offer*~~ may contain up to a maximum of ten *price bands* for each direction of power flow for the *scheduled network service*;

(b) the *dispatch bid*~~*network dispatch offer*~~ must specify for each of the 288 *trading intervals* in the *trading day*:

(1) an incremental power delivery range for each *price band* specified in the *dispatch bid*~~*network dispatch offer*~~; and

(2) an up *ramp rate* and a down *ramp rate*;

(c) the *dispatch bid*~~*network dispatch offer*~~ must specify a price for each *price band* in dollars and whole cents per MWh and this price is to apply to the *price band* throughout the *trading day*;

(d) within the set of *price bands* applying to a particular direction of power flow, prices specified for each *price band* specified in the *dispatch bid*~~*network dispatch offer*~~ must increase monotonically with an increase in available MWs;

(e) if negative prices are employed, the absolute value of the most negative price in one direction cannot exceed the price for the first *price band* in the opposite direction, after adjustment for losses;

(f) the price specified in a *price band* for power transfer from the *scheduled network service's connection point* A to *connection point* B is to be interpreted in the *central dispatch* process as meaning that the *Scheduled Network Service Provider* is willing to deliver an increment of power to *connection point* B, within the power delivery range of the power band, provided that the net revenue which is expected to be derived from that increment per MWh delivered to *connection point* B is not less than the specified price;

(g) for the purposes of this clause 3.8.6A, the net revenue that a *Scheduled Network Service Provider* expects to receive for energy delivered by the *scheduled network service* to *connection point* B is to be determined as follows:

net revenue = PB × FB – PA × FA

where

PA and PB are the prices at the *scheduled network service's connection points* A and B, which are assumed not to change as a result of the incremental transfer;

FA and FB are the energy transfers scheduled by *central dispatch* for receipt by the *scheduled network service* at *connection point* A and delivery at *connection point* B respectively; and

FA and FB are deemed to be related by the loss vs flow relationship *published* by *AEMO*;

(h) for the purposes of this clause 3.8.6A, the price at a *connection point* will be deemed to be related as follows to the price at the *regional reference node* to which that *connection point* is assigned:

P = RP × LF

where

P is the price at the *connection point*;

RP is the price at the appropriate *regional reference node*; and

LF where the *scheduled network service's connection point* is a *transmission network connection point*, is the relevant *intra-regional loss factor* at that *connection point*, or where the *scheduled network service's connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* ~~multiplied by~~and the relevant *intra-*

regional loss factor at the *transmission network connection point* to which it is assigned;

(i) prices specified in the *dispatch bid*~~*network dispatch offer*~~ must not exceed the *market price cap* or be less than the *market floor price*; and

(j) the power delivery range specified in each *price band* in each *trading interval* must be specified in whole MW.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra-regional loss factor* for use under this clause in accordance with the procedure determined under clause 3.6.2(d1).

3.8.7 Scheduled load dispatch bids~~Bids for scheduled load~~

~~The following requirements apply to a *dispatch bid* for *scheduled loads*:~~*Market Customers* and *Integrated Resource Providers* must comply with the following requirements when submitting a *dispatch bid* for a *scheduled load*:

(a) the *dispatch bid* must specify whether the *scheduled load* is to be considered as *normally on* or *normally off*;

(b) the *dispatch bid* may contain up to a maximum of ten *price bands*;

(c) the *dispatch bid* must specify for each of the 288 *trading intervals* in the *trading day*:

(1) an incremental MW amount for each *price band* specified in the *dispatch bid*; and

(2) an up *ramp rate* and a down *ramp rate*;

(d) the *dispatch bid* must specify a price for each *price band* in dollars and whole cents per MWh and this price is to apply to the *price band* throughout the *trading day*;

(e) prices specified for each *price band* specified in the *dispatch bid* must increase monotonically with an increase in available MWs;

(f) prices specified are to apply at the *scheduled load's connection point* and for the purposes of *central dispatch* shall be referred to the *regional reference node* to which that *connection point* is assigned as follows:

RP = DOP ÷ LF

where

RP is the price specified in the *dispatch bid* when referred to the appropriate *regional reference node*;

DOP is the price as specified in the *dispatch bid*; and

LF where the *scheduled load's connection point* is a *transmission network connection point*, is the relevant *intra-regional loss factor* at that *connection point*, or where the *scheduled load's connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* ~~multiplied by~~and the relevant *intra-regional loss factor* at the *transmission network connection point* to which it is assigned;

(g) MW quantities specified for a *price band* are to apply at the *scheduled load's connection point* or at any other point in the *Market Participant's* electrical installation or on the *network* as agreed to by *AEMO*;

(h) prices specified must be:

(1) more than the product of the *market floor price* ~~multiplied by~~and the relevant *intra-regional loss factor* at the *scheduled load's transmission network connection point*; and

(2) less than the product of the *market price cap* ~~multiplied by~~and the relevant *intra-regional loss factor* at the *scheduled load's transmission network connection point*;

(i) for a *scheduled load* specified in the *dispatch bid* as being *normally on*, the price specified for a *price band* is to be interpreted in the *central dispatch* process as the price at or above which the *scheduled load* will reduce electricity consumed by up to the MW increment specified in that *price band*;

(j) for a *scheduled load* specified in the *dispatch bid* as being *normally off*, the price specified for a *price band* is to be interpreted in the *central dispatch* process as the price at or below which the *scheduled load* will increase electricity consumed by up to the MW increment specified in that *price band*;

(k) the MW capacity quantity specified in each *price band* in each *trading interval* must be specified in whole MW;

(l) the sum of the MW quantities specified in each *price band* in any *trading interval* must not exceed the maximum capacity of the *scheduled load*; and

(m) the *dispatch bid* ~~may~~ must specify the daily *energy* available for *energy constrained scheduled loads*.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra-regional loss factor* for use under this clause in accordance with the procedure determined under clause 3.6.2(d1).

3.8.7A Market ancillary service bids ~~Market ancillary services offers~~

Ancillary Service Providers must comply with the following requirements when submitting a *market ancillary service bid* for any type of *market ancillary service*:~~The following requirements apply to all *market ancillary service offers* for each type of *market ancillary service*:~~

(a) the *market ancillary service bid*~~*market ancillary service offer*~~ may contain up to 10 *price bands*;

(b) the *market ancillary service bid*~~*market ancillary service offer*~~ must specify for each of the 288 *trading intervals* in the *trading day* an incremental MW amount for each *price band* specified in the *market ancillary service bid*~~*market ancillary service offer*~~;

(c) the MW quantities specified are to apply at the nominated *connection point* or, with *AEMO's* agreement, at any other point in the relevant electrical installation or on the *network;*

(d) the *market ancillary service bid*~~*ancillary service offer*~~ must specify a price for each *price band* specified in the *market ancillary service bid*~~*market*~~

~~*ancillary service offer*~~, in dollars and whole cents per MW per hour (an *enabling price*), and this price is to apply to the *price band* throughout the *trading day*;

(e) *enabling prices* for each *price band* specified in the *market ancillary service bid*~~*market ancillary service offer*~~ must increase monotonically with an increase in available MWs;

(f) *enabling prices* are to apply at the nominated *connection point* or, with *AEMO's* agreement, at any other point in the relevant electrical installation or on the *network;*

(g) *enabling prices* offered must be equal to or greater than $0 per MW per hour and may not exceed the *market price cap*;

(h) the *enabling price* for a *price band* is to be interpreted as the minimum price at which up to the specified MW response is to be enabled in the *central dispatch* process;

(i) the MW quantity in each *price band* in each *trading interval* must be specified in whole MW;

(j) the *market ancillary service bid*~~*market ancillary service offer*~~ must include the following values:

(1) the *response breakpoint*;

(2) the upper and lower *enablement limits*; and

(3) the *response capability*;

(k) an *Ancillary Service Provider* that submits a *market ancillary service bid* ~~*market ancillary service offer*~~ must ensure that the *ancillary service unit* ~~*ancillary service generating unit* or *ancillary service load*, as the case may be,~~ is at all times capable of responding in the manner contemplated by the *market ancillary service specification*;

(l) the values associated with a *market ancillary service bid*~~*market ancillary service offer*~~ referred to in clause 3.8.7A(j) must represent technical characteristics of the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit*; and

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(m) rebids made under clause 3.8.22 of the values associated with the *market ancillary service bid*~~*market ancillary service offer*~~ referred to in clause 3.8.7A(j) must represent technical characteristics at the time of *dispatch* of the *ancillary service unit*~~*ancillary service generating unit* or *ancillary service load*~~.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

3.8.7B Wholesale demand response dispatch bids

~~The following requirements apply to all *wholesale demand response dispatch bids*:~~*Wholesale Demand Response Providers* must comply with the following requirements when submitting *wholesale demand response dispatch bids*:

(a) the *dispatch bid* may contain up to 10 *price bands*;

(b) the *dispatch bid* must specify:

(1) an incremental MW amount for each *price band* specified in the *dispatch bid*;

(2) an up *ramp rate* and a down *ramp rate*;

(c) the MW quantities specified are to apply at the *connection point*s for the *wholesale demand response unit*;

(d) the *dispatch bid* must specify a price for each *price band*;

(e) prices specified are to apply at the *connection points* for the *wholesale demand response unit* and for the purposes of *central dispatch* shall be referred to the *regional reference node* as follows:

RP = DOP ÷ LF

where

RP is the price specified in the *dispatch bid* when referred to the appropriate *regional reference node*;

DOP is the price as specified in the *dispatch bid*; and

LF is:

(1) unless paragraph (2) applies, if the *connection point* for the *wholesale demand response unit* is:

(i) a *transmission network connection point*, the relevant *intra-regional loss factor* at that *connection point*; or

(ii) a *distribution network connection point*, the product of the *distribution loss factor* at that *connection point* ~~multiplied by~~and the relevant *intra-regional loss factor* at the *transmission network connection point* to which it is assigned; and

(2) where two or more *wholesale demand response units* have been aggregated in accordance with clause 3.8.3, a deemed loss factor of 1;

(f) prices specified must be:

(1) greater than or equal to the *market floor price* multiplied by LF for the *wholesale demand response unit*; and

(2) less than or equal to the *market price cap* multiplied by LF for the *wholesale demand response unit*,

where LF has the meaning given in paragraph (e);

(g) the price specified for a *price band* is to be interpreted in the *central dispatch* process as the price at or above which the *wholesale demand response unit* will, as applicable:

(1) reduce the consumption of electricity;

(2) increase the export of electricity; or

(3) reduce electricity consumption and start to export electricity,

at the *connection point* by up to the MW increment specified in that *price band*;

(h) the MW quantity in each *price band* in each *trading interval* must be specified in whole MW;

(i) the sum of the MW quantities specified in each *price band* in each *trading interval* must not exceed the *maximum responsive component* of the *wholesale demand response unit*; and

(j) the *dispatch bid* may specify the daily *wholesale demand response* available for *wholesale demand response units* that are *wholesale demand response constrained*.

3.8.8 Validation of dispatch bids~~Validation of dispatch bids and offers~~

~~(a) If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.7B (whichever is applicable), *AEMO* must make available to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* who submitted the *dispatch offer*, *dispatch bid* or *market ancillary service offer* the following information without delay:~~

~~(1) acknowledgement of receipt of a valid *dispatch offer*, *dispatch bid* or *market ancillary service offer*; and~~

~~(2) the data contained in the *dispatch offer*, *dispatch bid* or *market ancillary service offer* as it will be used by *AEMO* in the *central dispatch* process.~~

(a) If a *dispatch bid* or *market ancillary service bid* is made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.7B (whichever is applicable), *AEMO* must make available to the *Market Participant* who submitted the *dispatch bid* or *market ancillary service bid* the following information without delay:

(1) acknowledgement of receipt of a valid *dispatch bid* or *market ancillary service bid*; and

(2) the data contained in the *dispatch bid* or *market ancillary service bid* as it will be used by *AEMO* in the *central dispatch* process.

(b) It is the responsibility of each ~~*Scheduled Generator*, *Semi-Scheduled Generator* and~~ *Market Participant* to check that the data contained in its ~~*dispatch offer*,~~ *dispatch bid* or *market ancillary service bid*~~*market ancillary service offer*~~ as received and to be used by *AEMO* in the *central dispatch* process is correct.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) ~~If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is not made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.7B (whichever is applicable), *AEMO* must not include that *dispatch offer*, *dispatch bid* or *market ancillary service offer* in the *central dispatch* process and must without delay notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* submitting the *dispatch offer*, *dispatch bid* or *market ancillary service offer* of its invalidity and provide to that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* details of the invalid data .~~If a *dispatch bid* or *market ancillary service bid* is not made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.7B (whichever is applicable), *AEMO* must not include that *dispatch bid* or *market ancillary service bid* in the *central dispatch* process and must without delay notify the *Market Participant* submitting the *dispatch bid* or *market ancillary service bid* of its invalidity and provide to that *Market Participant* details of the invalid data.

(d) ~~If any details contained within a *dispatch offer*, *dispatch bid* or *market ancillary service offer* are inconsistent with the *bid and offer validation data* provided by the relevant *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* then *AEMO* has the right to treat that *dispatch offer*, *dispatch bid* or *market ancillary service offer* as invalid and if it does so must notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* without delay.~~If any details contained within a *dispatch bid* or *market ancillary service bid* are inconsistent with the *bid validation data* provided by the relevant *Market Participant* then *AEMO* has the right to treat that *dispatch bid* or *market ancillary service bid* as invalid and if it does so must notify the *Market Participant* without delay.

3.8.9 Default bids ~~Default offers and bids~~

(a) A *Market Participant* may, at any time, submit a *default bid*.

(b) A *Market Participant* may vary or withdraw a *default bid* at any time prior to the deadline for submissions of *dispatch bids* and *market ancillary service bids* for a *trading day* in accordance with the *timetable*.

(c) Subject to any procedures *published* in accordance with paragraph (d), a *default bid* applicable to a *trading day* must be included by *AEMO* in the *central dispatch* process when the deadline for submission of *dispatch bids* and *market ancillary service bids* for that *trading day* arrives in accordance with the *timetable* if, and only if, no later valid *dispatch bid* or *market ancillary service bid* has been submitted pursuant to clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A, 3.8.7B or paragraph (b).

(d) *AEMO*, in consultation with *Market Participants* in accordance with the *Rules consultation procedures*, must develop and *publish* procedures to determine the circumstances when *AEMO* may use a prior *dispatch bid* or *market ancillary service bid* lodged by a *Market Participant* as a substitute for a *default bid*.

(e) *AEMO* may disregard a *default bid* and substitute a prior *dispatch bid* or *market ancillary service bid* lodged by a *Market Participant* determined in accordance with a procedure developed under paragraph (d) as inputs to *PASA*, *pre-dispatch* and *central dispatch*.

~~(a) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may, at any time, submit a *dispatch offer*, a *dispatch bid* or a *market ancillary service offer* in respect of a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled load*, *scheduled network service*, *ancillary service generating unit* or *ancillary service load* to apply from a specified future *trading day*.~~

~~(b) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may vary or withdraw a *default dispatch bid*, *default dispatch offer* or *market ancillary service offer* at any time prior to the deadline for submissions of *dispatch offers*, *dispatch bids* and *market ancillary service offers* for a *trading day* in accordance with the *timetable*.~~

~~(c) Subject to any procedures *published* in accordance with clause 3.8.9(d), *default dispatch offer*, *default dispatch bid* or *market ancillary service offer* applicable to a *trading day* must be included by *AEMO* in the *central dispatch* process when the deadline for submission of *dispatch offers*, *dispatch bids* and *market ancillary service offers* for that *trading day* arrives in accordance with the *timetable* if , and only if, no later valid *dispatch offer*, *dispatch bid* or *market ancillary service offer* has been submitted pursuant to clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A, 3.8.7B or 3.8.9(b).~~

~~(d) *AEMO*, in consultation with *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* in accordance with the *Rules consultation procedures*, must develop and *publish* procedures to determine the circumstances when *AEMO* may use a prior *dispatch offer* or *dispatch bid* lodged by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* as a substitute for a *default dispatch offer* or *default dispatch bid*.~~

~~(e) *AEMO* may disregard a *default dispatch offer* or a *default dispatch bid* and substitute a prior *dispatch offer* or *dispatch bid* or *market ancillary service offer* lodged by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Market Participant* determined in accordance with a procedure developed under clause 3.8.9(d) as input to *PASA*, *pre-dispatch* and *central dispatch*.~~

3.8.10 Network constraints

(a) In accordance with the *AEMO power system security responsibilities* and any other standards set out in Chapter 4, *AEMO* must determine any *constraints* on the *dispatch* of *scheduled resources* or *ancillary service units* ~~*scheduled generating units*, *semi-scheduled generating units*, *wholesale demand response units*, *scheduled network services*, *scheduled loads*, *ancillary service generating units* or *ancillary service loads*~~ which may result from planned *network outages*.

(b) Subject to paragraph (e), *AEMO* must determine and represent *network constraints* in *dispatch* which may result from limitations on *intra-regional* or *inter-regional* power flows and, in doing so, must use a *fully co-optimised network constraint formulation*.

(c) *AEMO* must, in accordance with the *Rules consultation procedures*, develop and *publish* by 1 June 2010, and, where necessary, amend *network constraint* formulation guidelines, to address, amongst other things, the following matters:

(1) the circumstances in which *AEMO* will use *alternative network constraint formulations* in *dispatch*;

(2) the process by which *AEMO* will identify or be advised of a requirement to create or modify a *network constraint* equation, including in respect of:

(i) the methodology to be used by *AEMO* in determining *network constraint* equation terms and co-efficients; and

(ii) the means by which *AEMO* will obtain information from, and disseminate information to, ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ relevant *Market Participants*;

(3) the methodology to be used by *AEMO* in selecting the form of a *network constraint*, equation including in respect of the location of terms on each side of the equation;

(4) the process to be used by *AEMO* for applying, invoking and revoking *network constraint* equations in relation to different types of *network constraints*, including in respect of:

(i) the circumstances in which *AEMO* will use *alternative network constraint formulations* and *fully co-optimised network constraint formulations*; and

(ii) the dissemination of information to ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ relevant *Market Participants* in respect of this process; and

(5) *AEMO's* policy in respect of the management of negative *settlements residue*, by intervening in the *central dispatch* process under clause 3.8.1 through the use of *fully co-optimised network constraint formulations*, including in respect of the process to be undertaken by *AEMO* to manage negative *settlements residue*.

(d) *AEMO* must at all times comply with the *network constraint* formulation guidelines issued in accordance with paragraph (c).

(e) Where, in *AEMO's* reasonable opinion, a specific *network constraint* is such that use of a *fully co-optimised network constraint formulation* is not appropriate, *AEMO* may apply an *alternative network constraint formulation* for the expected duration of that *network constraint*, if *AEMO*:

(1) has previously identified, in guidelines issued in accordance with paragraph (c), that it may use an *alternative network constraint formulation* in respect of that type of *network constraint*; and

(2) reasonably considers that it can apply an *alternative network constraint formulation* without prejudicing its obligation to operate a *central dispatch* process to *dispatch* *scheduled resources* ~~*scheduled generating units*, *semi-scheduled generating units*, *wholesale demand response units*, *scheduled loads*, *scheduled network services*~~ and *market ancillary services* in order to balance *power system supply* and *power system demand*, consistent with using its reasonable endeavours to maintain *power system security* in accordance with Chapter 4 of the *Rules* and to maximise the value of *spot market* trading ~~on the basis of~~

~~*dispatch offers* and *dispatch bids*,~~ in accordance with clause 3.8.1(a) and (b).

(f) *AEMO* must represent *network constraints* as inputs to the *dispatch* process in a form that can be reviewed after the *trading interval* in which they occurred.

(g) **[Deleted]**

3.8.11 Ancillary services constraints

(a) *AEMO* must determine the quantity and nature of *ancillary services* which:

(1) have been provided or procured in accordance with the *AEMO power system security responsibilities* set out in clause 4.3.1 or are otherwise available;

(2) are required to be managed in conjunction with *dispatch*; and

(3) may impose constraints on *central dispatch*.

(a1) For each *trading interval AEMO* must impose constraints upon the *dispatch algorithm* to determine the quantity of each *global market ancillary service requirement* and any *local market ancillary service requirements*.

3.8.12 System scheduled reserve constraints

AEMO must use its reasonable endeavours to ensure that the *dispatch* process meets all requirements for *scheduled reserves* as described in Chapter 4.

3.8.13 Notification of constraints

AEMO must *publish* the parameters used in the *dispatch algorithm* for the modelling of *network constraints*, *regulating capability constraints*, *power system reserve constraints* and *ancillary services*.

3.8.14 Dispatch under conditions of supply scarcity

(a) During times of *supply* scarcity:

(1) *AEMO* must use its reasonable endeavours to ensure all valid and physically realisable *dispatch bids* submitted by *Market Participants* ~~*dispatch bids* and *dispatch offers* submitted by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants*~~ are *dispatched*, including those priced at the *market price cap*; and

(2) if *AEMO* determines that it will be necessary, after *dispatching* all *dispatch bids* ~~and *dispatch offers*~~ in accordance with subparagraph (a)(1), to take additional action to address the conditions of *supply* scarcity, *AEMO* must determine which *supply scarcity mechanism*, or combination of *supply scarcity mechanisms*, to use in accordance with paragraph (b) and the procedures developed under clause 3.8.14A(a).

(b) For the purposes of subparagraph (a)(2), when determining which *supply scarcity mechanism*, or combination of *supply scarcity mechanisms*, to use, *AEMO* must use its reasonable endeavours to choose the mechanism, or combination of mechanisms, that is effective in addressing the conditions of

supply scarcity while minimising the direct and indirect costs of using such a mechanism or mechanisms.

(c) Without limitation, examples of the types of direct costs referred to in paragraph (b) include:

(1) pre-activation and activation costs payable under *reserve contracts* if *AEMO dispatches* or *activates reserves*; and

(2) paying compensation to an *Affected Load Participant* ~~a *Market Customer*~~ or *Ancillary Service Provider* that is entitled to compensation under clause 3.12.2, a *Directed Participant* and an *Affected Participant*.

(d) Without limitation, examples of the types of indirect costs referred to in paragraph (b) include:

(1) distortionary effects on the operation of the *market*; and

(2) the implied value of lost *load* when *load shedding* occurs as a result of a *clause 4.8.9 instruction*, the value of which may be determined by *AEMO* having regard to the value of customer reliability.

3.8.16 Equal priced dispatch bids ~~and dispatch offers~~

If there are *scheduled resources* (other than *scheduled network services*)~~*scheduled generating units*, *wholesale demand response units*, *semi-scheduled generating units* or *scheduled loads*,~~ in the same *region*, for which the prices submitted in *dispatch bids* ~~or *dispatch offers*~~ for a particular *trading interval* result in identical prices at their *regional reference node*, then the MW quantities specified in the relevant *price bands* of those *dispatch bids* ~~or *dispatch offers*~~ must be *dispatched* on a pro-rata basis, where this can be achieved without imposing undue costs on any party, or violating other constraints.

3.8.17 Self-commitment

(a) *Slow start generating units* are *generating units* which are unable to *synchronise* and increase *generation* within 30 minutes of receiving an instruction from *AEMO*.

(b) *Slow start generating units* must *self-commit* to be eligible for *dispatch*.

(c) A *Scheduled Generator* may only *self-commit* a *scheduled generating unit* in accordance with this clause.

(d) A *Scheduled Generator* or a *Semi-Scheduled Generator* has a right to *synchronise* its *scheduled generating unit* or *semi-scheduled generating unit* (as the case may be) to the *power system* and have *AEMO dispatch* that *generating unit* subject to the *dispatch* procedures set out in this rule 3.8.

(e) A *Scheduled Generator* must advise *AEMO* of its intention to *self-commit* and *synchronise* a *scheduled generating unit* with a *nameplate rating* of 30MW or more.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) Unless otherwise agreed with *AEMO*, the *Scheduled Generator* must advise of its intention under paragraph (e) through *PASA* and *pre-dispatch* by submitting an amended *available capacity* profile of the *scheduled generating unit* into the *market information bulletin board*.

(g) The exact time of *synchronisation* for a *scheduled generating unit* will be subject to directions from *AEMO* in accordance with Chapter 4.

(h) A *Scheduled Generator* or *Market Participant* must notify *AEMO* of any changes to *self-commitment* decisions without delay.

(i) *AEMO* must notify all *Scheduled Generators* and *Market Participants* of any changes to *self-commitment* decisions without delay.

3.8.18 Self-decommitment

(a) A *Scheduled Generator* may only *self-decommit* a *scheduled generating unit* in accordance with this clause.

(b) *Scheduled Generators* must notify *AEMO* of their planned *self-decommitment* decisions in relation to *slow start generating units* at least 2 *days* in advance of *dispatch*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) A *Scheduled Generator* must advise *AEMO* of its intention to *self-decommit* and de-synchronise a *generating unit* with a *nameplate rating* of 30 MW or more.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) Unless otherwise agreed with *AEMO*, the *Scheduled Generator* must advise of its intention under paragraph (c) through *PASA* and *pre-dispatch* by submitting an amended *available capacity* profile of the *scheduled generating unit* into the *market information bulletin board*.

(e) A *Scheduled Generator* ~~or *Market Participant*~~ must notify *AEMO* as soon as practicable of any changes in their *self-decommitment* decisions.

(f) *AEMO* must notify all *Scheduled Generators* and *Market Participants* of any changes to *self-decommitment* decisions as soon as practicable.

3.8.19 Dispatch inflexibilities

(a) Subject to paragraph (a2)~~clause 3.8.19(a2)~~, if a ~~*Scheduled Generator* or~~ *Market Participant* reasonably expects one or more of its ~~*scheduled generating units, wholesale demand response units, scheduled network services* or *scheduled loads~~*scheduled resources* (other than *semi-scheduled generating units*) to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of ~~that *scheduled generating unit, wholesale demand response unit, scheduled network service* or *scheduled~~

~~*load*~~the relevant *scheduled resource*, it must advise *AEMO* through the *PASA* or in its ~~*dispatch offer* or~~ *dispatch bid* in respect of that ~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~*scheduled resource*~~, as appropriate under this Chapter~~, that the ~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled* load~~relevant *scheduled resource* is *inflexible* in that *trading interval* and must specify a fixed *loading level* at which the relevant *scheduled resource*~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~ is to be operated in that *trading interval*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) Subject to paragraph (a2)~~clause 3.8.19(a2)~~, if a *Semi-Scheduled Generator* reasonably expects one or more of its *semi-scheduled generating units* to be unable to operate in accordance with *dispatch instructions* in any *trading interval* due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *semi-scheduled generating unit*, it must advise *AEMO* in its *dispatch bid*~~*dispatch offer*~~ in respect of that *semi-scheduled generating unit*, as appropriate under this Chapter, that the *semi-scheduled generating unit* is *inflexible* in that *trading interval* and must specify a maximum *loading level* at or below which the *semi-scheduled generating unit* is to be operated in that *trading interval*. Where the specified maximum *loading level* in these circumstances exceeds the *unconstrained intermittent generation forecast* for the *semi-scheduled generating unit*, the *dispatch level* for the *semi-scheduled generating unit* will nonetheless not exceed the *unconstrained intermittent generation forecast*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a2) ~~If clause 3.8.19(a) or clause 3.8.19(a1) applies, the *Scheduled Generator*, *Market Participant* or *Semi-Scheduled Generator*:~~If paragraph (a) or paragraph (a1) applies, the relevant *Market Participant*:

(1) must not advise *AEMO* that a *scheduled resource* is *inflexible* under paragraph (a) or paragraph (a1) unless it reasonably expects the *scheduled resource* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled resource*; and~~must not advise *AEMO* that a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* is *inflexible* under clause 3.8.19(a) or clause 3.8.19(a1) unless it reasonably expects the *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit*, *semi-*~~

~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*; and~~

(2) must, as soon as practicable, advise *AEMO* that a *scheduled resource* is not *inflexible* once it no longer reasonably expects the *scheduled resource* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled resource*.~~must, as soon as practicable, advise *AEMO* that a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* is not *inflexible* once it no longer reasonably expects the *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* to be unable to operate in accordance with *dispatch instructions* in any *trading interval*, due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*.~~

(b) Where a *Market Participant* advises *AEMO* that a *scheduled resource* is *inflexible* in accordance with paragraph (a) or paragraph (a1) the *Market Participant* must~~Where a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* advises *AEMO* that a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* is *inflexible* in accordance with clause 3.8.19(a) or 3.8.19(a1) the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must~~:

(1) provide *AEMO* with a brief, verifiable and specific reason why the *scheduled resource*~~*scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~ is *inflexible* at the same time as it advises *AEMO* of the *inflexibility*; and

Note

This clause is classified as a civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) provide to the *AER*, upon written request, in accordance with the guidelines issued by the *AER* from time to time in accordance with the *Rules consultation procedures* such additional information to substantiate and verify the reason for such *inflexibility* as the *AER* may require from time to time. The *AER* must provide information provided to it in accordance with this subparagraph (b)(2) ~~clause 3.8.19(b)(2)~~ to any *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*.

(c) Other than in *trading intervals* for which it has been specified by a *Market Participant* in the relevant *dispatch bid* for a *scheduled resource* that the *scheduled resource* is *inflexible*, *AEMO* will *dispatch* the *scheduled resource* in accordance with the prices and *price bands* specified in the relevant

dispatch bid.~~Other than in *trading intervals* for which it has been specified by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* in the relevant *dispatch offer* or *dispatch bid* for a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* that the *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* is *inflexible*, *AEMO* will *dispatch* the *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* in accordance with the prices and *price bands* specified in the relevant *dispatch offer* or *dispatch bid*.~~

(d) In respect of *scheduled resources* which are not *slow start generating units*, *Market Participants* may provide *AEMO*, as part of a *dispatch bid* in respect of the relevant *scheduled resource*, with a *dispatch inflexibility profile*.~~In respect of *scheduled loads*, *wholesale demand response units*, *scheduled generating units* or *semi-scheduled generating units* which are not *slow start generating units*, *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* may provide *AEMO*, as part of a *dispatch offer* or *dispatch bid* in respect of those *scheduled loads wholesale demand response units*, or *generating units* or *semi-scheduled generating units*, with a *dispatch inflexibility profile*.~~

(e) A *dispatch inflexibility profile* for a *generating unit* or *bidirectional unit* must contain the following parameters to indicate its MW capacity and time related *inflexibilities*:

(1) The time, T1, in minutes, following the issue of a *dispatch instruction* by *AEMO* to increase its *loading level* from 0 MW, which is required for the *plant* to begin to vary its *dispatch* level from 0 MW in accordance with the instruction;

(2) The time, T2, in minutes, that the *plant* requires after T1 (as specified in subparagraph (1)) to reach a specified minimum MW *loading level*;

(3) The time, T3, in minutes, that the *plant* requires to be operated at or above its minimum *loading level* before it can be reduced below that level;

(4) The time, T4, in minutes, following the issue of a *dispatch instruction* by *AEMO* to reduce *loading level* from the minimum *loading level* (specified under subparagraph (2)) to zero, that the *plant* requires to completely comply with that instruction;

(5) T1, T2, T3 and T4 must all be equal to or greater than zero;

(6) The sum (T1 + T2) must be less than or equal to 30 minutes; and

(7) The sum (T1 + T2 + T3 + T4) must be less than 60 minutes.

(f) A *dispatch inflexibility profile* for a *scheduled load* must contain parameters to indicate its MW capacity and time related *inflexibilities*.

(f1) A *dispatch inflexibility profile* for a *wholesale demand response unit* must contain parameters to indicate its MW capacity and time related *inflexibilities*.

(g) *AEMO* must use reasonable endeavours not to issue a *dispatch instruction* which is inconsistent with an applicable ~~*Scheduled Generator's, Semi-Scheduled Generator's or*~~ *Market Participant's dispatch inflexibility profile*.

3.8.20 Pre-dispatch schedule

(a) Each *day*, in accordance with the *timetable*, *AEMO* must prepare and *publish* a *pre-dispatch schedule* covering each *trading interval* of the period commencing from the next *trading interval* after the current *trading interval* up to and including the final *trading interval* of the last *trading day* for which all valid *dispatch bids* ~~and *dispatch offers*~~ have been received in accordance with the *timetable* and applied by the *pre-dispatch* process.

(b) The *pre-dispatch* process is to have a resolution of:

(1) one *30-minute period*; and

(2) one *trading interval*, for the period of 60 minutes from the time that the relevant *pre-dispatch schedule* is *published* by *AEMO*, provided that *AEMO* may at any stage provide the resolution required by this clause 3.8.20(b)(2) for a period longer than 60 minutes,

and no analysis will be made of operations within the *trading interval*, other than to ensure that *contingency capacity reserves* are adequate as set out in Chapter 4.

(c) Subject to paragraph (b), *AEMO* must determine the *pre-dispatch schedule* on the basis of:

(1) *dispatch bids*~~, *dispatch offers*~~ and *market ancillary service bids*~~*market ancillary service offers*~~ submitted for the relevant *trading interval* or *trading intervals*;

(2) *AEMO's* forecast of total *load* ~~*power system* load~~ for each *region* for the relevant *trading interval* or *trading intervals*; and

(3) the *unconstrained intermittent generation forecasts*,

and by using a process consistent with the principles for *central dispatch* as set out in clause 3.8.1.

(d) [**Deleted**]

(e) Any inputs made to the *pre-dispatch* process by *AEMO* for the purpose of achieving a physically realisable schedule or to satisfy *power system security* requirements must be made prior to release of the *pre-dispatch schedule* and recorded by *AEMO* in a manner suitable for audit.

(f) The *pre-dispatch schedule* must include the details set out in clause 3.13.4(f).

(g) ~~Each *Scheduled Generator*, *Demand Response Service Provider*, *Scheduled Network Service Provider* and *Market Customer* which has classified a *scheduled load* and *Market Participant* (which has classified an *ancillary service generating unit* or *ancillary service load*)~~ The *Market Participant* in respect of a *scheduled resource* or an *ancillary service unit* must ensure that it is able to *dispatch* the relevant *plant* as required under the *pre-dispatch schedule* and is responsible for changing inputs to the *central dispatch*

process, if necessary to achieve this, via the rebidding provisions under clause 3.8.22.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) The *pre-dispatch schedule* must be re-calculated and the results re-*published* by *AEMO* regularly in accordance with the *timetable*, or more often if a change in circumstances is deemed by *AEMO* to be likely to have a significant effect on the operation of the *market*.

(i) *AEMO* must fully document the operation of the *pre-dispatch* process, including the principles adopted in making calculations required to be included and all such documentation must be made available to ~~*Scheduled Generators, Semi-Scheduled Generators* and~~ *Market Participants* at a fee to be set by *AEMO* to cover its costs of supplying such documentation.

(j) Subject to clause 3.8.20(b), the following *pre-dispatch* outputs relating specifically to a *scheduled resource* or an *ancillary service unit* ~~*generating unit, wholesale demand response unit, scheduled network service, scheduled load* or *ancillary service load* operated by a *Scheduled Generator, Semi-Scheduled Generator* or *Market Participant* (as the case may be)~~must be made available electronically to the relevant ~~*Generator* or~~ *Market Participant* on a confidential basis:

(1) the scheduled times of *commitment* and de-commitment of individual *slow start generating units*;

(2) scheduled *trading interval* or *30-minute period loading level* (as applicable) for each *scheduled resource* or *ancillary service unit* ~~scheduled entity~~;

(3) scheduled provision of *market ancillary services*;

(4) scheduled *constraints* for the provision of *market ancillary services*;

(5) scheduled *constraints* due to *network* limitations;

(6) *unconstrained intermittent generation forecasts* for each *trading interval* or *30-minute period* (as applicable); and

(7) for each *semi-scheduled generating unit* and *trading interval* or *30-minute period* (as applicable), whether or not a condition for setting a *semi-dispatch interval* or *semi-dispatch intervals* applies.

(k) Where the *pre-dispatch schedule* may have failed to *dispatch* a *scheduled generating unit*, ~~or~~ a *semi-scheduled generating unit*, a *scheduled bidirectional unit* or a *scheduled load* to maximise the joint value of *energy* and *ancillary services pre-dispatch* outputs of the relevant *scheduled resource* ~~a *scheduled generating unit* or *semi-scheduled generating unit*~~, due to the relevant *scheduled resource* ~~the *generating unit*~~ operating outside its *enablement limit*, *AEMO* must notify the relevant *Market Participant* ~~*Scheduled Generator* or *Semi-Scheduled Generator* operating the relevant *generating unit*~~ electronically on a confidential basis.

3.8.21 On-line dispatch process

(a) *Dispatch bids* ~~and *dispatch offers*~~ must be *centrally dispatched* by *AEMO* using the *dispatch algorithm*.

(a1) [**Deleted**]

(b) The *dispatch algorithm* is to be run by *AEMO* for each *trading interval*. If the *dispatch algorithm* is not successfully run for any *trading interval* then the values of the last successful run of the *dispatch algorithm* must be used for that *trading interval*.

(c) *Central dispatch* results in the setting of *spot prices* and *ancillary services prices* for each *trading interval* in accordance with rule 3.9.

(d) *AEMO* will issue *dispatch instructions* to *Market Participants* electronically~~Where possible, *dispatch instructions* will be issued electronically via the *AGC* or via an electronic display in the *plant* control room (which may be onsite or offsite) of the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* (as the case may be)~~.

(e) *AEMO* may issue *dispatch instructions* in some other form if in its reasonable opinion issuing *dispatch instructions* electronically is not reasonably possible~~the methods described in paragraph (d) are not possible~~.

(f) A ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* must ensure it has facilities to receive *dispatch instructions* in the manner described in this clause 3.8.21.

(g) *Dispatch instructions* that are issued via the *AGC* ~~*system*~~ are to be issued progressively at intervals of no more than 5 minutes following re-evaluation of *central dispatch* to achieve a prompt and smooth implementation of the outcomes of each *central dispatch* update.

(h) With the exception of instructions issued by telephone, all *dispatch instructions* and the times at which they are issued are to be logged automatically and *dispatch instructions* that are issued by telephone must be recorded by *AEMO*.

(i) *AEMO* may modify or override the *dispatch algorithm* outcome in accordance with the requirements of clause 4.8.9 or due to *plant* not conforming to *dispatch instructions* and in such circumstances *AEMO* must record the details of the event and the reasons for its action for audit purposes.

(j) If a ~~*scheduled load*, *wholesale demand response unit*, *scheduled generating unit* or *semi-scheduled generating unit*~~*scheduled resource*, in respect of which a *dispatch inflexibility profile* has been notified to *AEMO* in accordance with clause 3.8.19, is *dispatched* from 0 MW in any *trading interval* by the *central dispatch* process, then the specified *dispatch inflexibility profile* must be used by *AEMO* as a *constraint* on the *dispatch* of that ~~*plant*~~ *scheduled resource* for the relevant subsequent *trading intervals*.

(k) A ~~*scheduled load*, *wholesale demand response unit* or *generating unit*~~*scheduled resource* whose *dispatch* is *constrained* in any *trading interval* due to a *dispatch inflexibility profile* submitted under clause 3.8.19 cannot be used as the basis for setting the *spot price* in that *trading interval* at any location.

(l) *AEMO* must fully document the operation of the process described in this clause 3.8.21, including the software, algorithms, and the principles adopted in making judgments where they are required in the process and all such documentation must be made available to ~~*Scheduled Generators, Semi-Scheduled Generators* and~~ *Market Participants* at a price reflective of costs incurred by *AEMO* in providing such documentation.

(m) Where the *central dispatch* process may have failed to *dispatch* a *scheduled generating unit*, ~~or~~ *semi-scheduled generating unit*, *bidirectional unit* or *scheduled load* to maximise the joint value of *energy* and *ancillary services* due to the relevant ~~*generating unit*~~*scheduled resource* operating outside its *enablement limit*, *AEMO* must notify the relevant ~~*Scheduled Generator* or *Semi-Scheduled Generator*~~*Market Participant* ~~operating the relevant *generating unit*~~ electronically on a confidential basis.

(n) When a *wholesale demand response unit* is *dispatched* to provide *wholesale demand response*, *AEMO* must as soon as practicable after giving the relevant *dispatch instruction* notify that fact to the *financially responsible Market Participant* for the *connection points* comprised in the *wholesale demand response unit* on a confidential basis.

3.8.22 Rebidding

(a) Prices for each *price band* that are specified in *dispatch bids*~~, *dispatch offers*~~ and *market ancillary service bids*~~*market ancillary service offers*~~ are firm and no changes to the price for any *price band* are to be accepted under any circumstances.

(b) Subject to clauses 3.8.3A, 3.8.7A, 3.8.7B, 3.8.19(a) and 3.8.22A, a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may submit a *rebid* to vary:

(1) its *available capacity*, daily *energy constraints*, daily *wholesale demand response constraints*, *dispatch inflexibilities* and *ramp rates* of *scheduled resources*~~*generating units*, *scheduled network services*, *wholesale demand response units* and *scheduled loads*~~; and

(2) the *response breakpoints*, *enablement limits* and response limits of *market ancillary services*,

previously notified in a ~~*dispatch offer*,~~ a *dispatch bid* or a previous *rebid*.

(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must provide:

(1) all *rebids* to *AEMO* electronically unless otherwise approved by *AEMO*;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) to *AEMO*, at the same time as the *rebid* is made:

(i) a brief, verifiable and specific reason for the *rebid*; and

(ii) the time at which the event(s) or other occurrence(s) adduced by the relevant *Generator* or *Market Participant* as the reason for the *rebid*, occurred;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

Clause 3.8.22(c)(2) applies in respect of any *rebid* submitted during the *late rebidding period*.

(3) to the *AER*, upon written request, in accordance with guidelines published by the *AER*, such additional information to substantiate and verify the reason for a *rebid* (including any record made under paragraph (ca)) as the *AER* may require from time to time.

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(ca) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* who makes a *rebid* during the *late rebidding period* must make a contemporaneous record in relation to the *rebid*, which must include a record of:

(i) the material conditions and circumstances giving rise to the *rebid*;

(ii) the *Generator's* or *Market Participant's* reasons for making the *rebid*;

(iii) the time at which the relevant event(s) or other occurrence(s) occurred; and

(iv) the time at which the *Generator* or *Market Participant* first became aware of the relevant event(s) or other occurrence(s).

Notes

Clause 1.9 applies to records made under paragraph (ca).

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) The *AER* must provide information provided to it in accordance with paragraph (c)(3) to any *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*.

(e) The guidelines referred to in paragraphs (c)(3) must be developed in accordance with the *Rules consultation procedures* and must include:

(1) the amount of detail to be included in the information provided to *AEMO* under paragraph (c)(2); and

(2) procedures for handling claims by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* in accordance with paragraph (d) or clause 3.8.19(b)(2) that the information provided to the

AER by such *Generators* or *Market Participants* under those clauses is *confidential information*.

(f) The *AER* must *publish* the guidelines developed under this clause 3.8.22 and may amend such guidelines from time to time.

(g) *AEMO* must:

(1) subject to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* complying with paragraphs (c)(1) and (c)(2)(i) and (ii), accept the *rebid*; and

(2) *publish*, in accordance with clause 3.13.4(p), the time the *rebid* was made and the reason provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* under paragraph (c)(2)(i).

3.8.22A ~~Offers, bids~~Bids and rebids must not be false or misleading

(a) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must not make a ~~*dispatch offer,* *dispatch bid*~~ or *rebid* that is false, misleading or likely to mislead.

(a1) For the purposes of paragraph (a), the making of a ~~*dispatch offer,* *dispatch bid*~~ or *rebid* is deemed to represent to other *Generators* or *Market Participants* through the *pre-dispatch schedules published* by *AEMO* that the ~~offer, bid~~*dispatch bid* or *rebid* will not be changed, unless the *Generator* or *Market Participant* becomes aware of a change in the material conditions and circumstances upon which the ~~offer, bid~~ *dispatch bid* or *rebid* are based.

(a2) For the purposes of paragraph (a), the making of a *wholesale demand response dispatch bid* by a *Demand Response Service Provider* is deemed to represent to other *Market Participants* through the *pre-dispatch schedules* published by *AEMO* that:

(1) any *baseline deviation* of the *wholesale demand response unit* in response to a *dispatch instruction* will be the result of *wholesale demand response activity* in relation to the *wholesale demand response unit*; and

(2) there will be no *baseline deviation offset* in relation to the *baseline deviation* of the *wholesale demand response unit* in the period for which the *wholesale demand response unit* is *dispatched*.

(b) Without limiting paragraph (a), a ~~*dispatch offer,* *dispatch bid*~~ or *rebid* is deemed to be false or misleading if, at the time of making ~~such an offer, bid~~ the *dispatch bid* or *rebid*, a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*:

(1) does not have a genuine intention to honour; or

(2) does not have a reasonable basis to make;

the representations made by reason of paragraph (a1) or paragraph (a2).

(b1) In any proceeding in which a contravention of paragraph (a) is alleged, in determining whether a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* made a ~~*dispatch offer,* *dispatch bid*~~ or *rebid* that was false,

misleading or likely to mislead, a court must have regard to the market design principle set out in clause 3.1.4(a)(2).

(c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may be taken to have contravened paragraph (a) notwithstanding that, after all the evidence has been considered, the false or misleading character of the ~~*dispatch offer,*~~ *dispatch bid* or *rebid* (including either of the matters referred to in subparagraphs (b)(1) and (2)) is ascertainable only by inference from:

(1) other ~~*dispatch offers,*~~ *dispatch bids* or *rebids* made by the *Generator* or *Market Participant*, or in relation to which the *Generator* or *Market Participant* had substantial control or influence;

(2) other conduct (including any pattern of conduct), knowledge, belief or intention of the relevant *Generator* or *Market Participant*;

(3) the conduct (including any pattern of conduct), knowledge, belief or intention of any other person;

(4) information published by *AEMO* to the relevant *Generator* or *Market Participant*; or

(5) any other relevant circumstances.

(d) A *rebid* must be made as soon as practicable after the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* becomes aware of the change in material conditions and circumstances on the basis of which it decides to vary its ~~*dispatch offer* or~~ *dispatch bid*.

(e) In any proceeding in which a contravention of paragraph (d) is alleged, in determining whether the *Generator* or *Market Participant* made a *rebid* as soon as practicable, a court must have regard to:

(1) the market design principle set out in clause 3.1.4(a)(2); and

(2) the importance of *rebids* being made, where possible, in sufficient time to allow reasonable opportunity for other *Market Participants* to respond (including by making responsive *rebids*, by bringing one or more *generating units* or *bidirectional units* into operation or increasing or decreasing the *loading level* of any *generating units* or *bidirectional units*, or by adjusting the *loading level* of any *load* or *wholesale demand response units*) prior to the commencement of the *trading interval* to which the *rebid* relates, and may have regard to any other relevant matter, including any of the matters referred to in sub-paragraphs (c)(1) to (5).

Note

This clause is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

3.8.23 Failure to conform to dispatch instructions excluding wholesale demand response units

(a) If a *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled network service* or *scheduled load* fails to respond to a *dispatch instruction* within a tolerable time and accuracy (as determined in *AEMO's* reasonable

opinion), then the *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled network service* or *scheduled load* (as the case may be):

(1) is to be declared and identified as non-conforming; and

(2) cannot be used as the basis for setting *spot prices*.

(b) If a *semi-scheduled generating unit* fails to respond to a *dispatch instruction* within a tolerable time and accuracy (as determined in *AEMO's* reasonable opinion) in a *semi-dispatch interval* where the unit's actual *generation* is more than the *dispatch level*, the unit is to be declared and identified as non-conforming and cannot be used as the basis for setting *spot prices*.

(c) If a *scheduled resource*~~*scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load*~~ is identified as non-conforming under paragraphs (a) or (b):

(1) *AEMO* must advise the relevant *Market Participant* that the relevant *scheduled resource* ~~*Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer* that the relevant *generating unit, scheduled network service or scheduled load*~~ is identified as non-conforming, and request and log a reason for the non-compliance with the *dispatch instruction*;

(2) if in *AEMO's* opinion modification of *plant* parameters is necessary or desirable, *AEMO* must request the relevant *Market Participant*~~*Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer*~~ to submit modified *plant* parameters to satisfy *AEMO* that a realistic real time *dispatch* schedule can be carried out;

(3) should a *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* fail to meet the requests set out subparagraphs (1) and (2) or if *AEMO* is not satisfied that the *generating unit* or *scheduled bidirectional unit* will respond to future *dispatch instructions* as required, *AEMO* must direct the *generating unit* or *scheduled bidirectional unit* ~~*generating unit's* output~~ to follow, as far as is practicable, a specified output and (where applicable) consumption profile to be determined at its discretion by *AEMO*;

(4) should a *Scheduled Network Service Provider* fail to meet the requests set out in subparagraphs (1) and (2) or if *AEMO* is not satisfied that the *scheduled network service* will respond to future *dispatch instructions* as required, *AEMO* must direct the *scheduled network service* to follow, as far as is practicable, a specified transfer profile to be determined at its discretion by *AEMO*; and

(5) should a *Market Customer* not meet the requests set out in subparagraphs (1) and (2) within a reasonable time of the request, or if *AEMO* is not satisfied that the *scheduled load* will respond to future *dispatch instructions* as required, *AEMO* acting reasonably may invoke a ~~*default dispatch bid*~~*default bid* lodged by the relevant *Market Customer* or apply *constraints* as it deems appropriate.

(d) Until a *Market Participant* ~~Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer~~ satisfactorily

responds to the requests under paragraphs (c)(1) and (2) and *AEMO* is satisfied that the relevant *scheduled resource* ~~*generating unit, scheduled network service* or *scheduled load* (as the case may be)~~ will respond to future *dispatch instructions* as required, that *scheduled resource* ~~the generating unit, scheduled network service or scheduled load (as the case may be)~~ continues to be non-conforming.

(e) If a *scheduled resource* ~~a *generating unit, scheduled network service* or *scheduled load* (as the case may be)~~ continues to be non-conforming under this clause 3.8.23 after a reasonable period of time, *AEMO* must prepare a report setting out the details of the non-conformance and forward a copy of the report to the relevant *Market Participant*~~*Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider* or *Market Customer*~~ (as the case may be) and the *AER*.

(f) The direction referred to in paragraphs (c)(3) and (4) must remain in place until the relevant *Market Participant* ~~*Scheduled Generator, Semi-Scheduled Generator* or *Scheduled Network Service Provider* (whichever is relevant)~~ satisfies *AEMO* of rectification of the cause of the non-conformance.

(g) If an *ancillary service unit*~~*ancillary service generating unit* or *ancillary service load*~~ is *enabled* to provide a *market ancillary service* and fails to respond in the manner contemplated by the *market ancillary service specification* (as determined in *AEMO's* reasonable opinion), then:

(1) the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* is to be declared and identified as non-conforming;

(2) *AEMO* must advise the relevant *Market Participant* that the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* is identified as non-conforming, and request a reason for the non-conformance. The relevant *Market Participant* must promptly provide a reason if requested to do so, and the reason is to be logged; and

(3) *AEMO* may set a fixed level for the relevant *ancillary service* (in this clause 3.8.23 called the 'fixed constraint') for the *ancillary service unit* ~~*ancillary service generating unit* or *ancillary service load*~~ and the relevant *Market Participant* must ensure that the *ancillary service unit* ~~*ancillary service generating unit* or *ancillary service load*~~ complies with the fixed constraint set by *AEMO*.

(h) *AEMO* must lift the fixed constraint in respect of an ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* when *AEMO* is reasonably satisfied (as a result of a test or otherwise) that the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* is capable of responding in the manner contemplated by the *market ancillary service specification*.

(i) In assessing a report of non-conformance with a *dispatch instruction* by a *scheduled load*, the *AER* shall have regard to whether a ~~*default dispatch bid*~~*default bid* had been lodged with *AEMO* and was, or could have reasonably been, applied in the circumstances applicable to that *scheduled load*.

3.9 Price Determination

3.9.1 Principles applicable to spot price determination

(a) The principles applying to the determination of prices in the *spot market* are as follows:

(1) [**Deleted**]

(2) a *spot price* at a *regional reference node* is determined by the *central dispatch process* at that *regional reference node* for each *trading interval*;

(2A) the *central dispatch process* must determine an *ancillary service price* for each *market ancillary service* at each *regional reference node* for each *trading interval*;

(3) *spot prices* determine *dispatch* such that a *generating unit*, *bidirectional unit*, *wholesale demand response unit* or *scheduled load* whose *dispatch bid* ~~or *dispatch offer*~~ at a location is below the *spot price* at that location will normally be *dispatched*;

(3A) ~~*generating units*, *scheduled network services* or *scheduled loads* which operate in accordance with a *direction*, are to be taken into account in the *central dispatch* process, but the *dispatch offer*, in the case of a *generating unit* or *scheduled network service*, which operates in accordance with a *direction*, or the *dispatch bid*, in the case of a *scheduled load* which operates in accordance with a *direction*,~~ *plant* that operates in accordance with a *direction* is to be taken into account in the *central dispatch* process, but the *dispatch bid* for the relevant *plant* will not be used in the calculation of the *spot price* for the relevant *trading interval*;

(3B) ~~*ancillary service generating units* and *ancillary service loads*~~*ancillary service units* the subject of a fixed constraint (within the meaning of clause 3.8.23(g)) are to be taken into account in the *central dispatch* process, but the price in a *market ancillary service bid* in respect of the relevant *ancillary service unit*~~*market ancillary service offer* which operates in accordance with a fixed constraint~~ will not be used in the calculation of the *ancillary service price* for that *market ancillary service* for the relevant *trading interval*;

(3C) ~~*generating units* or *loads* which operate in accordance with a *direction* to provide an *ancillary service* are to be taken into account in the *central dispatch* process, but the price in a *market ancillary service offer* which operates in accordance with a *direction*,~~ *plant* that operates in accordance with a *direction* to provide an *ancillary service* is to be taken into account in the *central dispatch* process, but the price in a *market ancillary service bid* in respect of the relevant *plant* will not be used in the calculation of the *ancillary service price* for that *market ancillary service* for the relevant *trading interval*;

(4) *network losses*, *network constraints*, the availability of *scheduled network services* and *dispatch bids* for *scheduled network services*~~*network dispatch offers*~~ are taken into account in the

determination of *dispatch* and consequently affect *spot prices* and (apart from *network losses*) *ancillary services prices*;

(5) where the *energy* output of a *Market Participant*~~*Registered Participant*~~ is limited above or below the level at which it would otherwise have been *dispatched* by *AEMO* on the basis of its ~~*dispatch offer or*~~ *dispatch bid* due to a *direction* to provide~~an~~ *ancillary services*~~ *direction*~~, the *Registered Participant's* ~~*dispatch offer or*~~ *dispatch bid* is taken into account in the determination of *dispatch* but the ~~*dispatch offer or*~~ *dispatch bid* will not be used in the calculation of the *spot price* for the relevant *trading interval*;

(5A) *market ancillary service bids*~~*market ancillary service offers*~~, in other *ancillary services markets*, due to an *ancillary services direction* are taken into account in the determination of *dispatch* and consequently affect *ancillary service prices* in those other *ancillary services markets*;

(6) when the *spot price* is determined, it applies to both sales and purchases of electricity (including through the provision of *wholesale demand response*) at a particular location and time;

(6A) when an *ancillary service price* is determined for an *ancillary service*, it applies to purchases of that *ancillary service*;

(6B) when an *ancillary service price* is determined under paragraph (6A) for a *regulation service*, it applies to purchases of that *regulation service* and, where appropriate, purchases of a *delayed service*;

(7) *spot prices* provide *Market Participants* with signals as to the value of providing or cost of consuming electricity at a particular location at a particular time; and

(7A) *ancillary service prices* provide *Ancillary Service Providers* with signals as to the value of providing the relevant *market ancillary service* within a particular *region* at a particular time.

(b) A single *regional reference price* provides a reference from which the *spot prices* are determined within each *region*.

(c) The local *spot price* at each *transmission network connection point* is the *spot price* at the *regional reference node* for the *region* to which the *connection point* is assigned multiplied by the relevant *intra-regional loss factor* applicable to that *connection point*.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra-regional loss factor* for use under this clause in accordance with the procedure determined under clause 3.6.2(d1).

3.9.2 Determination of spot prices

(a) **[Deleted]**

(b) **[Deleted]**

(c) Each time the *dispatch algorithm* is run by *AEMO*, it must determine a *spot price* for each *regional reference node* for a *trading interval* in accordance with clause 3.8.21(b), provided that if *AEMO* fails to run the *dispatch*

algorithm to determine *spot prices* for any *trading interval* then the *spot price* for that *trading interval* is the last *spot price* determined by the *dispatch algorithm* prior to the relevant *trading interval*.

(d) The *spot price* at a *regional reference node* represents the marginal value of *supply* at that location and time, this being determined as the price of meeting an incremental change in *load* at that location and time in accordance with clause 3.8.1(b).

(e) Notwithstanding paragraphs (c) or (d), for any *trading interval* if:

(1) the *spot price* for that *trading interval* has not already been set by the *central dispatch* process and *AEMO* reasonably determines that the *central dispatch* process may determine that all *load* in a *region* could not otherwise be supplied and *AEMO* issues instructions that are current for that *trading interval* to *Network Service Providers* or *Market Participants* for *load shedding* ~~to shed *load*~~, then *AEMO* must set the *spot price* at that *region's regional reference node* to equal the *market price cap*;

(2) *AEMO* has declared a *trading interval* to be an *intervention trading interval* under clause 3.9.3(a), then subject to clauses 3.9.3(b2) and 3.9.3(c) *AEMO* must set the *spot price* in accordance with clause 3.9.3;

(3) **[Deleted]**

(4) an *administered price period* in accordance with rule 3.14.2 applies, then *AEMO* must limit the *spot price* in accordance with clause 3.14.2(d1); and

(5) *AEMO* has made a declaration that the *spot market* in a *region* is suspended under clause 3.14.3, then *AEMO* must set the *spot price* for each *trading interval* during the period for which the *spot market* is suspended in accordance with clause 3.14.5.

(f) **[Deleted]**

(g) **[Deleted]**

(h) **[Deleted]**

(i) **[Deleted]**

(j) **[Deleted]**

(k) If a test is being conducted on a *scheduled resource* ~~a *generating unit* or *scheduled load*~~ in accordance with clause 3.11.2 and for the purpose of conducting that test, the *scheduled resource* ~~*generating unit* or *scheduled load*~~ is excluded from *central dispatch*, then ~~that *generating unit* or *scheduled load*~~the prices in a *dispatch bid* for the relevant *scheduled resource* cannot be used to set the *spot price* for the relevant *trading interval*.

3.9.2A Determination of ancillary services prices

(a) Each time the *dispatch algorithm* is run by *AEMO*, it must determine an *ancillary service price* for each *market ancillary service* for each *regional reference node* which is to apply until the next time the *dispatch algorithm* is run, provided that if *AEMO* fails to run the *dispatch algorithm* to determine

ancillary service prices for any *trading interval* then the *ancillary service price* for that *trading interval* is the last *ancillary service price* determined by the *dispatch algorithm* prior to the relevant *trading interval*.

(b) For each *market ancillary service*, including the *regulating raise service* and the *regulating lower service*, each time the *dispatch algorithm* is run by AEMO where a local *ancillary services* constraint has been applied, AEMO must:

(1) calculate the marginal price of meeting any *global market ancillary service requirement* for that service;

(2) calculate the marginal price of meeting each *local market ancillary service requirement* for that service and;

(3) identify for each *local market ancillary service requirement* the *regions* requiring the service.

(b1) An *ancillary service price* for a *region* is the sum of:

(1) the marginal price of meeting any *global market ancillary service requirement* for that service; and

(2) the marginal price of meeting each *local market ancillary service requirement* for that service in that *region*.

(c) If an *ancillary service price* determined using the *dispatch algorithm* under clause 3.9.2A(a):

(1) is less than zero, then the *ancillary service price* is reset to zero; and

(2) is greater than the *market price cap*, then the *ancillary service price* is reset to the *market price cap*.

(c1) If a marginal price calculated pursuant to clause 3.9.2A(b) is greater than the *market price cap*, then that marginal price is reset to the *market price cap*.

(d) If a test is being conducted on ~~*a generating unit* or *scheduled load*~~any *scheduled resource* in accordance with clause 3.11.2 and for the purpose of conducting that test, the ~~*generating unit* or *scheduled load*~~relevant *scheduled resource* is excluded from *central dispatch*, then ~~that *generating unit* or *scheduled load*~~the prices in a *market ancillary service bid* relating to that *plant* cannot be used to set *ancillary service prices*.

3.9.2B Pricing where AEMO determines a manifestly incorrect input

Definitions

(a) In this clause 3.9.2B:

affected dispatch interval has the meaning given to it by clause 3.9.2B(d).

automated procedures has the meaning given to it by clause 3.9.2B(h).

dispatch interval subject to review has the meaning given to it by clause 3.9.2B(b).

input means any value that is used by the *dispatch algorithm* including measurements of *power system* status, five minute demand forecast values,

constraint equations entered by *AEMO*, or software setup but not including *dispatch bids* ~~and *dispatch offers*~~ submitted by *Registered Participants*.

Last correct *trading interval* means the most recent *trading interval* preceding the affected *trading interval* that is not itself an affected *trading interval*.

(b) *AEMO* may apply the automated procedures developed in accordance with paragraph (h), to identify a *trading interval* as subject to review ("a ***trading interval* subject to review**").

(c) *AEMO* may also determine that a *trading interval* is subject to review if *AEMO* considers that it is likely to be subject to a manifestly incorrect input, but only where the *trading interval* immediately preceding it was a *trading interval* subject to review.

(d) *AEMO* must determine whether a *trading interval* subject to review contained a manifestly incorrect input to the *dispatch algorithm* ("**an affected *trading interval***").

(e) Where *AEMO* determines an affected *trading interval AEMO* must:

(1) replace all *spot prices* and *ancillary service prices* with the corresponding prices for the last correct *trading interval*; and

(2) recalculate, in accordance with paragraph (h), and adjust the *spot price* for each affected *trading interval*.

(f) *AEMO* may only carry out the action described in paragraph (e) if no more than 30 minutes have elapsed since the publication of the *spot prices* for the *trading interval* subject to review.

(g) As soon as reasonably practicable after the action as described in clause 3.9.2B(e), *AEMO* must *publish* a report outlining:

(1) The reasons for the determination under clause 3.9.2B(d);

(2) Whether that determination was correct;

(3) What action will be taken to minimise the risk of a similar event in future.

(h) *AEMO* must, in consultation with *Registered Participants*, develop procedures for the automatic identification of *trading intervals* subject to review under paragraph (b) ("the **automated procedures**").

(i) The purpose of the automated procedures is to detect instances where manifestly incorrect inputs may have resulted in material differences in pricing outcomes.

(j) **[Deleted]**

(k) At least once each calendar year, *AEMO* must review the effectiveness of the automated procedures referred to in clause 3.9.2B(h).

(l) *AEMO* must report on the findings of the review under paragraph (k) and must include in that report details of all *trading intervals* subject to review that were not affected *trading intervals* and an analysis of why such intervals were identified as subject to review.

(m) **[Deleted]**

3.9.3 Pricing in the event of intervention by AEMO

(a) In respect of a *trading interval* where one or more *AEMO intervention event(s)* is in effect, *AEMO* must declare that *trading interval* to be an *intervention trading interval*.

(b) Subject to subparagraphs (b2)(1) and (b2)(2), if, in *AEMO's* reasonable opinion, the reason for an *AEMO intervention event* is to obtain either:

(1) a service for which a *spot price* or *ancillary service price* is determined by the *dispatch algorithm*; or

(2) a service that is a direct substitute for a service for which a *spot price* or *ancillary service price* is determined by the *dispatch algorithm*,

then, subject to paragraph (c), *AEMO* must in accordance with the methodology or assumptions *published* pursuant to paragraph (e), set the *spot price* and *ancillary service prices* for an *intervention trading interval* at the value which *AEMO*, in its reasonable opinion, considers would have applied as the s*pot price* and *ancillary service prices* for that *trading interval* in the relevant *region* had the *AEMO intervention event* not occurred.

(b1) Without limitation, examples of the types of service referred to in paragraph (b) include:

(1) *energy* that is capable of being provided by any *generating unit* or *bidirectional unit* within a *region*;

(2) *energy* which, as a result of a *network constraint* or other *constraint*, is only capable of being provided by any *generating unit* or *bidirectional unit* located in the part of the *region* that includes the *regional reference node*;

(3) *market ancillary services* that are capable of being provided by any ~~*ancillary service generating unit*~~*ancillary service unit* within a *region*;

(4) *market ancillary services* which, as a result of a *network constraint* or other *constraint*, are only capable of being provided by any ~~*ancillary service generating unit*~~*ancillary service unit* located in the part of the *region* that includes the *regional reference node*; and

(5) demand response that reduces the need for the provision of *energy* or *market ancillary services* within a region.

(b2) *AEMO* must continue to set *spot prices* pursuant to clause 3.9.2 and *ancillary service prices* pursuant to clause 3.9.2A if the reason for an *AEMO intervention event* is to obtain:

(1) *energy and market ancillary services* which, as a result of a *network constraint* or other *constraint*, are only capable of being provided by a generating unit, *bidirectional unit* or *ancillary service unit* ~~*ancillary service generating unit*~~ in a part of the *region* which, due to the *constraint*, does not include the *regional reference node*; or

(2) demand response which, as a result of a *network constraint* or other *constraint,* is needed to reduce demand for *energy* or *market ancillary*

services in a part of the *region* which, due to the *constraint*, does not include the *regional reference node*; or

(3) a service for which a *spot price* or *ancillary service price* is not determined by the *dispatch algorithm*, regardless of whether *energy* or *market ancillary services* are also provided incidental to the provision of that service.

(b3) Without limitation, examples of the services referred to in subparagraph (b2)(3) include the provision of:

(1) *inertia*;

(2) *voltage* control;

(3) system strength; and

(4) *non-market ancillary services*.

(b4) In respect of any *intervention price trading interval* in which more than one *AEMO intervention event* is in effect, *AEMO* must in accordance with the methodology or assumptions *published* pursuant to paragraph (e) set *spot prices* and *ancillary service prices* pursuant to paragraph (b) as if:

(1) the services described in paragraph (b) were not provided; and

(2) *energy* or *market ancillary services* provided incidental to the provision of any services described in subparagraph (b2)(3) were taken into account.

(c) *AEMO* may continue to set *spot prices* pursuant to clause 3.9.2 and *ancillary service prices* pursuant to clause 3.9.2A until the later of:

(1) the second *trading interval* after the first *trading interval* in which the *AEMO intervention event* occurred; or

(2) if applicable, the second *trading interval* after the restoration of the *power system* to a *secure operating state* after any *direction* which constitutes the *AEMO intervention event* was issued,

provided that *AEMO* must use its reasonable endeavours to set *spot prices* and *ancillary service prices* pursuant to clause 3.9.3(b) as soon as practicable following the *AEMO intervention event*.

(d) [**Deleted**]

(e) Subject to paragraph (g), *AEMO* must develop in accordance with the *Rules consultation procedures* and *publish* details of the methodology it will use, and any assumptions it may be required to make, to determine *spot prices* and *ancillary service prices* for the purposes of paragraph (b).

(f) The methodology developed by *AEMO* under paragraph (e) must wherever reasonably practicable:

(1) be consistent with the principles for *spot price* determination set out in clause 3.9.1;

(2) enable *AEMO* to determine and *publish* such prices in accordance with clause 3.13.4; and

(3) be consistent with the principles for *ancillary service price* determination set out in clauses 3.9.2 and 3.9.2A.

(g) *AEMO* may make minor and administrative amendments to the methodology developed under paragraph (e) without complying with the *Rules consultation procedures*.

3.9.3C Reliability standard and interim reliability measure

(a) The *reliability standard* for *generation* and *inter-regional transmission elements* in the *NEM* is a maximum expected *unserved energy* (**USE**) in a *region* of 0.002% of the total *energy* demanded in that *region* for a given *financial year*.

(a1) The *interim reliability measure* for *generation* and *inter-regional transmission elements* in the *NEM* is a maximum expected *unserved energy* in a *region* of 0.0006% of the total *energy* demanded in that *region* for a given *financial year.*

Note:

The *interim reliability measure* is relevant for contracting interim reliability reserves under rule 11.128 and for the Retailer Reliability Obligation under rule 11.132.

(b) For the purposes of paragraph (a) and (a1), *unserved energy* is to:

(1) include *unserved energy* that results from *power system reliability* incidents caused by an event or events that include (but is not limited to):

(i) a single *credible contingency event* on a *generating unit*, *bidirectional unit* or an *inter-regional transmission element*, that may occur concurrently with *generating unit*, *bidirectional unit* or *inter-regional transmission element outages*; or

(ii) delays to the construction or commissioning of new *generating units*, *bidirectional units* or *inter-regional transmission elements*, including delays due to industrial action or acts of God; and

(2) exclude *unserved energy* that results from *power system security* incidents caused by an event or events that include (but is not limited to):

(i) multiple *credible contingency events*, a single *non-credible contingency event* or multiple *non-credible contingency events* on a *generating unit*, *bidirectional unit* or an *inter-regional transmission element*, that may occur concurrently with *generating unit*, *bidirectional unit* or *inter-regional transmission element outages*;

(ii) *outages* of *transmission network* or *distribution network* elements that do not significantly impact the ability to transfer *power* into the *region* where the USE occurred; or

(iii) industrial action or acts of God at existing electricity production *facilities* ~~*generating facilities*~~ or *inter-regional transmission facilities*.

(c) For the purpose of paragraph (b)(1), a "*power system reliability* incident" is an incident that *AEMO* considers would have been avoided only if additional *active energy* had been available to the relevant *region* or *regions* from *generation*, demand response or *inter-regional transmission elements*. The reference to "*inter-regional transmission elements*" in this paragraph (c) includes only those *transmission elements* that materially contribute to *inter-regional power transfer*.

3.9.7 Pricing for constrained-on units

(a) In the event that a *network constraint* causes a *scheduled generating unit*, *scheduled bidirectional unit* or a *wholesale demand response unit* to be *constrained-on* in any *trading interval*, that ~~*scheduled generating unit or wholesale demand response unit*~~*scheduled resource* must comply with *dispatch instructions* from *AEMO* in accordance with its availability as specified in its ~~*dispatch offer or*~~ *dispatch bid* ~~as applicable~~ but may not be taken into account in the determination of the *spot price* in that *trading interval*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) A *Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Demand Response Service Provider* that is *constrained-on* in accordance with paragraph (a) is not entitled to receive from *AEMO* any compensation due to its *spot price* being less than its *dispatch bid price* ~~*dispatch offer price*~~.

(c) In the event that:

(1) an *inertia network service* under an *inertia services agreement* is *enabled* such that an ~~*inertia generating unit*~~*inertia unit* is *constrained on* in any *trading interval* to provide *inertia*; or

(2) a *system strength service* under a *system strength services agreement* is *enabled* such that a *system strength production unit* ~~*system strength generating unit*~~ is *constrained on* in any *trading interval* to provide a *system strength service*,

the relevant ~~*generating unit*~~*inertia unit* or *system strength production unit* must comply with *dispatch instructions* from *AEMO* in accordance with its availability as specified in its *dispatch bid*~~*dispatch offer*~~ but may not be taken into account in the determination of the *spot price* in that *trading interval* except to the extent that the *inertia unit* or *system strength production unit* is *dispatched* at a level above its minimum *loading level*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) A *Scheduled Generator* or *Scheduled Integrated Resource Provider* that is *constrained on* in accordance with paragraph (c) is not entitled to receive from *AEMO* any compensation due to its *spot price* being less than its ~~*dispatch offer price*~~*dispatch bid price*.

3.11 Ancillary Services

3.11.2 Market ancillary services

(a) The *market ancillary services* are:

(1) the *fast raise service*;

(2) the *fast lower service*;

(3) the *slow raise service*;

(4) the *slow lower service*;

(5) the *regulating raise service*;

(6) the *regulating lower service*;

(7) the *delayed raise service*;

(8) the *delayed lower service*;

(9) the *very fast raise service*; and

(10) the *very fast lower service*.

(b) *AEMO* must make and *publish* a *market ancillary service specification* containing:

(1) a detailed description of each kind of *market ancillary service*; and

(2) the performance parameters and requirements which must be satisfied in order for a service to qualify as the relevant *market ancillary service* and also when a *Market Participant* provides the relevant kind of *market ancillary service*.

(c) *AEMO* may amend the *market ancillary service specification*, from time to time.

(d) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *market ancillary service specification*.

(e) An amendment to the *market ancillary service specification* must not take effect until at least 30 days after the amendment has been *published*.

(f) In addition to the requirements under rule 4.15, an *Ancillary Service Provider*~~a *Market Participant* which has classified a *generating unit* as an *ancillary service generating unit* or a *load* as an *ancillary service load*~~ must install and maintain in accordance with the standards referred to in clause 3.11.2(g) monitoring equipment to monitor and record the response of its *ancillary service unit* ~~the *ancillary service generating unit* or *ancillary service load*~~ to changes in the *frequency* of the *power system*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) *AEMO* must develop, and may amend from time to time, standards which must be met by ~~*Market Participants*~~*Ancillary Service Providers* in installing and maintaining the equipment referred to in paragraph 3.11.2(f).

(h) *AEMO* may request ~~a *Market Participant* with an *ancillary service generating unit* or an *ancillary service load*~~ an *Ancillary Services Provider* to provide to *AEMO* a report detailing how the relevant ~~facility~~ *ancillary service unit* responded to a particular change or particular changes in the *frequency* of the *power system*. An *Ancillary Service Provider*~~A *Market Participant*~~ must provide a report requested under this paragraph 3.11.2(h) promptly but, in any event, in no more than 20 *business days* after notice to do so.

(i) *AEMO* may from time to time require ~~a *Registered Participant* which provides a *market ancillary service* under the *Rules*~~ an *Ancillary Service Provider* to demonstrate the relevant ~~*plant's*~~ *ancillary service unit's* capability to provide the *market ancillary service* to the satisfaction of *AEMO* according to standard test procedures. An *Ancillary Service Provider*~~A *Registered Participant*~~ must promptly comply with a request by *AEMO* under this clause.

3.12 Market Intervention by AEMO

3.12.2 Affected Participants, Affected Load Participants~~Market Customers~~ and Ancillary Service Providers entitlements to compensation in relation to AEMO intervention

Definitions

(a00) In this clause 3.12.2:

adjustment claim means the difference between the amounts referred to in subparagraph (g)(3).

intervention dispatch run means the *central dispatch* process used to *dispatch Market Participants* in an *intervention price trading interval*.

intervention pricing run means the process used under clause 3.9.3(b) to set the *spot price* and *ancillary service price* for an *intervention price trading interval*.

recovery amount means the amount referred to in subparagraph (r1).

Compensation - objective

(a0) The objective of the compensation framework established by this clause 3.12.2 is, as far as practicable, to put *Affected Participants*, *Affected Load Participants*~~*Market Customers*~~ and *Ancillary Service Providers* entitled to compensation in the position they would have been in, had the *AEMO intervention event* not occurred.

Entitlement to compensation

(a) In respect of each *intervention price trading interval*:

(1) an *Affected Participant* is entitled to receive from *AEMO*, or must pay to *AEMO*, in respect of one or more of its *affected production units*, ~~*scheduled generating units*~~ or *affected network services*~~*scheduled network services*~~, an amount as determined in accordance with this clause 3.12.2, taking into account solely:

(i) the amounts notified by *AEMO* under subparagraphs (c)(1) and (c)(2); and

(ii) the items listed in paragraph (a1); and

(2) an *Affected Load Participant* ~~a *Market Customer*, other than a *Market Customer* which was the subject of any *direction* that constituted the *AEMO intervention event*,~~ is entitled to receive from *AEMO*, in respect of one or more of its *affected loads*~~*scheduled loads*~~, an amount as determined in accordance with this clause 3.12.2, taking into account solely:

(i) the amount notified by *AEMO* under subparagraph (c)(3); and

(ii) the items listed in paragraph (a1); and

(3) an *Ancillary Service Provider*, other than an *Ancillary Service Provider* which was the subject of any *direction* that constituted the *AEMO intervention event*, is entitled to receive from *AEMO*, or must pay to *AEMO*, in respect of one or more of its *ancillary service units*, ~~*ancillary service generating units* or *ancillary service loads* that is also classified as a *scheduled generating unit* or *scheduled load* respectively,~~ an amount as determined in accordance with this clause 3.12.2, taking into account solely:

(i) the amount notified by *AEMO* under subparagraph (c)(4); and

(ii) the items listed in paragraph (a1).

(a1) *AEMO* must, in determining the amounts for the purposes of paragraph (a), take into account the following, as appropriate:

(1) the direct costs incurred or avoided by the *Affected Participant*, *Affected Load Participant* ~~*Market Customer*~~ or *Ancillary Service Provider* in respect of that *affected production unit*, *affected network service* or *ancillary service unit* ~~*scheduled plant* or *ancillary service generating unit*~~, as the case may be, as a result of the *AEMO intervention event* including:

(i) fuel costs;

(ii) incremental maintenance costs; and

(iii) incremental manning costs;

(2) any amounts which the *Affected Participant*, *Affected Load Participant* ~~*Market Customer*~~ or *Ancillary Service Provider* is entitled to receive under clauses 3.15.6 or 3.15.6A, as the case may be;

(3) the *regional reference price* published pursuant to clause 3.13.4(m); and

(4) the *ancillary service prices* published pursuant to clause 3.13.4(l).

(b) In respect of a single *AEMO intervention event*, an *Affected Participant,* ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* is not entitled to receive from, or obliged to pay to, *AEMO* an amount pursuant to this clause 3.12.2 if such an amount is less than $5,000.

(b1) An *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* is not entitled to compensation under this clause 3.12.2 with respect to a *scheduled resource* or *ancillary service unit*

~~*scheduled plant* or an *ancillary service generating unit*~~ for an *intervention price trading interval* if that *scheduled resource* ~~*scheduled plant*~~ is *dispatched* under a *scheduled reserve contract* or if *AEMO* is required to pay compensation under clauses 3.15.7, 3.15.7A or 3.15.7B with respect to that *plant* or service ~~*scheduled plant* or ancillary service generating unit~~ and *intervention price trading interval*.

(b2) In respect of an *intervention price trading interval*:

(1) an *Affected Participant* or ~~*Market Customer*~~*Affected Load Participant* is not entitled to compensation under this clause 3.12.2 if the *loading level* determined by the *dispatch algorithm* for a *scheduled resource* ~~a *scheduled generating unit*, *scheduled network service* or *scheduled load*~~ (as relevant) in the intervention dispatch run is equal to the estimated level of *dispatch* for that *scheduled resource*~~*scheduled generating unit*, *scheduled network service* or *scheduled load*~~, determined through the intervention pricing run; and

(2) an *Ancillary Service Provider* is not entitled to compensation under this clause 3.12.2 if the *enabled* quantity of each *market ancillary service* determined by the *dispatch algorithm* for each *ancillary service unit* ~~*ancillary service generating unit* or *ancillary service load*~~ (as relevant) in the intervention dispatch run is equal to the estimated *enabled* quantity of the same *market ancillary service* for that *ancillary service unit*~~*ancillary service generating unit* or *ancillary service load*~~, determined through the intervention pricing run.

(c) In respect of each *intervention price trading interval*, *AEMO* must, in accordance with the *intervention settlement timetable*, notify, in writing:

(1) each *Affected Participant* (except *eligible persons*) of:

(i) the estimated level of *dispatch* in MW for its *affected production unit* or *affected network service*~~*scheduled network service* or *scheduled generating unit*~~, determined through the intervention pricing run; and

(ii) an amount equal to:

(A) the estimated *trading amount* that it would have received had the *AEMO intervention event* not occurred based on the level of *dispatch* in subparagraph (i), less:

(B) the *trading amount* for that *Affected Participant* (excluding from that *trading amount* the amount referred to in clause 3.15.10C(a)) as set out in its *final statement* provided pursuant to clause 3.15.14 for the *billing period* in which the *intervention price trading interval* occurs;

(2) each *eligible person* of:

(i) the estimated level of flow in MW of all relevant *directional interconnectors* that would have occurred had the *AEMO intervention event* not occurred, determined through the intervention pricing run; and

(ii) an amount equal to:

(A) the estimated amount that person would have been entitled to receive pursuant to clause 3.18.1(b) had the *AEMO intervention event* not occurred based upon the flows referred to in subparagraph (i); less

(B) the actual entitlement of that person under clause 3.18.1(b);

(3) each ~~*Market Customer*~~*Affected Load Participant* of:

(i) the estimated level of *dispatch* in MW for its *affected load* ~~*scheduled load*~~, determined through the intervention pricing run; and

(ii) the amount calculated by *AEMO* in accordance with paragraph (d) for that ~~*Market Customer*~~*Affected Load Participant*; and

(4) each *Ancillary Service Provider* of:

(i) the estimated *enabled* quantity of each *market ancillary service* in MW for its *ancillary service unit*~~*ancillary service generating unit or ancillary service load*~~, determined through the intervention pricing run; and

(ii) an amount equal to:

(A) the estimated *trading amount* that it would have received in respect of each *market ancillary service* had the *AEMO intervention event* not occurred, based on the estimated *enabled quantity* in subparagraph (i); less

(B) the *trading amount* for that *Ancillary Service Provider* (excluding from that *trading amount* the amount referred to in clause 3.15.10C(a)) as set out in its *final statement* provided pursuant to clause 3.15.15 for the *billing period* in which the *intervention price trading interval* occurs.

(d) For the purpose of subparagraph (c)(3)(ii), the formula is:

$$DC = \Sigma_{b \epsilon B} \max(0, ((RRP \times LF) - BidP_b) \times QD_b)$$

where:

DC (in dollars) is the amount the ~~*Market Customer*~~*Affected Load Participant* is entitled to receive for the consumption of *energy* in respect of that *affected load* ~~*scheduled load*~~ for the relevant *intervention price trading interval*;

$\Sigma_{b \epsilon B}$ represents the sum over each *price band* "b" in the set of all non- zero *price bands* for the *affected load* ~~*scheduled load*~~ "B";

max(0,x) represents the maximum of the two values 0 and x;

RRP (in dollars per MWh) is the *regional reference price* in the relevant *intervention price trading interval* determined in accordance with clause 3.9.3(b);

LF where the *affected load's* ~~*scheduled load's*~~ *connection point* is a *transmission network connection point*, is the relevant *intra-regional loss factor* at that *connection point* or where the *affected load's*

~~*scheduled load's* *connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that connection point and~~~~multiplied by~~ the relevant *intra-regional loss factor* at the *transmission network connection point* to which it is assigned;

b represents each *price band* in the set "B" of all non-zero *price bands* for the *affected load* ~~*scheduled load*~~ in the relevant *intervention price trading interval*;

$BidP_b$ (in dollars per MWh) is the price offered by the *affected load* ~~*scheduled load*~~ in the *price band* "b" in the relevant *intervention price trading interval*; and

QD_b (in MWh) is the amount of *energy* consumed by the *affected load* ~~*scheduled load*~~ in that *price band* during the relevant *intervention price trading interval* (based on *metering data*) less the amount of *energy* which *AEMO* reasonably determines would have been consumed by the *affected load* ~~*scheduled load*~~ in that *price band* during the relevant *intervention price trading interval* if the *AEMO intervention event* had not occurred (based on the estimated level of *dispatch* determined through the intervention pricing run),

provided that if QDb is negative for the relevant *intervention price trading interval*, then the amount that the ~~*Market Customer*~~*Affected Load Participant* is entitled to in accordance with this paragraph in respect of that *affected load* ~~*scheduled load*~~ for that *intervention price trading interval* is zero.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra- regional loss factor* for use under this clause 3.12.2 in accordance with the procedure determined under clause 3.6.2(d1).

(e) Subject to paragraph (b), if the amount notified in accordance with paragraph (c) is:

(1) negative, the absolute value of that amount is the amount payable to *AEMO* by the relevant person; and

(2) positive, the absolute value of that amount is the amount receivable from *AEMO* by the relevant person.

(e1) For the purposes of clauses 3.15.8 and 3.15.10C(b), any payment pursuant to paragraph (a) must include interest on the sum of that amount less the payment made in accordance with 3.15.10C(a)(1), computed at the average *bank bill rate* for the period from the date on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *AEMO intervention event* occurred to the date on which payment is required to be made pursuant to clause 3.15.10C

(f) Subject to paragraph (i), an *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* may make a written submission to *AEMO* in accordance with paragraph (g) claiming that the amount set out in the notice is greater than or less than its entitlement or liability pursuant to paragraph (a)(1) as an *Affected Participant*, paragraph

(a)(2) as a ~~*Market Customer*~~*Affected Load Participant*, or paragraph (a)(3) as an *Ancillary Service Provider*, as the case may be.

(g) A written submission made by an *Affected Participant,* ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* pursuant to paragraph (f) must:

(1) itemise each component of the claim;

(2) contain sufficient data and information to substantiate each component of the claim;

(3) specify the difference between the amount notified by *AEMO* pursuant to paragraph (c) and the amount the *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* claims it is entitled to receive or must pay pursuant to paragraph (a); and

(4) be made within 15 *business days* of receipt of the notice referred to in paragraph (c); and

(5) be signed by an authorised officer of the *Affected Participant,* ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* certifying that the written submission is true and correct.

(h) [**Deleted**]

(i) In respect of a single *AEMO intervention event*, an *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* may onlymake a submission pursuant to paragraph (f) in respect of that *AEMO intervention event* if the adjustment claim is greater than $5,000.

(j) [**Deleted**]

(k) *AEMO* must in accordance with the *intervention settlement timetable* calculate the *additional intervention claim* being the total of:

(1) the sum of the adjustment claims in respect of an *AEMO intervention event*, or in respect of, in *AEMO's* reasonable opinion, a series of related *AEMO intervention events*; plus

(2) the total claims by *Directed Participants* pursuant to clauses 3.15.7B(a) and 3.15.7B(a2) in respect of that *AEMO intervention event*, or in respect of that series of related *AEMO intervention events*.

(l) *AEMO* must in accordance with the *intervention settlement timetable*:

(1) refer an adjustment claim to an independent expert to determine such claim in accordance with clause 3.12.3 if the claim is equal to or greater than $20,000 and the *additional intervention claim* that includes that claim is equal to or greater than $100,000; and

(2) determine in its sole discretion whether all other adjustment claims are reasonable and if so pay the amounts claimed in accordance with clause 3.15.10C.

(m) If *AEMO* determines pursuant to paragraph (l) that an adjustment claim in respect of a *AEMO intervention event* is unreasonable, it must in accordance with the *intervention settlement timetable*:

(1) advise the *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider*, as the case may be, in writing of its determination including its reasons for the determination; and

(2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.3.

Methodology for determining compensation

(n) *AEMO* must develop, publish on its website, and may amend from time to time, in accordance with the *Rules consultation procedures*, a methodology to be used by *AEMO* to determine the amount of compensation that an *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* is entitled to receive, or must pay, under this clause 3.12.2.

(o) The methodology must describe how *AEMO* will:

(1) calculate the amounts in subparagraphs (c)(1), (c)(2), (c)(3) and (c)(4);

(2) determine, based on the amounts referred to in subparagraph (1), whether or not an *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* is entitled to receive, or must pay, compensation under this clause 3.12.2 in accordance with paragraph (b); and

(3) take into account the items listed in paragraph (a1), as appropriate.

(p) *AEMO* may make minor or administrative amendments to the methodology without complying with the *Rules consultation procedures*.

Repayment of compensation

(q) An *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* must not by any act or omission, whether intentionally or recklessly, cause or significantly contribute to the circumstances causing an *AEMO intervention event*, without reasonable cause.

(r) If on application by the *AER* a court determines, in relation to an *AEMO intervention event*, that an *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* has breached paragraph (q) or clause 4.9.8(a), then:

(1) the *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* shall not be entitled to, and must repay to *AEMO*, an amount equal to the compensation received from *AEMO* under this clause 3.12.2 plus interest on that amount computed at the average *bank bill rate* for the period from the date of payment of such amount to the *Affected Participant*, ~~*Market Customer*~~*Affected Load Participant* or *Ancillary Service Provider* until the date that the amount is repaid to *AEMO*, in relation to that *AEMO intervention event*; and

(2) the *AER* must forward to *AEMO* a written notice of the court's determination; and

(3) following receipt of the notice from the *AER* issued pursuant to subparagraph (2), *AEMO*:

(i) include the recovery amount as an amount payable to *AEMO* in the first relevant settlement statement issued to that *Affected Participant*, *Affected Load Participant*~~*Market Customer*~~ or *Ancillary Service Provider*; or

(ii) if the *Affected Participant*, *Affected Load Participant* ~~*Market Customer*~~ or *Ancillary Service Provider* is no longer a *Registered Participant*, issue a tax invoice to the relevant entity for the recovery amount with a due date for payment of not less than 30 days.

(s) *AEMO* must, following receipt of the recovery amount, use reasonable endeavours to distribute the amount to the relevant *Market Participants* who funded the compensation for the relevant *AEMO intervention event*.

3.13 Market Information

3.13.1 Provision of information

(a) In addition to any specific obligation or power of *AEMO* under the *Rules* to provide information, *AEMO* must make available to ~~*Scheduled Generators, Semi-Scheduled Generators and*~~ *Market Participants* on request any information concerning the operation of the *market* not defined by the *AEMC* or the *Rules* as confidential or commercially sensitive and may charge a fee reflecting the cost of providing any information under this clause 3.13.1(a).

(b) *AEMO* must make information available to the public on request in respect of *regional reference prices* and, where requested and available, reasons for any significant movements in prices.

3.13.2 Systems and procedures

(a) Information must be provided to *AEMO* and by *AEMO* on the *electronic communication system* unless:

(1) the *electronic communication system* is partially or wholly unavailable, then information will, to the extent of that unavailability, be provided to *AEMO* and by *AEMO* by means of the backup procedures specified by *AEMO* from time to time; or

(2) otherwise approved by *AEMO*.

(b) Information must be provided by using the templates supplied in the *electronic communication system* unless otherwise approved by *AEMO*.

(c) Where approved by *AEMO*, information may be transmitted to and from *AEMO* and the ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market Participant* concerned in any agreed format.

(d) If possible, information provided to *AEMO* must be *time stamped* by *AEMO* on receipt by *AEMO* of the information by the *electronic communication system* and, if stamped, is deemed to be provided at the time indicated by the *time stamp*.

(e) Information that is *published* by *AEMO* is deemed to be *published* when the information is placed on the *market information bulletin board*.

(f) The *market information bulletin board* must be accessible by ~~*Scheduled Generators, Semi-Scheduled Generators and*~~ *Market Participants* via the *electronic communication system* subject to applicable security requirements.

(g) Information *published* or notified to a ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market Participant* must be capable of being reviewed by that ~~*Generator or*~~ *Market Participant* and be capable of being downloaded from the *market information bulletin board* to the relevant ~~*Generator or*~~ *Market Participant* via the *electronic communication system*.

(h) A ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market Participant* must notify *AEMO* of, and *AEMO* must *publish*, any changes to submitted information within the times prescribed in the *timetable*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) *AEMO* must make a copy of all changes to the data available to ~~*Scheduled Generators, Semi-Scheduled Generators and*~~ *Market Participants* for verification and resubmission by the relevant ~~*Generator or*~~ *Market Participant* as necessary.

(j) All revisions must be provided on the *electronic communication system* and in the same format as the original information.

(k) A ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market Participant* may withhold information from *AEMO* which must otherwise be provided under the *Rules* if:

(1) the information is of a confidential or commercially-sensitive nature and is not information of a kind that, in the reasonable opinion of the *AEMC*, is fundamental to the efficient operation of the *market*; or

(2) disclosure of the information would have the likely effect of causing detriment to the person required to provide it unless, in the reasonable opinion of the *AEMC*, the public benefit resulting from the provision of the information outweighs that detriment.

(l) Nothing in paragraph (k) allows a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to avoid providing information to *AEMO* under the *Rules* where that information is generally available.

3.13.3 Standing data

(a) *AEMO* must establish, maintain, update and *publish*:

(1) a list of all of the ~~*Scheduled Generators, Semi-Scheduled Generators and*~~ *Market Participants* and a list of all applications to become a ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market Participant*, including *bid validation data*~~*bid and offer validation data*~~;

(2) a list of all of the ~~*Scheduled Generators, Semi-Scheduled Generators and*~~ *Market Participants* who will cease to be ~~*Scheduled Generators, Semi-Scheduled Generators or*~~ *Market Participants* and the time that each listed ~~*Scheduled Generator, Semi-Scheduled Generator or*~~ *Market*

Participant will cease to be a ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant*;

(2A) a list of the *expected closure years* and *closure dates* for all *scheduled generating units*, ~~and~~ *semi-scheduled generating units* and *scheduled bidirectional units* notified under clauses 2.1B.3 ~~2.2.1(e)(2A)~~ and 2.10.1(c1), and make such information available on *AEMO's* website;

(3) a list of all of the ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ *Market Participants* who are or are going to be suspended and the time at which each listed ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* was suspended or will be suspended.

(b) ~~All *Scheduled Generators*, *Semi-Scheduled Generators* and~~ A *Market Participants* must provide *AEMO* ~~with~~ the ~~*bid and offer validation data*~~ *bid validation data* relevant to each of its *scheduled resources* and *ancillary service units* ~~their *scheduled loads*, *scheduled network services*, *wholesale demand response units* and *generating units*~~ in accordance with schedule 3.1.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) In addition to the information provided to *AEMO* in paragraph (b), where a *scheduled resource* has been aggregated under clause 3.8.3, the *Market Participant* in respect of the *scheduled resource* must provide to *AEMO*, as applicable:~~all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* which have aggregated their *scheduled loads*, *scheduled network services*, *wholesale demand response units* and *generating units* in accordance with clause 3.8.3, must provide *AEMO* with:~~

(1)~~(i)~~ the maximum *generation* to which ~~of~~ each individual *scheduled generating unit*, ~~or~~ *semi-scheduled generating unit* or *scheduled bidirectional unit* may be *dispatched* ~~to which the individual *scheduled generating unit*, or *semi-scheduled generating unit* may be dispatched~~;

(1A) the maximum level of consumption to which each individual *scheduled bidirectional unit* may be *dispatched*;

(2)~~(ii)~~ the number of individual *scheduled loads* that have been aggregated in accordance with clause 3.8.3;

(3)~~(iii)~~ the number of *scheduled network services* that have been aggregated in accordance with clause 3.8.3; or

(4)~~(iv)~~ the number of individual *wholesale demand response units* that have been aggregated in accordance with clause 3.8.3.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) All ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ *Market Participants* will be required to provide *AEMO* with information as set out below:

(1) forecasts for *connection points* as prescribed in clause 5.11.1; and

(2) metering information for *settlements* purposes as prescribed in Chapter 7.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) *Network Service Providers* are to maintain a register of data provided by ~~*Scheduled Generators, Semi-Scheduled Generators* and~~ *Market Participants* for planning and design purposes in accordance with schedule 5.7 of Chapter 5 and are to provide a copy of this register of data to *AEMO* on request and in a form specified by *AEMO*.

(e) *Network Service Providers* must, without delay, notify and provide *AEMO* with details of any additions or *changes* to the register of data described in clause 3.13.3(d).

(f) Each year, by a date to be specified by *AEMO*, *Network Service Providers* must provide *AEMO* with the following information:

(1) expected *network capability* under normal, *outage* and emergency conditions;

(2) electrical data sufficient to allow *power system* modelling under steady state and dynamic conditions, this data to be made available in hard copy and an acceptable industry standard electronic format approved by *AEMO*; and

(3) operating procedures and practices for *network* operation and maintenance.

(g) *Network Service Providers* must notify *AEMO* of any changes to the information provided under clause 3.13.3(f) as soon as practicable.

(h) ~~*Scheduled Generators, Semi-Scheduled Generators* and~~ *Market Participants* must notify *AEMO* of any changes to *bid validation data*~~*bid and offer validation data*~~ 6 weeks prior to the implementation of planned changes and without unreasonable delay in the event of unplanned changes.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) *Network Service Providers* must notify *AEMO* of any changes or additions to technical data one month prior to the implementation of planned changes and without unreasonable delay in the event of unplanned changes.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(j) ~~*AEMO* must conduct an annual review of *Scheduled Generator, Semi-Scheduled Generator* and *Market Participant bid and offer validation data* in consultation with *Scheduled Generators, Semi-Scheduled Generators* and~~

~~*Market Participants* and *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must advise *AEMO* of any required changes to the data.~~*AEMO* must conduct an annual review of *bid validation data* in consultation with relevant *Market Participants*, who must advise *AEMO* of any required changes to the data.

(k) A *Registered Participant* may request from *AEMO*:

(1) *bid validation data*~~*bid and offer validation data*~~;

(2) information that is reasonably required by the *Registered Participant* to carry out *power system* simulation studies (including load flow and dynamic simulations) for planning and operational purposes; and

(3) operation and maintenance procedures and practices for *transmission network* or *distribution network* operation, developed for the purposes of schedule 5.1 sufficient to enable the *Registered Participant* to carry out *power system* modelling under normal, *outage* and emergency conditions.

Note

In accordance with clause 3.13.3AA, *project developers* may request from *AEMO* the information set out in clauses 3.13.3(k)(1)-(3) and must treat such information as *confidential information* under clause 3.13.3(l).

(k1) *AEMO* must set out in the *Power System Model Guidelines* the circumstances in which *AEMO* will consider the information under paragraph (k)(2) to be reasonably required by a *Registered Participant*.

(l) If *AEMO* holds information requested under clause 3.13.3(k), *AEMO* must provide the requested information to the *Registered Participant* as soon as practicable, subject to the following requirements:

(1) If *AEMO* holds and is required under this paragraph (l) to provide a *releasable user guide* that *AEMO* received under clause S5.2.4(b)(8), *AEMO* must provide the *releasable user guide* to the *Registered Participant* in an unaltered form.

(2) If *AEMO* holds and is required under this paragraph (l) to provide a form of the model source code that *AEMO* received under clauses S5.2.4(b)(6) and S5.2.4(d) or from any other source, *AEMO* must provide that information:

(i) only in the form of, at *AEMO's* discretion:

(A) compiled information (such as, for example, compiled Fortran code in object code or dynamic link library (DLL) form);

(B) encrypted information; or

(C) a secured format agreed by the provider of the model source code,

unless *AEMO* has the written consent of the person who provided the information to *AEMO* to provide it in another form; and

(ii) in a form that can be interpreted by a software simulation product nominated by *AEMO*.

(3) Any information provided by *AEMO* under clause 3.13.3(l) to a *Registered Participant* must be treated as *confidential information*.

(4) Any information provided by *AEMO* under this clause 3.13.3(l) to a person who is a *project developer* must be treated by that person as *confidential information* even where that person ceases to be a *project developer*.

(l1) *AEMO* may charge a fee, except where the information is requested by a *Network Service Provider* under clause 3.13.3(l5), to recover all reasonable costs incurred in providing information to a *Registered Participant* under this clause 3.13.3.

(l2) For the purposes of clause 3.13.3(l), the provider of the model source code is:

(1) the *Generator* or *Integrated Resource Provider* (or the person required under the *Rules* to register as such) if the model source code was received from that ~~*Generator*~~ person under clause S5.2.4(b)(6) or S5.2.4(d); or

(2) [**Deleted**]~~the person required under the *Rules* to register as a *Generator* in respect of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, if the model source code was received from that person under clause S5.2.4(b)(6) or S5.2.4(d); or~~

(3) the *Generator* or *Integrated Resource Provider*, if the model source code was provided to *AEMO* by a *Network Service Provider* and that same *Network Service Provider* advises *AEMO* that the provider of the model source code is the *Generator* or *Integrated Resource Provider*; or

(4) the relevant *Network Service Provider*, if that same *Network Service Provider* advises *AEMO* that the provider of the model source code is itself; or

(5) otherwise, the relevant Transmission Network Service Provider.

(l3) If *AEMO* is required under clause 3.13.3(l) to provide information requested under clause 3.13.3(k)(2), *AEMO* may provide:

(1) historical information relating to the operating conditions of the *power system*;

(2) information and data provided to *AEMO* under clauses 3.13.3(f)(1) and 3.13.3(f)(3) and information of the same type provided under clause 3.13.3(g);

(3) *network* dynamic model parameter values obtained under clauses 3.13.3(f)(2) and 3.13.3(g);

(4) model parameter values and load flow data derived from a *releasable user guide*;

(5) a *network* model of the *national grid*, suitable for load flow and fault studies; and

(6) other technical data as listed in Schedules 5.5.3 and 5.5.4.

(l4) Despite clause 3.13.3(l), *AEMO* must not provide information relating to *plant* that is the subject of an *application to connect* or a *connection agreement*, until the earlier of:

(1) the date when a *connection agreement* relating to that *plant* is executed; or

(2) three months before the proposed start of commissioning of that *plant*.

(l5) Subject to clause 3.13.3(l6), if a *Transmission Network Service Provider* is responsible for provision of *network* limit advice relating to *power system* stability limits to *AEMO* under clause S5.1.2.3, *AEMO* must, on request from that *Transmission Network Service Provider*, provide all *power system* and *generating system* or *integrated resource system* model information that is reasonably required for planning and operational purposes, if *AEMO* holds that information, including:

(1) functional block diagram information, including information provided to *AEMO* under clause S5.2.4(b)(5);

(2) *generating unit*, *generating system*, *bidirectional unit*, *integrated resource system* and *power system* static and dynamic model information, including model parameters and parameter values; and

(3) information provided to *AEMO* in accordance with clause S5.2.4(a).

(l6) If *AEMO* is required to provide information to a *Transmission Network Service Provider* under paragraph (l5), this must not include:

(1) model source code provided to *AEMO* under clauses S5.2.4(b)(6) and S5.2.4(d), except as allowed under clause 3.13.3(l); and

(2) information relating to *plant* that is the subject of an *application to connect* until after the execution of the relevant *connection agreement*.

(l7) Any information provided by *AEMO* under clause 3.13.3(l5) to a *Transmission Network Service Provider* must be treated as *confidential information*.

(m) Where special approvals or exemptions have been granted by *AEMO*, including approval under clause 3.8.3 to aggregate ~~*generating units, market network services, loads*~~ for *central dispatch*, or exemptions from *central dispatch*, details of such special arrangements must be *published* by *AEMO*.

(n) *AEMO* must determine and *publish intra-regional loss factors* in accordance with clause 3.6.2 by 1 April each year and whenever changes occur.

(o) *Network Service Providers* must advise *AEMO* of their *distribution loss factors*, duly authorised by the *AER*, and *AEMO* must *publish* such *distribution loss factors* in accordance with clause 3.6.3(i).

(p) *AEMO* must *publish* on a quarterly basis details of:

(1) *interconnector* transfer capability; and

(2) the discrepancy between *interconnector* transfer capability and the capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only,

for each day of the preceding quarter for all *interconnectors*.

(p1) *AEMO* must establish, maintain and *publish* a register which identifies:

(1) the *Registered Participant* to whom any information is provided under clause 3.13.3(l), including whether the *Registered Participant* is a *project developer*; and

(2) the date on which such information was provided.

(q) In relation to the *declared transmission system* of an *adoptive jurisdiction*:

(1) *AEMO* must maintain the register referred to in paragraph (d); and

(2) a *declared transmission system operator* must provide *AEMO* with information reasonably required by *AEMO* for maintaining the register and keeping it up to date.

3.13.3A Statement of opportunities

ESOO information

(a) By 31 August in each year, *AEMO* must prepare and *publish* at a reasonable charge to cover the cost of production, a *statement of opportunities*, including at least the following information for the subsequent 10 year period:

(1) projections of aggregate MW demand and *energy* requirements for each *region*;

(2) capabilities of existing *generating units* and *generating units* for which formal commitments have been made for construction or installation;

(2A) capabilities of existing *bidirectional units* and *bidirectional units* for which formal commitments have been made for construction or installation;

(3) capabilities of proposed *generating units* and *bidirectional units* for which formal commitments have not been made for construction or installation, to the extent it is reasonably practicable to do so;

(4) planned *plant retirements* (including *expected closure years* and *closure dates* for any *generating units* and *bidirectional units* in the subsequent 10 year period);

(5) a summary of *network capabilities* and *constraints* based upon *Transmission Annual Planning Reports*;

(6) proposed *network* developments for which formal commitments have been made for construction or installation;

(7) proposed *network* developments for which formal commitments have not been made for construction or installation to the extent it is reasonably practicable to do so;

(8) the operational assumptions made by *AEMO* in relation to *generating units*, *bidirectional units*, *wholesale demand response units* and *contracted demand side participation*, including outage information and auxiliary supply information;

(9) operational and economic information about the *market* to assist planning by *Market Participants* and potential *Market Participants*; and~~:~~

~~(i) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*; and~~

~~(ii) potential *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*; and~~

(10) a *reliability forecast* for each *region* for the *financial year* in which the *statement of opportunities* is *published* on its website and the subsequent four *financial years* and an *indicative reliability forecast* for the remaining *financial years*.

Updates

(b) If after the publication of the most recent *statement of opportunities*, new information becomes available to *AEMO* relating to the matters set out in subparagraphs (a)(1) to (a)(8) that in *AEMO's* reasonable opinion materially changes the *statement of opportunities*, *AEMO* must, as soon as practicable, publish that information in a descriptive form that is consistent with the *statement of opportunities* and, if it considers appropriate, publish on its website an updated *reliability forecast* in accordance with the *Reliability Forecast Guidelines*.

ESOO information requests

(c) *AEMO* may by written notice request a *jurisdictional planning body* to provide *AEMO* with information that *AEMO* requires for the preparation of a *statement of opportunities* and the *jurisdictional planning body* must comply with that notice.

(d) *AEMO* may, by written request, require provision of information relevant to the matters specified in paragraph (a) from *Registered Participants* that *AEMO* reasonably requires for the preparation of a *statement of opportunities* or an update under paragraph (b). A request for information must comply with the *Reliability Forecast Guidelines*.

(e) A *Registered Participant* must comply with an information request under paragraph (d) in accordance with the *Reliability Forecast Guidelines*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) As soon as practicable after a ~~*Scheduled Generator*, *Semi-Scheduled Generator*,~~ *Market Participant* or *Network Service Provider* becomes aware of a material change to any information required for *publication* by *AEMO* under paragraph (a), that information must be provided to *AEMO* by that ~~*Scheduled Generator*, *Semi-Scheduled Generator*,~~ *Market Participant* or *Network Service Provider*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) A *Registered Participant* must ensure that the information provided in response to an information request under paragraph (d) or under paragraph (f) is:

(1) not false or misleading in a material particular;

(2) in relation to information of a technical nature, is prepared in accordance with *good electricity industry practice*; and

(3) represents the *Registered Participant's* current intentions and best estimates.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

ESOO reviews

(h) *AEMO* must, no less than annually, prepare and publish on its website information on:

(1) the accuracy to date of the demand and supply forecasts, and any other inputs determined by *AEMO* to be material to *reliability forecasts*; and

(2) any improvements made by *AEMO* or other relevant parties to the forecasting process that will apply to the next *statement of opportunities*,

in accordance with the *Reliability Forecast Guidelines* (as applicable). Where availability of information makes comparisons to older *statement of opportunities* necessary, *AEMO* may include the *statement of opportunities* for the preceding 24 months.

(i) A *jurisdictional planning body* must provide assistance *AEMO* reasonably requests in connection with the preparation of a report under paragraph (h).

3.13.4 Spot market

(a) Each week, in accordance with the *timetable*, *AEMO* must *publish* details of the outputs of the *medium term PASA*.

(b) The details to be *published* by *AEMO* under clause 3.13.4(a) must include the information specified in clause 3.7.2(f).

(c) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of the outputs of the *short term PASA* for each *30-minute period* covered.

(d) The details of the *short term PASA published* each *day* by *AEMO* under clause 3.13.4(c) must include the information specified in clause 3.7.3(h).

(e) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* a half hourly *pre-dispatch schedule* for the period described in clause 3.8.20(a).

(f) Subject to clause 3.8.20(b), details of the *pre-dispatch schedule* to be *published* must include the following for each *trading interval* or *30-minute period* (as applicable) in the period covered:

(1) forecasts of the most probable *peak load* for the total *power system* ~~*load*~~ taking into account the most probable availability of *wholesale demand*

response units plus required *scheduled reserve* for each *region* and for the total *power system*;

(2) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;

(3) forecast *inter-regional loss factors*;

(4) aggregate *generating plant* and *bidirectional unit* availability for each *region* and aggregate availability of each type of *market ancillary service* for each *region*;

(5) projected *supply* surpluses and deficits for each *region*, including shortages of *scheduled reserve* and projected *market ancillary service* surpluses and deficits for each *region*;

(5A) the aggregated MW allowance (if any) made by *AEMO* for *generation* from *non-scheduled generating systems* and *non-scheduled integrated resource systems* in each forecast under:

(i) subparagraphs (f)(1), (f)(2) and (f)(3); and~~of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);~~

(ii) **[Deleted]** ~~referred to in clause 3.13.4(f)(2);~~

(iii) **[Deleted]**~~of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and~~

(iv) subparagraph (f)(5),~~of projected *supply* surpluses and deficits referred to in clause 3.13.4(f)(5)~~ but not including shortages of *scheduled reserve* or projected *market ancillary service* surpluses and deficits for each *region*.

(5B) in respect of each forecast referred to in:

(i) subparagraphs (f)(1), (f)(2) and (f)(3); and ~~of the most probable peak *power system load* referred to in clause 3.13.4(f)(1)~~;

(ii) **[Deleted]**~~referred to in clause 3.13.4(f)(2);~~

(iii) **[Deleted]** ~~of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and~~

(iv) ~~of projected *supply* surpluses and deficits referred to in clause 3.13.4~~subparagraph (f)(5), but not including shortages of *scheduled reserve* or projected *market ancillary service* surpluses and deficits for each *region*,

a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.13.4(f)(5A); and

(6) identification and quantification of:

(i) where a projected *supply* deficit in one *region* can be supplemented by a surplus in a neighbouring *region* (dependent on forecast *interconnector* capacities) and the expected *interconnector flow*;

(ii) forecast *interconnector* transfer capabilities and the projected impact of any *inter-network tests* on those transfer capabilities; and

(iii) when and where *network constraints* may become binding on *dispatch*~~*the dispatch of generation or load*~~.

(g) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* forecasts of *spot prices* and *ancillary service prices* at each *regional reference node* for each *trading interval* or *30-minute period* (as applicable) ~~–~~of the period described in clause 3.8.20(a), with such forecasts being based on the *pre-dispatch schedule* information.

(h) Together with its forecast *spot prices*, *AEMO* must *publish* details of the expected sensitivity of the forecast *spot prices* for each *30-minute period* to changes in the forecast *load* or *generating unit* or *bidirectional unit* availability.

(h1) Together with its forecast *spot prices*, *AEMO* may *publish* details of the expected sensitivity of the forecast *spot prices* for each *trading interval* to changes in the forecast *load* or *generating unit* or *bidirectional unit* availability.

(i) In accordance with the *timetable* or more often if there is a change in circumstances which in the opinion of *AEMO* results in a significant change in forecast *spot price*, or in any event no more than 3 hours after the previous such publication, *AEMO* must prepare and *publish* updated *pre-dispatch schedules* and *spot price forecasts*, including the details specified in clause 3.13.4(f).

(j) If *AEMO* considers there to be a significant change in a forecast *spot price*, *AEMO* must identify and *publish* the cause of such a change in terms of the aggregate *supply* and demand situation and any *network constraints* in or between the affected *region(s)*.

(k) *AEMO* must specify and *publish* its criteria for a significant change in forecast *spot price* for the purposes of activating an update in the *published* forecasts.

(l) Within 5 minutes of each time *AEMO* runs the *dispatch algorithm*, *AEMO* must *publish* the *spot price* for each *regional reference node* calculated in accordance with clause 3.9.2 and the *ancillary service price* for each *market ancillary service* for each *regional reference node* calculated in accordance with clause 3.9.2A.

(l1) In addition to the *spot price*, *AEMO* must *publish* a *30-minute price* for a *regional reference node* for each *30-minute period*.

(m) Within 5 minutes of the conclusion of each *trading interval*, *AEMO* must *publish* the *regional reference prices* for each *region* for that *trading interval*.

(n) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* the actual *regional reference prices*, *ancillary service prices*, ~~*regional* and total~~ MW *load* and *generation* for each *region* and the *power system*~~*interconnected system loads and energies*~~, *inter-regional loss factors* and details of any *network constraints* for each *trading interval* in the previous *trading day*.

(n1) In accordance with the *timetable*, *AEMO* must *publish* the *inter-regional* flows.

(o) **[Deleted]**

(p) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of final ~~*dispatch offers*~~, *dispatch bids* and ~~*market ancillary service offers*~~ *market ancillary service bids* ~~and~~ received and actual availabilities of *scheduled resources* ~~*generating units*, *wholesale demand response units*, *scheduled network services*, *scheduled loads*~~ and *market ancillary services* for the previous *trading day*, including:

(1) the number and times at which *rebids* were made, and the reason provided by the relevant ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* for each *rebid* under clause 3.8.22(c)(2);

(2) identification of the ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* submitting the *dispatch bid*~~, *dispatch offer*~~ or *market ancillary service bid*~~*market ancillary offer*~~;

(3) the *dispatch bid prices* ~~or *dispatch offer prices*~~;

(4) quantities for each *trading interval*;

(5) the telemetered *ramp rate* of each *generating unit*, *bidirectional unit*, *scheduled load* and *scheduled network service* ~~as measured by *AEMO's* telemetry system~~;

(6) identification of *trading intervals* for which the *plant* was specified as being *inflexible* in accordance with clause 3.8.19 and the reasons provided by the relevant ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* in accordance with clause 3.8.19(b)(1);

(7) in respect of a *semi-scheduled generating unit*, the availability of that *generating unit* specified in the relevant *unconstrained intermittent generation forecast* for each *trading interval*; and

(8) in respect of *semi-scheduled generating units*, the aggregate of the availability of the *semi-scheduled generating units* referred to in subparagraph (7) in respect of each *region* for each *trading interval*.

(q) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of:

(1) ~~*dispatched generation*, *dispatched wholesale demand response*, *dispatched network service* or *dispatched load* for each *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* and *scheduled load* respectively in each *trading interval*; and~~for each *scheduled resource*, *dispatched generation*, *dispatched wholesale demand response*, *dispatched network service* or *dispatched load* (as applicable) in each *trading interval*; and

(2) for each *semi-scheduled generating unit* in each *trading interval*, whether or not a condition for setting a *semi-dispatch interval* applied,

for the previous *trading day*.

(r) In accordance with the *timetable*, *AEMO* must *publish* details of:

(1) actual *generation* for each *scheduled generating unit*, *semi-scheduled generating unit* and *non-scheduled generating unit* or *non-scheduled generating system*;

(1A) actual *generation* for each *scheduled bidirectional unit* and *non-scheduled bidirectional unit* or *non-scheduled integrated resource system*;

(2) actual *network service* for each *scheduled network service*; and

(3) actual *load* for each *scheduled bidirectional unit* and *scheduled load*.

(s) Where *AEMO publishes* details as referred to in clause 3.13.4(r), the requirement to *publish* applies only to data available to *AEMO*.

(t) *AEMO* may, in *publishing* the details referred to in clause 3.13.4(s), *publish* aggregated information of actual *generation* for *non-scheduled generating units* or *non-scheduled generating systems* that have a *nameplate rating* that is less than 30 MW or *non-scheduled bidirectional units* or *non-scheduled integrated resource systems* that have a *nameplate rating* that is less than 5 MW.

(u) Each time *AEMO* runs the *dispatch algorithm* it must, within 5 minutes, *publish* for the relevant *trading interval*:

(1) details of any MW allowance made by *AEMO* for *generation* from *non-scheduled generating systems* or *non-scheduled integrated resource systems* in its forecast regional demand;

(2) for each *regional reference node* the sum of the actual *generation* for each *non-scheduled generating unit*, ~~or~~ *non-scheduled generating system*, *non-scheduled bidirectional unit* or *non-scheduled integrated resource system*; and

(3) for each *regional reference node*, a value that is the sum of the MW *load* for the relevant *region*~~*regional* demand value~~ used by *AEMO* in its *dispatch algorithm* to calculate the *spot price* referred to in clause 3.13.4(l) and the sum of the actual *generation* referred to in clause 3.13.4(u)(2).

(v) Where *AEMO publishes* the information referred to in clause 3.13.4(u), the requirement for *AEMO* to *publish* applies only to data available to *AEMO*.

(w) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of any operational irregularities arising on the previous *trading day* including, for example, any circumstances in which there was prima facie evidence of a failure to follow *dispatch instructions*.

(x) Each *trading interval*, *AEMO* must, for each *regional reference node*, *publish* the demand for that *trading interval*, both inclusive and exclusive of the aggregate actual *generation* from *non-scheduled generating systems* and *non-scheduled integrated resource systems*.

(y) In accordance with the *timetable* and no more than 3 hours after the last such notification, *AEMO* must notify electronically on a confidential basis each *Semi-Scheduled Generator* of the *unconstrained intermittent generation*

forecast for its *semi-scheduled generating units* that was taken into account for each *trading interval* of the last *pre-dispatch schedule published* by *AEMO* under paragraph (e).

(z) At intervals to be determined by *AEMO* under rule 3.7A(e), *AEMO* must, in accordance with the *timetable*, *publish* updates to the *congestion information resource*.

3.13.7 Monitoring of significant variation between forecast and actual prices by AER

(a) The *AER* must, after consulting with the *AEMC*, specify and make available to *Registered Participants* and the public, criteria which the *AER* will use to determine whether there is a significant variation between the *spot price forecast published* by *AEMO* in accordance with clause 3.13.4 and the actual *spot price* in any *trading interval*. The *AER* must, in accordance with these criteria, monitor in each *trading interval* whether any such significant variation has occurred.

(b) The *AER* must prepare and *publish* a report in respect of each three month period commencing on 1 January, 1 April, 1 July and 1 October in each year. The report must:

(1) be *published* no later than 4 weeks after the end of each three month period;

(2) identify and review each occasion when, in accordance with the criteria specified under clause 3.13.7(a), the *AER* considers that a significant price variation has occurred;

(3) state why the *AER* considers that the significant price variation occurred;

(4) be available to members of the public on request; and

(5) be provided to the *AEMC*.

(c) The *ACCC* or the *AEMC* may request the *AER* to report to it on a particular *market* outcome. If the *ACCC* or the *AEMC* makes a request of this type, the *AER* may provide a report on that *market* outcome. The report must review the *market* outcome raised by the *ACCC* or the *AEMC* (as the case may be) and state why the *AER* considers that the *market* outcome occurred.

(d) The *AER* must, within 40 *business days* of the end of a week in which any *30 minute price published* under clause 3.13.4(l1) exceeded $5,000/MWh , prepare and *publish* a report which must:

(1) describe the significant factors that contributed to the *30 minute price* exceeding $5,000/MWh, including the withdrawal of *generation* capacity and *network* availability;

(2) assess whether *rebidding* pursuant to clause 3.8.22 contributed to the *30 minute price* exceeding $5,000/MWh; and

(3) identify the marginal *scheduled generating units*, ~~and~~ *semi-scheduled generating units* and *scheduled bidirectional units* for the relevant period and all *scheduled generating units*, ~~and~~ *semi-scheduled generating units* and *scheduled bidirectional units* for which any

dispatch bid~~*dispatch offer*~~ for a *trading interval* in the relevant period was equal to or greater than $5,000/MWh and compare these *dispatch bids*~~*dispatch offers*~~ to relevant *dispatch bids*~~*dispatch offers*~~ in previous *trading intervals*.

(e) Where:

(1) prices at a *regional reference node* for a *market ancillary service* over a period significantly exceed the relevant *spot price*; and

(2) prices for that *market ancillary service* exceed $5,000 for a number of *30-minute periods* within that period,

the *AER* must prepare and *publish* a report which:

(3) describes the significant factors that contributed to the *ancillary service prices* exceeding $5,000/MWh;

(4) identifies any linkages between *spot prices* in the *energy market* and *ancillary service prices* contributing to the occurrence; and

(5) assesses whether *rebidding* pursuant to clause 3.8.22 contributed to prices exceeding $5,000/MWh.

3.13.8 Public information

(a) *AEMO* must *publish* on a daily basis the following information for the previous *trading day*:

(1) *regional reference price* by *trading interval*;

(2) ~~*power system*~~MW *load* for each *region* referred to the *regional reference node* by *trading interval*;

(3) *regional* electricity consumption in MWh by *trading interval*;

(4) *inter-regional* power flows by *trading interval*; and

(5) *network constraints* by *trading interval*.

(b) All *market information* that *AEMO* is required to *publish* in accordance with the *Rules* shall also be made available by *AEMO* to persons other than *Registered Participants* using the *electronic communications system* on the fee basis described in clause 8.7.6. *AEMO* may make the *market information* available to persons other than *Registered Participants* using a mechanism other than the *market information bulletin board* on the fee basis described in clause 8.7.6, so long as that information is also available on the *market information bulletin board*.

(c) *AEMO* must make available for purchase by any party the *statement of opportunities* from the date of *publication* of such statement.

(d) *AEMO* must retain all information provided to it under the *Rules* for at least 6 years in whatever form it deems appropriate for reasonably easy access.

3.13.12 NMI Standing Data

Note:

Clause 3.13.12 only applies in a participating jurisdiction that has not applied the *NERL* as a law of that jurisdiction. In a participating jurisdiction that has applied the *NERL*, the scheme developed by

AEMO under clause 3.13.12A supersedes clause 3.13.12 and clause 3.13.12 is revoked (see clause 3.13.12A(d)).

(a) The authority responsible for administering the *jurisdictional electricity legislation* in for each *participating jurisdiction* may provide *AEMO* with a *Jurisdictional NMI Standing Data schedule* setting out the categories of *NMI Standing Data* which:

(1) *Registered Participants* are required by the *participating jurisdiction's* legislation or licensing requirements to provide to *AEMO* in relation to *connection points* in that *participating jurisdiction*; and

(2) *AEMO* must make available to *Market Customers*, ~~or~~ a class of *Market Customers* or~~,~~ *Small Resource Aggregators* on request pursuant to its disclosure obligations under clauses 3.13.12(d) and (e).

Any such schedule must contain the matters set out in clause 3.13.12(c).

(b) A responsible authority may from time to time amend the *Jurisdictional NMI Standing Data schedule* in respect of the relevant *participating jurisdiction*, which amendments must be consistent with the matters set out in clause 3.13.12(c), and must promptly provide the amended schedule to *AEMO*.

(c) A valid *Jurisdictional NMI Standing Data schedule* must contain the following items:

(1) a specification of the categories of *NMI Standing Data* which *AEMO* must provide to *Market Customers*, ~~or~~ a specified class of *Market Customers* or *Small Resource Aggregators*, on request, pursuant to its disclosure obligations under clauses 3.13.12(d) and (e), in respect of *connection points* in the relevant *participating jurisdiction*;

(2) details of the *Jurisdictional NMI Standing Data suppliers*, including which *Registered Participants* are required to provide that data in respect of particular *connection points* within that *participating jurisdiction*;

(3) the timetable which the relevant *participating jurisdiction* will implement to ensure *Jurisdictional NMI Standing Data suppliers* supply *NMI Standing Data* in respect of *connection points* in that *participating jurisdiction* to *AEMO*;

(4) the criteria which *AEMO* must use to identify whether *AEMO* must disclose *NMI Standing Data* for *connection points* in that *participating jurisdiction* to particular *Market Customers* or *Small Resource Aggregators*, pursuant to its disclosure obligations under clauses 3.13.12(d) and (e);

(5) the purposes connected with the facilitation of the wholesale electricity *market* for which the *Market Customer* or *Small Resource Aggregator* may use *NMI Standing Data*;

(6) any additional information or criteria as may be determined by the authority responsible for administering the *jurisdictional electricity legislation* as necessary or appropriate in relation to the obligations of *Jurisdictional NMI Standing Data suppliers* and the release by *AEMO*

of *NMI Standing Data* for *connection points* in that *participating jurisdiction*.

(d) *AEMO* must:

(1) *publish* the *Jurisdictional NMI Standing Data schedules* and any amendments to those schedules provided to it by the responsible authorities under clauses 3.13.12(a) and (b); and

(2) subject to clause 3.13.12(e), make available to *Market Customers* and *Small Resource Aggregators* on request *NMI Standing Data* within the relevant categories in respect of *connection points* in a *participating jurisdiction* described in the *Jurisdictional NMI Standing Data schedule* for that *participating jurisdiction*.

(e) *AEMO* must only provide *NMI Standing Data* under this clause 3.13.12 to a *Market Customer* or *Small Resource Aggregator*:

(1) that is a *Market Customer*, ~~or~~ a member of a class of *Market Customers* or a *Small Resource Aggregator* fitting the criteria stated in the relevant *Jurisdictional NMI Standing Data schedule* as being entitled to receive that data;

(2) in accordance with the relevant valid *Jurisdictional NMI Standing Data schedule*; and

(3) for the purposes described in clause 3.13.12(g).

(f) Each *Registered Participant* which is a *Jurisdictional NMI Standing Data supplier* must provide the *NMI Standing Data* to *AEMO* which it is required to provide in accordance with the relevant *Jurisdictional NMI Standing Data schedule*, if any such *Jurisdictional NMI Standing Data schedule* has been provided to *AEMO* under clause 3.13.12(a):

(1) at no charge and in the format reasonably required by *AEMO*; and

(2) after having first done whatever may be required or otherwise necessary under any applicable privacy legislation (including if appropriate making relevant disclosures or obtaining relevant consents from end-use customers) taking into account that *AEMO* will use and disclose the *NMI Standing Data* in accordance with the *Rules*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) A *Market Customer*~~s~~ or *Small Resource Aggregator* must only use *NMI Standing Data* provided to it by *AEMO* under this clause 3.13.12 for the purposes permitted by the relevant *Jurisdictional NMI Standing Data schedule*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) Where a responsible authority has provided *AEMO* with a *Jurisdictional NMI Standing Data schedule* for the relevant *participating jurisdiction* and a

Registered Participant which is a *Jurisdictional NMI Standing Data supplier* fails to provide *AEMO* with *NMI Standing Data* in accordance with clause 3.13.12(f) and *AEMO* becomes aware of that failure, then:

(1) *AEMO* must advise the *Registered Participant* that, in its opinion, the *Registered Participant* is failing to comply with clause 3.13.12(f);

(2) if the *Registered Participant* fails to provide *AEMO* with the *NMI Standing Data* within 5 *business days* of the notice provided under clause 3.13.12(h)(1), *AEMO* must notify the *AER* and the relevant responsible authority of the failure and the failure by the *Registered Participant* to provide the *NMI Standing Data* is to be dealt with by the responsible authority under the relevant *participating jurisdiction's* legislation or licensing requirements unless the responsible authority notifies *AEMO* otherwise in accordance with clause 3.13.12(h)(3); and

(3) if, after receiving a notice from *AEMO* under clause 3.13.12(h)(2), the responsible authority notifies *AEMO* that the relevant *participating jurisdiction's* legislation or licensing requirements do not contain a regime which empowers the responsible authority to compel the *Registered Participant* to provide the *NMI Standing Data* to *AEMO*, *AEMO* must notify the *AER* of the failure by the *Registered Participant* to provide the *NMI Standing Data* under clause 3.13.12(f).

(i) Where a responsible authority has provided *AEMO* with a *Jurisdictional NMI Standing Data schedule* for the relevant *participating jurisdiction* and a *Market Customer* or *Small Resource Aggregator*, that has been provided with *NMI Standing Data* by *AEMO* under clause 3.13.12(d) in accordance with that schedule, fails to use that *NMI Standing Data* in accordance with clause 3.13.12(g), and *AEMO* becomes aware of that failure, then:

(1) *AEMO* must advise the *Market Customer* or *Small Resource Aggregator* that, in its opinion, the ~~*Market Customer*~~ relevant *Market Participant* is failing to comply with clause 3.13.12(g);

(2) if the *Market Customer* or *Small Resource Aggregator* does not remedy the failure within 5 *business days* of the notice provided under clause 3.13.12(i)(1), *AEMO* must notify the relevant responsible authority of the failure and the failure by the *Market Customer* or *Small Resource Aggregator* to use the *NMI Standing Data* in accordance with this clause 3.13.12 is to be dealt with by the responsible authority under the relevant *participating jurisdiction's* legislation or licensing requirements unless the responsible authority notifies *AEMO* otherwise in accordance with clause 3.13.12(i)(3); and

(3) if, after receiving a notice from *AEMO* under clause 3.13.12(i)(2), the responsible authority notifies *AEMO* that the relevant *participating jurisdiction's* legislation or licensing requirements do not contain a regime which empowers the responsible authority to regulate the use of the *NMI Standing Data* by a *Market Customer* or *Small Resource Aggregator*, *AEMO* must notify the *AER* of the failure by the *Market Customer* or *Small Resource Aggregator* to use the *NMI Standing Data* in accordance with clause 3.13.12(g).

(j) *AEMO* must if requested by a responsible authority:

(1) develop a regime for monitoring and reporting to the responsible authority on requests received by *AEMO* to provide *NMI Standing Data* to *Market Customers* and *Small Resource Aggregators* for *connections points* in the relevant *participating jurisdiction*, in consultation with the responsible authority; and

(2) provide information to the responsible authority in accordance with the monitoring and reporting regime developed under this clause 3.13.12(j).

(k) Nothing in this clause 3.13.12:

(1) requires *AEMO* to make available *NMI Standing Data* if that *NMI Standing Data* has not been provided to *AEMO*;

(2) requires *AEMO* to make available *NMI Standing Data* where the collection, use or disclosure of that information by *AEMO* would breach applicable privacy laws;

(3) precludes *AEMO* from providing *NMI Standing Data* to a *Registered Participant* where the provision of that information is required to give effect to other provisions of the *Rules*;

(4) precludes *AEMO* from disclosing *confidential information* in the circumstances in which the disclosure of *confidential information* is permitted under the *NEL* or the *Rules*; and

(5) requires *AEMO* to provide information which its software systems cannot provide without modification.

3.13.14 Carbon Dioxide Equivalent Intensity Index

Carbon dioxide equivalent intensity index procedures

(a) *AEMO* must develop, review and amend *carbon dioxide equivalent intensity index procedures* in consultation with *Registered Participants* and such other persons as *AEMO* thinks appropriate, in accordance with the *Rules consultation procedures* and paragraphs (b), (c) and (e)

(a1) **[Deleted.]**~~For the purposes of this clause, reference to a *market generating unit* is not taken to include a *small generating unit*.~~

(b) The *carbon dioxide equivalent intensity index procedures* must include:

(1) the methodology for calculating the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators*;

(2) where relevant, any assumptions used to calculate the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators*;

(3) the form of the *emission factors* for the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators*;

(4) the methodology for estimating an *emission factor* where the data on the *emission factor* for a *scheduled generating unit*, *scheduled bidirectional unit*, ~~or~~ *market generating unit* or *market bidirectional unit* included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* is not publicly available;

(5) the form of the energy measurements (in MWh) for the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators*;

(6) the time interval for updating and publishing the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators*; and

(7) the time interval for conducting a review of the *emission factors* under paragraph (j).

(c) In developing the *carbon dioxide equivalent intensity index procedures*, *AEMO* must:

(1) ensure that the methodology used to calculate the *carbon dioxide equivalent intensity index* under paragraph (b)(1) represents the volume weighted average of the carbon dioxide equivalent greenhouse gas emissions from all the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index* for the time interval described in paragraph (b)(6);

(2) ensure that the methodology used to calculate any *supplementary carbon dioxide equivalent intensity indicators* under paragraph (b)(1) represents the volume weighted average of the carbon dioxide equivalent greenhouse gas emissions from all the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *supplementary carbon dioxide equivalent intensity indicators* for the time interval described in paragraph (b)(6);

(3) use reasonable endeavours to obtain the data used to calculate the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* from reliable sources; and

(4) have regard to the methodology for determining *emission factors* under the *Australian Government's National Greenhouse and Energy Reporting System* when determining the methodology for estimating the *emission factors* under paragraph (b)(4).

(d) *AEMO* must publish the first *carbon dioxide equivalent intensity index procedures* by no later than 22 July 2011 and such procedures must be available at all times after this date.

(e) *AEMO* must conduct a review of the *carbon dioxide equivalent intensity index procedures* at least once every 3 years after the first *carbon dioxide equivalent intensity index procedures* are published.

Carbon dioxide equivalent intensity index and supplementary carbon dioxide equivalent intensity indicators

(f) *AEMO* must calculate, update and publish a *carbon dioxide equivalent intensity index* for the *NEM* in accordance with the *carbon dioxide equivalent intensity index procedures* and this clause 3.13.14.

(g) The first *carbon dioxide equivalent intensity index* must be published as soon as practicable after the first *carbon dioxide equivalent intensity index procedures* are published under paragraph (d).

(h) If *AEMO* elects to publish any *supplementary carbon dioxide equivalent intensity indicators*, *AEMO* must calculate, update and publish the *supplementary carbon dioxide equivalent intensity indicators* in accordance with the *carbon dioxide equivalent intensity index procedures*.

(i) At the same time as it publishes the first *carbon dioxide equivalent intensity index* under paragraph (g), *AEMO* must publish a table which lists:

(1) all the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index*; and

(2) for each *scheduled generating unit*, *scheduled bidirectional unit*, ~~or~~ *market generating unit* or *market bidirectional unit* referred to in subparagraph (1), the *emission factor* and the source of that information.

(j) *AEMO* must conduct a review of the *emission factors* for the *scheduled generating units*, *scheduled bidirectional units*, ~~and~~ *market generating units* and *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* in accordance with the *carbon dioxide equivalent intensity index procedures* to determine whether the *emission factors* have changed since the last update of the *emission factors*.

(k) As soon as practicable after a review under paragraph (j), *AEMO* must update the *carbon dioxide equivalent intensity index* and where appropriate, any *supplementary carbon dioxide equivalent intensity indicators* with any new *emission factors*, if the *emission factor* for any *scheduled generating units*, *scheduled bidirectional units*, ~~or~~ *market generating units* or *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* has changed since the last update of the *emission factors*.

(l) In addition to the obligation under paragraph (k), *AEMO* must update the *carbon dioxide equivalent intensity index* and where appropriate, any *supplementary carbon dioxide equivalent intensity indicators* with any new *emission factors* as soon as practicable if:

(1) *AEMO* is advised that the *emission factor* for any *scheduled generating units*, *scheduled bidirectional units*, ~~or~~ *market generating units* or

market bidirectional units included in the calculation of the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* has changed since the last update of the *emission factors*; and

(2) the data on the *emission factor* is publicly available and, in *AEMO's* opinion, is from a reliable source.

(m) If:

(1) a *generating unit* is classified under Chapter 2 as a *scheduled generating unit* or *market generating unit*, or a *bidirectional unit* is classified as a *scheduled bidirectional unit* or *market bidirectional unit*, under Chapter 2 after the first *carbon dioxide equivalent intensity index* is published under paragraph (g); and

(2) data for that *generating unit* or *bidirectional unit* is not included in the calculation of the *carbon dioxide equivalent intensity index*,

then *AEMO* must as soon as practicable update the *carbon dioxide equivalent intensity index* to include data for that *generating unit* or *bidirectional unit*.

(n) For the avoidance of doubt, in updating the *carbon dioxide equivalent intensity index* under paragraph (m), *AEMO* may use the methodology for estimating an *emission factor* under the *carbon dioxide equivalent intensity index procedures* to calculate the *carbon dioxide equivalent intensity index* if the *emission factor* for any *generating units* or *bidirectional units* described in paragraph (m) is not publicly available.

(o) *AEMO* must, as soon as practicable after it updates the *carbon dioxide equivalent intensity index* and any *supplementary carbon dioxide equivalent intensity indicators* under paragraphs (k) to (m):

(1) update the table described in paragraph (i) with the new *emission factor(s)*, the source of that information and where appropriate, any new *scheduled generating units*, *scheduled bidirectional units*, ~~or~~ *market generating units* or *market bidirectional units* included in the calculation of the *carbon dioxide equivalent intensity index*; and

(2) publish the table.

(p) *AEMO* must amend the *timetable* to include the time interval in which it must publish the *carbon dioxide equivalent intensity index* under the *carbon dioxide equivalent intensity index procedures* (as amended under this clause 3.13.14).

(q) Despite clause 3.4.3(b), *AEMO* may amend the *timetable* under paragraph (p) without following the *Rules consultation procedures*.

3.14 Administered Price Cap and Market Suspension

3.14.5A Payment of compensation due to market suspension pricing schedule periods

Compensation - objective

(a) The objective for the payment of compensation under this clause 3.14.5A and clause 3.14.5B is to maintain the incentive for:

(1) *Scheduled Generators* and *Scheduled Integrated Resource Providers* to supply *energy*;

(2) *Ancillary Service Providers* to supply *market ancillary services*; and

(3) *Demand Response Service Providers* to supply *wholesale demand response*,

during *market suspension pricing schedule periods*.

Payment to Market Suspension Compensation Claimants

(b) Subject to paragraph (c), *AEMO* must pay compensation to *Market Suspension Compensation Claimants* calculated in accordance with paragraph (d) and clause 3.14.5B (as the case may be).

(c) For the purpose of clauses 3.15.8A and 3.15.10C, the amount of compensation due to a *Market Suspension Compensation Claimant* pursuant to paragraph (b) must include interest on that amount computed at the average *bank bill rate* beginning on the day on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *market suspension pricing schedule period* occurred and ending on the day on which payment is required to be made pursuant to clause 3.15.10C.

(d) Subject to clause 3.14.5B, the compensation payable to each *Market Suspension Compensation Claimant* is to be determined in accordance with the formula set out below:

C = CO - RE

where:

C	=	the amount of compensation the *Market Suspension Compensation Claimant* is entitled to receive.
CO	=	the costs the *Market Suspension Compensation Claimant* is deemed to have incurred during the *market suspension pricing schedule period*, to be determined in accordance with the formula set out below: CO = (SOG x BVG) + (MWE x BVAS) + (MWDR x BVDR)

where:

SOG = the sum of the *Market Suspension Compensation Claimant's sent out generation* (in MWh) during the *market suspension pricing schedule period*.

BVG = the amount (in $/MWh) calculated in accordance with paragraph (e) below.

MWE = the sum of the relevant *market ancillary services* (in MW) which the *Market Suspension Compensation Claimant's* *ancillary service unit* ~~*ancillary service generating unit*~~ has been *enabled* to provide during the *market suspension pricing schedule period*.

BVAS = the amount (in $/MWh) calculated in accordance with paragraph (f) below.

MWDR = the sum of the *wholesale demand response settlement quantities* of the *Market Suspension Compensation Claimant* (in MWh) during the *market suspension pricing schedule* period.

BVDR = the amount (in $/MWh) calculated in accordance with paragraph (f1) below.

RE = the sum of the *trading amounts* determined pursuant to clauses 3.15.6 and 3.15.6A payable to the *Market Suspension Compensation Claimant* during the *market suspension pricing schedule period*,

and where C is a negative number, it will be deemed to be zero.

If a quantity of energy is both *sent out generation* and *wholesale demand response*, it must be included in the calculation of MWDR and not SOG.

(e) The benchmark value for *generation* (BVG) at paragraph (d) is to be determined in accordance with the formula set out below and the *market suspension compensation methodology* developed under paragraph (h):

$BVG = BC_{(av)} \times 1.15$

where:

$BC_{(av)}$ = the capacity-weighted average of the benchmark costs (BC) (in $/MWh) of all *Scheduled Generators* and *Scheduled Integrated Resource Providers* in the same class ~~*of Generator*~~ and same *region* as the *Market*

Suspension Compensation Claimant, with each benchmark cost to be determined in accordance with the formula below:

BC	=	(FC x E) + VOC

where:

FC	=	the fuel cost (in $/GJ) for the relevant *Generator* or *Scheduled Integrated Resource Provider*.
E	=	the efficiency (in GJ/MWh) for the relevant *Generator* or *Scheduled Integrated Resource Provider*.
VOC	=	the variable operating cost (in $/MWh) for the relevant *Generator* or *Scheduled Integrated Resource Provider*.

In each case, the above inputs (FC, E and VOC) are to be the same as the equivalent inputs published in the *ISP database*. If there is no equivalent *NTNDP input* for "FC" or "E", it will be deemed to be 1. If there is no equivalent *NTNDP input* for "VOC", it will be deemed to be zero.

(f) The benchmark value for *market ancillary services* (BVAS) at paragraph (d) is to be determined in accordance with the formula below:

$$BVG = BC_{(av)} \times \left(\frac{0.15}{n}\right)$$

where:

$BC_{(av)}$ has the same meaning as in paragraph (e) above.

n means the number of *trading intervals* within a one hour period.

(f1) The benchmark value for *wholesale demand response* (BVDR) at paragraph (d) is to be determined in accordance with the formula below:

$BVDR = BCE_{(av)} \times 1.15$

where:

$BCE_{(av)}$ means the value of $BC_{(av)}$ determined under paragraph (e) above (in $/MWh) for a class of *Scheduled Generator* in the same *region* as the *Market Suspension Compensation Claimant*, as selected by *AEMO* in accordance with the *market suspension compensation methodology*.

(g) *AEMO* must, in accordance with the *intervention settlement timetable*, advise each *Market Suspension Compensation Claimant* in writing:

(1) whether the *Market Suspension Compensation Claimant* is entitled to receive compensation pursuant to paragraph (b); and

(2) if so, the amount of compensation payable, as calculated in accordance with paragraph (d).

Market suspension compensation methodology and schedule of benchmark values

(h) *AEMO* must develop, *publish* and make available on its website a methodology (*market suspension compensation methodology*) that specifies:

(1) the classes of *Scheduled Generator*, *Scheduled Integrated Resource Provider* and *Ancillary Service Provider* to be used for the purpose of calculating benchmark values;

(2) the approach to be adopted by *AEMO* in calculating the benchmark values for each class of *Scheduled Generator*, *Scheduled Integrated Resource Provider* and *Ancillary Service Provider* in each *region*, including determining the equivalent inputs published in the *ISP database* for the purpose of the calculation in paragraph (e);

(2A) the approach to be adopted by *AEMO* in selecting the class of *Scheduled Generator* to be used when determining the value of $BC_{(av)}$ for the calculation in paragraph (f1); and

(3) *AEMO's* administrative fees associated with a claim for compensation under clause 3.14.5B or the manner in which those fees are to be determined.

(i) *AEMO* may amend the *market suspension compensation methodology* from time to time in accordance with the *Rules consultation procedures*. Notwithstanding this paragraph (i), *AEMO* may make minor and administrative amendments to the *market suspension compensation methodology* without complying with the *Rules consultation procedures*.

(j) *AEMO* must develop a schedule of benchmark values (**schedule of benchmark values**) for each class of *Scheduled Generator* and *Ancillary Service Provider* in each *region*, calculated in accordance with the formula set out in paragraphs (e) and (f), and using (where appropriate) the equivalent inputs published in the *ISP database*.

(k) *AEMO* must *publish* and make available on its website an updated schedule of benchmark values no later than one month after each publication of the *Inputs, Assumptions and Scenario Report*.

3.14.5B Claims for additional compensation due to market suspension pricing schedule periods

(a) Subject to paragraphs (b) and (c), *Market Suspension Compensation Claimants* may, within 15 *business days* of receipt of the notice referred to in clause 3.14.5A(g), make a written submission to *AEMO* claiming an amount equal to the amount by which its direct costs of supplying *energy*, *market ancillary services* or *wholesale demand response* during the *market suspension pricing schedule period* exceed the sum of:

(1) any compensation payable to the *Market Suspension Compensation Claimant* under clause 3.14.5A with respect to that *market suspension pricing schedule period*;

(2) the *Market Suspension Compensation Claimant's* "RE" as calculated under clause 3.14.5A(d); and

(3) any other compensation which the *Market Suspension Compensation Claimant* has received or is entitled to receive in connection with the relevant *generating unit* or *bidirectional unit* supplying *energy* or *market ancillary services* or the relevant *wholesale demand response unit* supplying *wholesale demand response* during that *market suspension pricing schedule period*.

(b) Where a *Market Suspension Compensation Claimant* is a *Directed Participant* with respect to any *trading interval* during a *market suspension pricing schedule period*, such *Market Suspension Compensation Claimant*:

(1) is entitled to make a claim under clause 3.15.7B(a); and

(2) is not entitled to make a claim under this clause 3.14.5B.

(c) A written submission made by a *Market Suspension Compensation Claimant* pursuant to paragraph (a) must:

(1) itemise each component of the claim;

(2) contain sufficient data and information to substantiate each component of the claim; and

(3) be signed by an authorised officer of the *Market Suspension Compensation Claimant* certifying that the written submission is true and correct.

(d) For the purposes of paragraph (a), the direct costs incurred by the *Market Suspension Compensation Claimant* means, in respect of a *generating unit* or *bidirectional unit* supplying *energy* or *market ancillary services*:

(1) fuel costs in connection with the relevant *generating unit* or *bidirectional unit*;

(2) incremental maintenance costs in connection with the relevant *generating unit* or *bidirectional unit*;

(3) incremental manning costs in connection with the relevant *generating unit* or *bidirectional unit*; and

(4) other direct costs reasonably incurred in connection with the relevant *generating unit* or *bidirectional unit*, where such costs are incurred to enable the *generating unit* or *bidirectional unit* to supply *energy* or *market ancillary services* during the *market suspension pricing schedule period*.

(d1) For the purposes of paragraph (a), the direct costs incurred by the *Market Suspension Compensation Claimant* means, in respect of a *wholesale demand response unit* supplying *wholesale demand response*:

(1) fuel costs in connection with the relevant *wholesale demand response unit*;

(2) incremental maintenance costs in connection with the relevant *wholesale demand response unit*;

(3) incremental manning costs in connection with the relevant *wholesale demand response unit*; and

(4) other direct costs reasonably incurred in connection with the relevant *wholesale demand response unit*, where such costs are incurred to enable the *wholesale demand response unit* to supply *wholesale demand response* during the *market suspension pricing schedule period*.

(e) *AEMO* may recover from a *Market Suspension Compensation Claimant* an administrative fee to assist in recouping some of the costs incurred in carrying out its functions under this clause 3.14.5B (which costs may include fees for services rendered by an independent expert under clause 3.12.3). The administrative fees will be determined in accordance with the *market suspension compensation methodology* developed pursuant to clause 3.14.5A(h).

(f) *AEMO*:

(1) may (but is not required to) refer a claim by a *Market Suspension Compensation Claimant* under paragraph (a) to an independent expert to determine such claim in accordance with clause 3.12.3 where the claim is equal to or greater than $50,000; and

(2) must determine in its sole discretion if any claims by a *Market Suspension Compensation Claimant* made under paragraph (a) and not referred to an independent expert under subparagraph (f)(1) are reasonable, and if so, pay the amount claimed in accordance with clause 3.15.10C,

in accordance with the *intervention settlement timetable*.

(g) Where *AEMO* considers a claim made by a *Market Suspension Compensation Claimant* under paragraph (a) to be unreasonable, it must:

(1) advise the *Market Suspension Compensation Claimant* of its determination in writing, setting out its reasons; and

(2) refer the claim to an independent expert to determine the claim in accordance with clause 3.12.3.

3.14.6 Compensation due to the application of an administered price cap or administered floor price

Definitions

(a) For the purposes of this clause 3.14.6:

compensation guidelines means the guidelines made by the *AEMC* under paragraph (e).

direct costs means the costs directly incurred by the claimant due to a price limit event

direct cost only claim means a claim made under paragraph (i) that does not include a claim for opportunity costs.

draft opportunity cost methodology has the meaning given to it in clause 3.14.6(o)(2).

eligibility period means the period starting at the beginning of the first *trading interval* in which the price limit event occurs in a *trading day* and ending at the end of the last *trading interval* of that *trading day*.

opportunity costs means the value of opportunities foregone by the claimant due to the price limit event as defined in the compensation guidelines.

price limit event means:

(1) for *Scheduled Generators*, *Scheduled Integrated Resource Providers*, *Non-Scheduled Generators*, *Non-Scheduled Integrated Resource Providers* and *Demand Response Service Providers*:

  (i) the *spot price* for a *trading interval* is set by the *administered price cap* during an *administered price period*; or

  (ii) the *spot price* for a *trading interval* is set as a result of the application of clause 3.14.2(e)(2);

(2) for *Market Participants* in respect of *scheduled load*:

  (i) the *spot price* for a *trading interval* is set by the *administered floor price* during an *administered price period*; or

  (ii) the *spot price* for a *trading interval* is set as a result of the application of clause 3.14.2(e)(4); and

(3) for *Scheduled Network Service Providers*:

  (i) the *spot price* for a *trading interval* for a *region* towards which the *Scheduled Network Service Provider* is transporting power is set by the *administered price cap* during an *administered price period*; or

  (ii) the *spot price* for a *trading interval* for a *region* towards which the *Scheduled Network Service Provider* is transporting power is set as a result of the application of clause 3.14.2(e)(2).

(4) for *Ancillary Service Providers*, in respect of an ~~*ancillary generating unit* or an *ancillary service load*~~*ancillary service unit*, the *ancillary service price* for a *trading interval* is set by the *administered price cap* during an *administered price period*.

relevant region means a *region* in which the *spot price* or *ancillary service price* (as relevant) is set by the price limit event.

submission closing date has the meaning given to it in clause 3.14.6(o)(3).

total costs means the direct costs and opportunity costs determined in accordance with the compensation guidelines provided that, in the case of a claimant that is a *Market Network Service Provider*, the total costs must be the costs incurred due to transporting power towards the relevant region and must not include costs incurred, or revenues earned, due to transporting power away from the relevant region.

Eligibility for compensation

(b) If a price limit event occurs then the following are eligible to claim *Registered Participants* compensation for the eligibility period:

(1) a *Scheduled Generator*, *Non-Scheduled Generator*, *Scheduled Integrated Resource Provider*, *Non-Scheduled Integrated Resource Provider* or *Demand Response Service Provider* in the relevant *region* (but excluding *Non-Market Generators* and *Non-Market Integrated Resource Providers*);

(2) a *Market Participant* in respect of a *scheduled load* that has been *dispatched* in the relevant region in that eligibility period;

(3) a *Scheduled Network Service Provider* that transported power towards the relevant region; and

(4) an *Ancillary Service Provider* that provided *market ancillary services* in the relevant region in the eligibility period,

provided that the relevant claimant has incurred total costs during the eligibility period that exceed the total revenue it received from the *spot market* during that period.

Compensation - objective and basis

(c) The objective of the payment of compensation under this clause 3.14.6 is to maintain the incentive for:

(1) *Scheduled Generators*, *Non-Scheduled Generators*, *Scheduled Integrated Resource Providers*, *Non-Scheduled Integrated Resource Providers* and *Scheduled Network Service Providers* to supply *energy*;

(2) *Ancillary Service Providers* to supply *ancillary services*;

(3) *Market Participants* with *scheduled load* to consume *energy*; and

(4) *Demand Response Service Providers* to supply *wholesale demand response*,

during price limit events.

(d) The amount of compensation payable in respect of a claim under this clause 3.14.6 must be based on direct costs and opportunity costs.

Compensation guidelines

(e) The *AEMC* must, in accordance with the *transmission consultation procedures*, develop and *publish* guidelines (**compensation guidelines**) that are consistent with paragraphs (c) and (d) and that:

(1) define the types of opportunity costs in relation to which a person can make a claim under this clause 3.14.6;

(2) outline the methodology to be used to calculate the amount of any compensation payable in respect of a claim under this clause, including the methodology for calculating direct costs and opportunity costs; and

(3) set out the information *AEMO* and a claimant must provide to enable the *AEMC* to make a determination as to compensation under this clause 3.14.6.

(f) The *AEMC* must ensure that there are compensation guidelines in place at all times.

Note:

The first compensation guidelines were made on 30 June 2009 and have been amended from time to time since that date. The current version of the compensation guidelines are available on the AEMC's website www.aemc.gov.au.

(g) The *AEMC* may from time to time, in accordance with the *transmission consultation procedures*, amend or replace the compensation guidelines.

Process for making a claim

(h) A person who is eligible under paragraph (b) may make a claim for compensation by providing the *AEMC* and *AEMO* with written notice of its claim in the form required by the compensation guidelines.

(i) A claim under paragraph (h) must be made within 5 *business days* of notification by *AEMO* that an *administered price period* has ended.

Initial steps on receipt of claim

(j) Following its receipt of a notice under paragraph (h), the *AEMC* must promptly:

(1) publish a notice on its website stating that it has received a claim under paragraph (h). The notice must:

(i) provide information on the general nature of the claim;

(ii) state whether or not the claim is a direct cost only claim; and

(iii) state that the *AEMC* will publish a notice when it commences formal assessment of the claim; and

(2) seek such information from the claimant that the *AEMC* reasonably considers is required to enable assessment of the claim including, in the case of a claim other than a direct cost only claim, the methodology used by the claimant to determine its opportunity costs.

Formal commencement of claim

(k) As soon as practicable after the *AEMC* is reasonably satisfied that it has sufficient information from the claimant to assess its claim, the *AEMC* must publish a notice on its website that it has formally commenced its assessment of the claim specifying whether or not the claim is a direct cost only claim.

Determination of direct cost only claims

(l) Not later than 45 *business days* after publication of the notice under paragraph (k) in respect of a direct cost only claim, the *AEMC* must *publish* its final decision as to:

(1) whether compensation should be paid by *AEMO* in relation to the claim; and

(2) if so, the amount of compensation that should be paid.

(m) Before making its final decision under paragraph (l) the *AEMC* must consult with the claimant.

(n) In making its final decision under paragraph (l), the *AEMC* must apply the compensation guidelines unless it is satisfied that there are compelling reasons not to do so.

Determination of claims other than direct cost only claims

(o) In relation to a claim other than a direct cost only claim, the *AEMC* must, as soon as practicable but not later than 35 *business days* after publication of the notice under paragraph (k) *publish*:

(1) the claimant's proposed methodology for determining the claimant's opportunity costs;

(2) the methodology the *AEMC* proposes to use in determining the claimant's opportunity costs (**draft opportunity cost methodology**); and

(3) an invitation for written submissions to be made to the *AEMC* on the draft opportunity cost methodology by a date not less than 20 *business days* after the invitation is made (**submission closing date**).

(p) Any person may make a written submission to the *AEMC* on the draft opportunity cost methodology by the submission closing date.

(q) Not later than 35 *business days* after the submission closing date the *AEMC* must *publish* its final decision on:

(1) the methodology it will use in determining the claimant's opportunity costs; and

(2) whether compensation should be paid by *AEMO* in relation to the claim; and

(3) if so, the amount of compensation that should be paid.

(r) Before making its decision on the matters referred to in paragraph (q), the *AEMC* must consult with the claimant.

(s) In making its final decision as to the matters referred to in paragraph (q), the *AEMC* must:

(1) take into account the submissions made in response to the invitation to in subparagraph (o)(3); and

(2) apply the compensation guidelines unless it is satisfied that there are compelling reasons not to do so.

Extensions of time

(t) Despite anything to the contrary in this clause 3.14.6, the *AEMC* may extend a period of time specified in this clause if it considers the extension reasonably necessary to enable it to properly assess the claim because of the complexity or difficulty of assessing the claim or because of a material change in circumstances.

(u) The *AEMC* must publish any extension of time made under paragraph (t).

Costs of claim

(v) The *AEMC* may recover from a claimant for compensation under this clause any costs that are incurred by the *AEMC* in carrying out their functions under this clause in respect of that claim. For this purpose the *AEMC* may require the claimant to pay all or a proportion of those costs to the *AEMC* prior to the claim being considered or determined.

3.15 Settlements

3.15.3 Connection point and virtual transmission node responsibility

(a) For each *market connection point* there is one person that is *financially responsible* for that *connection point*. The person that is *financially responsible* for such a *connection point* is:

(1) the *Market Participant* which has classified the *connection point* as a *market connection point*~~*market load*~~;

(2) the *Market Participant* which has classified the *generating unit connected* at that *connection point* as a *market generating unit*; ~~or~~

(3) the *Market Participant* which has classified the *network service connected* at that *connection point* as a *market network service*~~.~~; or

(4) the *Market Participant* which has classified the *bidirectional unit connected* at that *connection point* as a *market bidirectional unit.*

(b) No person is *financially responsible* for a *virtual transmission node* or a *connection point* which *connects* a *local area* to another part of the *power system*.

(c) Any difference between:

(i) the *energy* flow *metered* at a *transmission network connection point* that is not a *market connection point*; and

(ii) the aggregate *loss factor*-adjusted *metered energy* amounts for all *market connection points* assigned to that *transmission network connection point*,

is to be determined and allocated in accordance with clause 3.15.4 and 3.15.5.

3.15.4 Adjusted gross energy amounts – connection points

(a) For each *market connection point*, the *adjusted gross energy* amount for a *trading interval* is calculated by *AEMO* by applying the following formula:

AGE = ACE + ASOE

where:

AGE is the *adjusted gross energy* amount to be determined;

ACE is the *adjusted consumed energy* amount for the *market connection point* and *trading interval* calculated by *AEMO* by applying the formula in subparagraph (b)(1) or (b)(2) as applicable to the *market connection point*; and

ASOE is the *adjusted sent out energy* amount for the *market connection point* and *trading interval* calculated by *AEMO* by applying the formula in subparagraph (c)(1) or (c)(2) as applicable to the *market connection point.*

(b) The *adjusted consumed energy* or ACE for a *market connection point* for a *trading interval* is calculated by *AEMO* as follows:

(1) for a *market connection point* that is a *transmission network connection point*, ACE is equal to ME-, where ME- has the meaning in paragraph (d); and

(2) for a *connection point* that is not a *transmission network connection point:*

ACE = (ME- × DLF) + UFEA

where:

ACE is the *adjusted consumed energy* amount to be determined;

ME- has the meaning given in paragraph (d);

DLF is the *distribution loss factor* applicable at the *market connection point*; and

UFEA is the share of unaccounted for *energy* allocated to that *market connection point* under clause 3.15.5.

(c) The *adjusted sent out energy* or ASOE for a *market connection point* for a *trading interval* is calculated by *AEMO* as follows:

(1) for a *market connection point* that is a *transmission network connection point*, ASOE is equal to ME+, where ME+ has the meaning given in paragraph (e); and

(2) for a *market connection point* that is not a *transmission network connection point*:

ASOE = (ME+ ×DLF)

where:

ASOE is the *adjusted sent out energy* amount to be determined;

ME+ has the meaning given in paragraph (e); and

DLF is the *distribution loss factor* applicable at the *market connection point*.

(d) ME- means, for a *connection point* for a *trading interval*, the amount of electrical *energy*, expressed as a negative value in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval*, where the flow is away from the *transmission network connection point* to which the *connection point* is assigned.

(e) ME+ means, for a *connection point* for a *trading interval*, the amount of electrical *energy*, expressed as a positive value in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval*, where the flow is

towards the *transmission network connection point* to which the *connection point* is assigned.

~~(a) For each *market connection point* that is a *transmission network connection point*, the *adjusted gross energy amount* for a *trading interval* is the *metered energy*, being the amount of electrical *energy*, expressed in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval* (expressed as a positive value where the flow is towards the *transmission network connection point* to which the *connection point* is assigned and a negative value where the flow is in the other direction).~~

~~(b) Where a *connection point* is not a *transmission network connection point*, the *adjusted gross energy amount* for that *connection point* for a *trading interval* is calculated by *AEMO* by applying the following formula:~~

~~AGE = (ME × DLF) + UFEA~~

~~where:~~

~~AGE is the *adjusted gross energy* amount to be determined;~~

~~ME is the amount of electrical *energy*, expressed in MWh, flowing at the *connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *connection point* and that *trading interval* (expressed as a positive value where the flow is towards the *transmission network connection point* to which the *connection point* is assigned and a negative value where the flow is in the other direction)~~

~~DLF is the *distribution loss factor* applicable at that *connection point*; and~~

~~UFEA is the share of unaccounted for *energy* allocated to that *connection point* under clause 3.15.5.~~

3.15.5 Unaccounted for energy adjustment – local areas

(a) For each *local area*, an amount representing unaccounted for *energy* is determined by *AEMO* for each *trading interval* by the following formula:

UFE = TME - DDME - ADME

where:

UFE is the total unaccounted for *energy* amount (in MWh) to be determined;

TME is the amount of electrical *energy*, expressed in MWh, flowing at each of the *transmission network connection points* in the *local area* in the *trading interval*, as recorded in the *metering data* in respect of each of the *transmission network connection points* for that *trading interval* (expressed as a positive value where the flow is towards the *transmission network*, and negative value where the flow is in the other direction);

DDME is the amount of electrical *energy*, expressed in MWh, flowing at each of the *distribution network connection points* in the *local area* which are connected to an adjacent *local area*, in the *trading interval*, as recorded in the *metering data* in respect of each of those *distribution network connection points* for that *trading interval* (expressed as a negative value where the flow is towards the adjacent *distribution network*, and positive value where the

flow is in the other direction) adjusted by the *distribution loss factor* applicable at that *connection point*; and

ADME is the aggregate of the amounts represented by (ME- × DLF) and (ME+ × DLF) ~~(ME x DLF)~~ for that *trading interval* for each *connection point* assigned to the *transmission network connection point* or *virtual transmission node*, for which a *Market Participant* (other than a suspended *Market Participant*) is *financially responsible* ~~(and in that aggregation positive and negative *adjusted gross energy* amounts are netted out to give a positive or negative aggregate amount)~~.

Note

The DDME value for a local area that is connected to an adjacent local area will appear in the calculation of UFE for both local areas. A positive energy flow for the calculation of UFE for one local area would correspond to a negative flow for the calculation of UFE for the other local area.

(b) The unaccounted for *energy* amount determined by *AEMO* under paragraph (a) for~~in~~ a *local area* is to be allocated to all *market connection points* ~~that are classified as *market loads*~~ in that *local area* by calculating UFEA for the *market connection point* in accordance with paragraph (c) and including UFEA in the calculation of ACE as provided for in clause 3.15.4(b). ~~where the amount of electrical *energy* flowing at the *connection point* is expressed as a negative value.~~

(c) The allocation of the total unaccounted for *energy* amount determined under paragraph (a) to a *market connection point* in a *local area* in accordance with paragraph (b) ~~for every *distribution network connection point* in a *local area* that is classified as a *market load* where the amount of electrical *energy* flowing at the *connection point* is expressed as a negative value~~ is determined by *AEMO* by the following formula:

UFEA = UFE x (DME/ADMELA)

where:

UFEA is the allocation of the unaccounted for *energy* amount (in MWh) for the relevant *market connection point* and *trading interval*;

UFE is the unaccounted for *energy* amounts determined under paragraph (a) for the *local area*;

DME is the amount represented by (ME- x DLF) for the relevant *market connection point* and *trading interval* where:

ME- has the meaning given in clause 3.15.4(d); and

~~ME- is the amount of electrical *energy*, expressed in MWh, flowing at the *market connection point* in the *trading interval*, as recorded in the *metering data* in respect of that *market connection point* and that *trading interval* (where the flow is away from the *transmission network connection point* to which the *market connection point* is assigned);~~

DLF is the distribution loss factor applicable at that *market connection point*; and

ADMELA is the aggregate of the amounts represented by DME for that *trading interval* for each *market connection point* in that *local area*~~, for which~~

~~a *Market Customer* (other than a suspended *Market Customer*) is *financially responsible*~~.

(d) *AEMO* must *publish* information to enable a *Market Participant*~~each *Market Customer*~~ in a *local area* to verify the unaccounted for *energy* amounts allocated to ~~that *Market Customer's*~~ *market connection points* of the *Market Participant* in that *local area* ~~under paragraph (b)~~ for each *trading interval* in accordance with a procedure developed and *published* by *AEMO*.

3.15.6 Spot market transactions

(a) In each *trading interval*, in relation to each *market connection point* and to each *virtual transmission node* for which a *Market Participant* is *financially responsible*, a *spot market transaction* occurs, which results in a *trading amount* for that *Market Participant* determined in accordance with the formula:

TA= AGE × TLF × RRP

where

TA is the *trading amount* to be determined (which will be a positive or negative dollar amount for each *trading interval*);

AGE is the *adjusted gross energy* for that *market connection point* or *virtual transmission node* for that *trading interval*, expressed in MWh;

TLF for a *transmission network connection point* or *virtual transmission node*, is the relevant *intra-regional loss factor* at that *connection point* or *virtual transmission node* respectively, and for any other *connection point*, is the relevant *intra-regional loss factor* at the *transmission network connection point* or *virtual transmission node* to which it is assigned in accordance with clause 3.6.2(b)(2); and

RRP is the *regional reference price* for the *regional reference node* to which the *connection point* or *virtual transmission node* is assigned, expressed in dollars per MWh.

Note

Where two *intra-regional loss factors* are determined for a *transmission network connection point* under clause 3.6.2(b)(2), *AEMO* will determine the relevant *intra-regional loss factor* for use under this clause in accordance with the procedure determined under clause 3.6.2(d1).

Where one *connection point* is assigned to both a single *transmission network connection point* and a *virtual transmission node*, the *intra-regional loss factor* for the *virtual transmission node* will apply.

(b) Except with respect to any *trading interval* in a *market suspension pricing schedule period* in relation to which *AEMO* has issued a *direction* to a *Market Suspension Compensation Claimant*, *AEMO* is entitled to the *trading amount* resulting from a *AEMO intervention event* and, for the purposes of determining *settlement amounts*, any such *trading amount* is not a *trading amount* for the relevant *Market Participant*.

(c) A *Directed Participant* is entitled to the *trading amount* resulting from any service, other than the service the subject of the *AEMO intervention event*, rendered as a consequence of that event.

3.15.6A Ancillary service transactions

Definitions

(a0) In this clause 3.15.6A:

~~**customer energy** in respect of a *Market Customer* for a *trading interval* means the sum of the *adjusted gross energy figures* calculated for that *trading interval* in respect of that *Market Customer's* relevant *connection points*, provided that, if the sum of those figures is positive, then the *Market Customer's customer energy* for that *trading interval* is zero;~~

~~a *connection point* is a relevant *connection point* of a *Market Customer* if:~~

~~(1) the *Market Customer* is *financially responsible* for the *connection point*; and~~

~~(2) the *load* at that *connection point* has been classified (or is deemed to be classified) as a *market load*.~~

~~**generator energy** in respect of a *Market Generator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Generator's* applicable *connection points*, provided that, if the sum of those figures is negative, then the *Market Generator's generator energy* for that *trading interval* is zero;~~

~~a *connection point* is an applicable *connection point* of a *Market Generator* if:~~

~~(1) the *Market Generator* is *financially responsible* for the *connection point*; and~~

~~(2) the *connection point connects* a *market generating unit* to the *national grid*.~~

regional benefit ancillary services procedures means the procedures to determine the relative benefit that each *region* is estimated to receive from the provision of *NMAS*.

regional benefit factors means the factors to allocate, between *regions*, the costs associated with the provision of *NMAS* under each *ancillary services agreement* in accordance with the regional benefit ancillary services procedures.

Scheduled Participant has the meaning given to it by subparagraph (k)(5)~~clause 3.15.6A(k)(5)~~.

~~**small generator energy** in respect of a *Market Small Generation Aggregator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Small Generation Aggregator's* applicable *connection points*, provided that, if the sum of those figures is negative, then the *Market Small Generation Aggregator's small generator energy* for that *trading interval* is zero; and~~

~~a *connection point* is an applicable *connection point* of a *Market Small Generator Aggregator* if:~~

~~(1) the *Market Small Generator Aggregator* is *financially responsible* for the *connection point*; and~~

~~(2) the *connection point* connects a *small generating unit* classified as a *market generating unit* to the *national grid*.~~

Trading amount calculation for the provision of ancillary services

(a) In each *trading interval*, in relation to each *enabled* *ancillary service unit*~~*ancillary service generating unit* or *enabled ancillary service load*~~, an ancillary services transaction occurs, which results in a *trading amount* for the relevant *Market Participant* determined in accordance with the following formula:

$$TA = \text{the aggregate of } \frac{EA \times ASP}{(12)}$$ ~~for each *trading interval*~~

where:

TA (in $)	=	the *trading amount* to be determined (which is a positive number);
EA (in MW)	=	the amount of the relevant *market ancillary service* which the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* has been *enabled* to provide in the *trading interval*; and
ASP (in $ per MW per hour)	=	the *ancillary service price* for the *market ancillary service* for the *trading interval* for the *region* in which the ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* has been *enabled*.

(b) In relation to each *NMAS provider* who provides *non-market ancillary services* under an *ancillary services agreement*, an *ancillary services* transaction occurs, which results in an amount payable by *AEMO* to the *NMAS provider* determined in accordance with that agreement.

Recovery of costs relating to non-market ancillary services

(b1) Where an amount is payable by *AEMO*:

(1) under clause 4.3.6(o); or

(2) under paragraph (b) where it is not determined on a *trading interval basis*,

that amount is recovered in accordance with the relevant paragraphs (c8), (c9), (d) and (e), except that a reference to *trading interval* in the calculation of RBF, ACE, AACE, TSOE, ATSOE, ~~AGE, AAGE, TGE, ATGE, TSGE, ATSGE,~~ TCE and~~,~~ ATCE is to be read as "the relevant period", and any other reference to *trading interval* in those paragraphs is to be read as the "relevant *billing period*".

(c) **[Deleted]**

(c1) **[Deleted]**

(c2) Subject to paragraph (b1), *AEMO* must recover its liabilities under *ancillary services agreements* from *Cost Recovery Market Participants* in each *region* as follows:

(1) in relation to *NSCAS*, in accordance with paragraphs (c8) and (c9); and

(2) in relation to *SRASs*, in accordance with paragraphs (d) and (e).

~~(c2) Subject to paragraph (b1), *AEMO* must recover its liabilities under *ancillary services agreements* for the provision of:~~

~~(1) *NSCAS* from *Market Customers* in each *region* in accordance with paragraphs (c8) and (c9); and~~

~~(2) *SRASs*, from:~~

~~(i) *Market Generators* and *Market Small Generation Aggregators* in each *region* in accordance with paragraph (d); and~~

~~(ii) *Market Customers* in each *region* in accordance with paragraph (e).~~

(c3) In the statements to be provided under clauses 3.15.14 and 3.15.15 to a *Cost Recovery Market Participant*~~*Market Customer*~~, *AEMO* must separately identify the portion of the total amount payable by *AEMO* in respect of the relevant *billing period* under *ancillary services agreements* for the provision of *NSCAS* that:

(1) benefits specific *regions* in which there is a *connection point* for which the *Cost Recovery Market Participant* ~~*Market Customer*~~ is *financially responsible* (being the *regional* amounts given by the first summated term in the paragraph (c8) formula); and

(2) does not benefit specific *regions* (being the amount $TNSCAS_i$ ~~TNSCASp~~ in the paragraph (c9) formula).

(c4) *AEMO* must develop and *publish* the regional benefit ancillary services procedures in accordance with the *Rules consultation procedures*. Without limiting the matters to be included in the regional benefit ancillary services procedures, they must require *AEMO* to take into account:

(1) for an *NSCAS*, the estimated increase for each *region* of the gross economic benefit from increased *power transfer capability*; and

(2) for an *SRAS*, that can be used to restart *generating units* or *bidirectional units* in two or more *regions*, the relative benefit provided by that service to each *region*.

(c5) Subject to paragraph (c6), *AEMO* may amend the regional benefit ancillary services procedures from time to time in accordance with the *Rules consultation procedures*.

(c6) *AEMO* may make minor and administrative amendments to the regional benefit ancillary services procedures without complying with the *Rules consultation procedures*.

(c7) From time to time, *AEMO* must determine the regional benefit factors in accordance with the regional benefit ancillary services procedures and publish those factors.

Trading amount calculation for NSCAS cost recovery

(c8) In each *trading interval*, in relation to each *Cost Recovery Market Participant* ~~*Market Customer*~~ for each *region*, an *ancillary services* transaction occurs, which results in a *trading amount* for the *Cost Recovery Market Participant* ~~*Market Customer*~~ determined in accordance with the following formula:

$$TA_{P,R} = \left(\sum_{\text{for all 'S'}} \left(TNSCAS_{S,P} \times RBF_{S,P,R} \right) \right) \times \frac{AGE_{P,R}}{AAGE_{P,R}} \times -1$$

$$TA_{i,R} = \left(\sum_{for\ all\ S} \left(TNSCAS_{S,i} \times RBF_{S,i,R} \right) \right) \times \frac{ACE_{i,R}}{AACE_{i,R}} \times -1$$

~~Where~~

~~Subscript 'P' is the relevant period;~~

~~Subscript 'R' is the relevant~~

~~Subscript 'S' is the relevant *NSCAS*;~~

~~TAp,r (in $) =*trading amount* payable by the *Market Customer* in respect of the relevant *region* and *trading interval*;~~

~~TNSCASs,p the total amount payable by *AEMO* for the provision of the relevant *NSCAS* under an *ancillary services agreement* in respect of the relevant *trading interval*;~~

~~RBFs,p,r (number) = the latest regional benefit factor assigned to the provision of the relevant *NSCAS* under an *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);~~

~~AGEp,r (in MWh) = the sum of the *adjusted gross energy* figures in respect of the *Market Customer's* relevant *connection points* located in the *region* for the relevant *trading interval*; and~~

~~AAGEp,r (in MWh) = the aggregate AGEp,r figures for all *Market Customers* in respect of the relevant *region* and *trading interval*.~~

where:

subscript i		refers to the relevant *trading interval*;
subscript R		refers to the relevant *region*;
subscript S		refers to the relevant *NSCAS*;
$TA_{i,R}$ (in $)	=	the trading amount payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;

$TNSCAS_{S,i}$ (in $)	=	the total amount payable by *AEMO* for the provision of the relevant *NSCAS* under an *ancillary services agreement* in respect of the relevant *trading interval*;
$RBF_{S,i\,R}$ (number)	=	the latest regional benefit factor assigned to the provision of the relevant *NSCAS* under the *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);
$ACE_{i,R}$ (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*; and
$AACE_{i,R}$ (in MWh)	=	the sum, for all *connection points* located in the *region*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*.

~~**Note**~~

~~The values of $AGE_{P,R}$ and $AAGE_{P,R}$ are subject to substitution in accordance with clause 3.15.6AA~~

(c9) In each *trading interval*, in relation to each *Cost Recovery Market Participant*~~*Market Customer*~~, an *ancillary services* transaction occurs, which results in a *trading amount* for the *Cost Recovery Market Participant*~~*Market Customer*~~ determined in accordance with the following formula:

$$TA_P = TNSCAS_P \times \frac{AGE_P}{AAGE_P} \times -1$$

$$TA_{iP} = TNSCAS_i \times \left(\frac{ACE_i}{AACE_i}\right) \times -1$$

~~Where~~

~~Subscript 'P' is the relevant period;~~

~~TAap(in $) = the *trading amount* payable by the *Market Customer* in respect of the relevant *trading interval*;~~

~~TNSCASp (in $) = the sum of all amounts payable by *AEMO* for the provision of *NSCAS* under *ancillary services agreements* in respect of the relevant *trading interval* minus the sum of the *trading amounts* calculated for all~~

~~*Market Customers* in respect of all of the relevant *trading interval* under paragraph (c8);~~

~~AGEp (in MWh) = the sum of the *adjusted gross energy* figures in respect of all the *Market Customer's* relevant *connection points* for the relevant *trading interval*; and~~

~~AAGEp (in MWh) = the aggregate AGEp figures for all *Market Customers* in respect of the relevant *trading interval*.~~

where:

subscript i		refers to the relevant *trading interval*;
TA_i (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *trading interval*;
$TNSCAS_i$ (in $)	=	the sum of all amounts payable by *AEMO* for the provision of *NSCAS* under *ancillary services agreements* in respect of the relevant *trading interval* minus the sum of the *trading amounts* calculated for all *Cost Recovery Market Participants* in respect of all of the relevant *trading interval* under paragraph (c8);
ACE_i (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant,* of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*; and
$AACE_i$ (in MWh)	=	the sum, for all *connection points*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval.*

~~**Note**~~

~~The values of AGE_p and $AAGE_p$ are subject to substitution in accordance with clause 3.15.6AA.~~

(c10) **[Deleted]**~~*AEMO* must *publish* the regional benefit factors determined under paragraph (c7);~~

Trading amount calculation for SRAS and SRAS tests cost recovery

(d) In each *trading interval*, in relation to each *Cost Recovery Market Participant* ~~*Market Generator* and each *Market Small Generation Aggregator*~~ for each *region*, an ancillary services transaction occurs, which results in a *trading amount* for the *Cost Recovery Market Participant* ~~*Market Generator* or the *Market Small Generation Aggregator*~~ determined in accordance with the following formula:

$$TA = \sum \left(\left(\frac{SRP_i \times RBF_{Ri}}{2} \right) \times \left(\frac{TGE_R + TSGE_R}{ATGE_R + ATSGE_R} \right) \right) \times -1$$

$$\text{~~}TATA_{i,R} = \sum \left(\left(\text{~~}SRP_i \text{ x~~} \frac{SRP_i \times RBF_{i,R\text{~~}Ri\text{~~}}}{2} \right) \times \left(\frac{TSOE_{i,R}}{ATSOE_{i,R}} \right) \right) \times -1$$

~~Where~~

~~TA (in $) = the *trading amount* to be determined in respect of the relevant region and *trading interval* (which is a negative number);~~

~~SRP_i (in $) = the amount payable by *AEMO* in respect of the *trading interval* under an individual *ancillary services agreement* in respect of the provision of a specific *SRAS* or, for the purposes of clause 4.3.6(q), the compensation payable by *AEMO* under clause 4.3.6(o) for the relevant *billing period*;~~

~~RBF_{Ri} (number) = the latest regional benefit factor assigned to the provision of the relevant *SRAS* under an individual *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);~~

~~TGE_R (in MWh) = the *generator energy* for the *Market Generator* for the *trading interval* in that *region*;~~

~~$TSGE_R$ (in MWh) = the *small generator energy* for the *Market Small Generator Aggregator* for the *trading interval* in that *region*;~~

~~$ATGE_R$ (in MWh) = the aggregate of the *generator energy* figures for all *Market Generators* for the *trading interval* in that *region*; and~~

~~$ATSGE_R$ (in MWh) = the aggregate of the *small generator energy* figures for all *Market Small Generator Aggregators* for the *trading interval* in that *region*.~~

where:

subscript i		refers to the relevant *trading interval*;
subscript R		refers to the relevant *region*;
$TA_{i,R}$ (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *trading interval* and *region*;
SRP_i (in $)	=	the amount payable by *AEMO* in respect of the *trading interval* under an individual *ancillary services agreement* in respect of the provision of a specific *SRAS* or, for the purposes of clause 4.3.6(q), the compensation payable by *AEMO* under clause 4.3.6(o) for the relevant *billing period*;

$RBF_{i,R}$ (number)	=	the latest regional benefit factor assigned to the provision of the relevant *SRAS* under the *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);
$TSOE_{i,R}$ (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted sent out energy* amount for the *connection point* for the *trading interval*; and
$ATSOE_{i,R}$ (in MWh)	=	the sum, for all *connection points* located in the *region*, of the *adjusted sent out energy* amount for the *connection point* for the *trading interval*.

(e) In each *trading interval*, in relation to each *Cost Recovery Market Participant* ~~*Market Customer*~~, for each *region*, an ancillary services transaction occurs, which results in a *trading amount* for the *Cost Recovery Market Participant* ~~*Market Customer*~~ determined in accordance with the following formula:

$$TA_{i,R} = \left(\left(\frac{SRP_i \times RBE_{i,R}}{2}\right) \times \frac{TCE_{i,R}}{ATCE_{i,R}}\right.$$

$$TA = \sum \left(\left(\frac{SRP_i \times RBF_{Ri}}{2}\right) \times \frac{TCE_R}{ATCE_R}\right) \times -1$$

~~Where~~

~~TA (in $) = the *trading amount* to be determined in respect of the relevant *region* and *trading interval* (which is a negative number);~~

~~SRP_i (in $) = has the meaning given in clause 3.15.6A(d);~~

~~RBF_{Ri} (number) = the latest regional benefit factor assigned to the provision of the relevant *SRAS* under an individual *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);~~

~~TCE_R (in MWh) = the *customer energy* for the *Market Customer* for the *trading interval* in that *region*; and~~

~~$ATCE_R$ (in MWh) = the aggregate of the *customer energy* figures for all *Market Customers* for the *trading interval* in that *region*.~~

where:

subscript i	refers to the relevant *trading interval*;
subscript R	refers to the relevant *region*;

$TA_{i,R}$ (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;
SRP_i (in $)	=	the amount payable by *AEMO* in respect of the *trading interval* under an individual *ancillary services agreement* in respect of the provision of a specific *SRAS* or, for the purposes of clause 4.3.6(q), the compensation payable by *AEMO* under clause 4.3.6(o) for the relevant *billing period*;
$RBF_{i,R}$ (number)	=	the latest regional benefit factor assigned to the provision of the relevant *SRAS* under an individual *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);
$TCE_{i,R}$ (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*; and
$ATCE_{i,R}$ (in MWh)	=	the sum, for all *connection points* located in the *region*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*.

~~**Note**~~

~~The values of TCE_R and $ATCE_R$ are subject to substitution in accordance with clause 3.15.6AA.~~

Trading amount calculation for fast raise service, slow raise service or delayed raise service

(f) The total amount calculated by *AEMO* under paragraph (a) ~~clause 3.15.6A(a)~~ for each of the *very fast raise service*, *fast raise service*, *slow raise service* or *delayed raise service* in respect of each *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:

(1) allocate for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under paragraph (a) ~~clause 3.15.6A(a)~~ for each of the *very fast raise service*, *fast raise service*, *slow raise service* or *delayed raise service* between *global market ancillary services requirements* and *local market ancillary service requirement* pro-rata to the respective marginal prices for each such service;

(2) calculate for the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to subparagraph (f)(1)~~clause 3.15.6A(f)(1)~~; and

(3) allocate for the relevant *trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in subparagraph (f)(2)~~clause 3.15.6A(f)(2)~~ to each *region* as relevant to that requirement pro-rata to the aggregate of the *adjusted sent out energy* for all *Cost Recovery Market Participants* in each *region* during the *trading interval*~~generator energy for the Market Generators and small generator energy for the Market Small Generation Aggregators in each region during the trading interval~~.

~~For the purpose of this clause 3.15.6A(f) **RTCRSP** is the sum of:~~

~~(i) the *global market ancillary service requirement* cost for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3); and~~

~~(ii) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3).~~

(f1) In each *trading interval*, in relation to each *Cost Recovery Market Participant*, for each *region*~~*Market Generator* and each *Market Small Generation Aggregator* in a given *region*~~, an ancillary services transaction occurs, which results in a *trading amount* for that *Cost Recovery Market Participant*~~*Market Generator* and that *Market Small Generation Aggregator*~~ determined in accordance with the following formula:

$$TA = RTCRSP \times \frac{TGE + TSGE}{RATGE + RATSGE} \times -1$$

$$TA = RTCRSP \times \left(\frac{TSOE}{RATSOE}\right) \times -1$$

where:

TA (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;~~the *trading amount* to be determined (which is a negative number);~~
~~RTCRSP (in $)~~	~~=~~	~~the total of all amounts calculated by *AEMO* as appropriate to recover from the given *region* as calculated in this clause 3.15.6A(f) for the *very fast raise service fast raise*~~

~~*service*, *slow raise service* or *delayed raise service* in respect of the *trading interval*;~~

RTCRSP (in $)	=	the sum of: (1) the *global market ancillary service requirement* cost for that *region*, for the relevant *trading interval*, as determined pursuant to paragraph (f)(3); and (2) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to paragraph (f)(3);
TSOE (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted sent out energy* for the *trading interval*; and
RATSOE (in MWh)	=	the sum, for all *connection points* located in the *region*, of the *adjusted sent out energy* for the *trading interval*.
~~TGE (in MWh)~~	~~=~~	~~the *generator energy* for the *Market Generator* in that *region* for the *trading interval*;~~
~~TSGE (in MWh)~~	~~=~~	~~the *small generator energy* for the *Market Small Generator Aggregator* in that *region* for the *trading interval*;~~
~~RATGE (in MWh)~~	~~=~~	~~the aggregate of the *generator energy* figures for all *Market Generators* in that *region* for the *trading interval*; and~~
~~RATSGE (in MWh)~~	~~=~~	~~the aggregate of the *small generator energy* figures for all *Market Small Generator Aggregators* in that *region* for the *trading interval*.~~

Trading amount calculation for fast lower service, slow lower service or delayed lower service

(g) The total amount calculated by *AEMO* under paragraph (a) ~~clause 3.15.6A(a)~~ for each of the *very fast lower service*, *fast lower service*, *slow lower service* or *delayed lower service* in respect of each the *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:

(1) allocate for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under paragraph (a) ~~clause 3.15.6A(a)~~ for each of the *very fast lower service*, *fast lower service*, *slow lower service* or *delayed lower service* between *global market ancillary service requirements* and *local market ancillary service requirement* pro rata to the respective marginal prices of each such service;

(2) calculate for the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to subparagraph (g)(1)~~clause 3.15.6A(g)(1)~~; and

(3) allocate for the relevant *trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in subparagraph (g)(2)~~clause 3.15.6A(g)(2)~~ to each *region* as relevant to that requirement pro-rata to the aggregate of the *adjusted consumed energy* amounts for all *Cost Recovery Market Participants* in each *region* during the *trading interval*~~customer energy figures for all *Market Customers* in each *region* during the *trading interval*~~.

~~For the purpose of this clause 3.15.6A(g) **RTCLSP** is the sum of:~~

~~(i) the *global market ancillary service requirement* cost for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3); and~~

~~(ii) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3).~~

~~**Note**~~

~~The values of TCE and RATCE are subject to substitution in accordance with clause 3.15.6AA.~~

(g1) In each *trading interval*, in relation to each *Cost Recovery Market Participant*, for each *region*, ~~*Market Customer* in a given *region*,~~ an ancillary services transaction occurs, which results in a *trading amount* for that *Cost Recovery Market Participant* ~~*Market Customer*~~ determined in accordance with the following formula:

$$TA = RTCLSP \times \frac{TCE}{RATCE} \times -1$$

where:

TA (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;~~the *trading amount* to be determined (which is a negative number);~~
RTC~~R~~LSP (in $)	=	the sum of:

		(1) the *global market ancillary service requirement* cost for that *region*, for the relevant *trading interval*, as determined pursuant to paragraph (g)(3); and (2) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to paragraph (g)(3);
~~RTCLSP (in $)~~	~~=~~	~~the total of all amounts calculated by *AEMO* as appropriate to recover from the given *region* as calculated in this clause 3.15.6A(g) for the *very fast lower service*, *fast lower service*, *slow lower service* or *delayed lower service* in respect of the *trading interval*;~~
TCE (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted consumed energy* amount for the *connection point* for the *trading interval*; and~~the *customer energy* for the *Market Customer* in that *region* for the *trading interval*; and~~
RATCE (in MWh)	=	the sum, for all *connection points* located in the *region*, of the *adjusted consumed energy* amounts for the *trading interval*.~~the aggregate of the *customer energy* figures for all *Market Customers* in that *region* for the *trading interval*.~~

(h) The total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* or the *regulating lower service* in respect of each *trading interval* must be allocated by *AEMO* to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b):

(1) allocate on a pro-rata basis for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* and *regulating lower service* between *global market ancillary service requirements* and *local market ancillary service requirements* to the respective marginal prices for each such service; and

(2) calculate for the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring *local market ancillary*

service requirements for all *regions*, as determined under subparagraph (1).

(i) In each *trading interval* in relation to:

(1) each *Cost Recovery Market Participant* ~~*Market Generator, Market Small Generation Aggregator* or *Market Customer*~~ which has metering to allow their individual contribution to the aggregate deviation in *frequency* of the *power system* to be assessed, an ancillary services transaction occurs, which results in a *trading amount* for that *Cost Recovery Market Participant* ~~*Market Generator, Market Small Generation Aggregator* or *Market Customer*~~ determined in accordance with the following formula:

$$TA = PTA \times -1$$

and

$$PTA = \text{the aggregate of} \left(TSFCAS \times \frac{MPF}{AMPF} \right)$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;~~the *trading amount* to be determined (which is a negative number);~~
TSFCAS (in $)	=	the total of all amounts calculated by *AEMO* under paragraph (h)(2) for the *regulating raise service* or the *regulating lower service* in respect of a *trading interval*;
MPF (a number)	=	the contribution factor last set by *AEMO* for the *Cost Recovery Market Participant*~~*Market Generator, Market Small Generation Aggregator* or *Market Customer*~~, as the case may be, under paragraph (j) for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*; and
AMPF (a number)	=	the aggregate of the MPF figures for all *Cost Recovery Market Participants* ~~*Market Participants*~~ for the *trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*.

or

(2) ~~in relation to~~ each *Cost Recovery Market Participant* ~~*Market Customer*~~ for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), an ancillary services transaction occurs, which results in a trading amount for that *Cost Recovery Market Participant* ~~*Market Customer*~~ determined in accordance with the following formula:

$$TA = PTA \times -1$$

and

$$PTA = \text{the aggregate of} \left(TSFCAS \times \frac{MPF}{AMPF} \times \frac{TCE}{ATCE} \right)$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;~~the *trading amount* to be determined (which is a negative number);~~
TSFCAS (in $)	=	has the meaning given in subparagraph (1);
MPF (a number)	=	the aggregate of the contribution factor set by *AEMO* under paragraph (j) for *Cost Recovery Market Participants*~~*Market Customers*~~, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1) for the *region* or *regions* relevant to the *regulating raise service* or the *regulating lower service*;
AMPF (a number)	=	the aggregate of the MPF figures for all *Cost Recovery Market Participants*~~*Market Participants*~~ for the *trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;
TCE (in MWh)	=	the *adjusted consumed energy* amounts ~~*customer energy*~~ for the *Cost Recovery Market Participant* ~~*Market Customer*~~ for the *trading interval* in the *region* or

regions relevant to the *regulating raise service* or *regulating lower service*; and

ATCE (in MWh)	=	the aggregate of the *adjusted consumed energy* amounts ~~*customer energy* figures~~ for all *Cost Recovery Market Participants*~~*Market Customers*~~, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), for the *trading interval* for the *region* or *regions* relevant to that *regulating raise service* or *regulating lower service*.

~~**Note**~~

~~The values of TCE and ATCE are subject to substitution in accordance with clause 3.15.6AA.~~

(j) *AEMO* must determine for the purpose of paragraph (i):

(1) a contribution factor for each *Cost Recovery Market Participant*~~*Market Participant*~~; and

(2) notwithstanding the estimate provided in paragraph (nb), if a *region* has or *regions* have operated asynchronously during the relevant *trading interval*, the contribution factors relevant to the allocation of *regulating raise service* or *regulating lower service* to that *region* or *regions*,

in accordance with the procedure prepared under paragraph (k).

(k) *AEMO* must prepare a procedure for determining contribution factors for use in paragraph (j) and, where *AEMO* considers it appropriate, for use in paragraph (nb), taking into account the following principles:

(1) the contribution factor for a *Cost Recovery Market Participant* ~~*Market Participant*~~ should reflect the extent to which the *Cost Recovery Market Participant* ~~*Market Participant*~~ contributed to the need for *regulation services*;

(2) the contribution factor for all *Cost Recovery Market Participants*~~*Market Customers*~~ that do not have metering to allow their individual contribution to the aggregate need for *regulation services* to be assessed must be equal;

(3) for the purpose of paragraph (j)(2), the contribution factor determined for a group of *regions* for all *Cost Recovery Market Participants* ~~*Market Customers*~~ that do not have metering to allow the individual contribution of that *Cost Recovery Market Participants* ~~*Market Customer*~~ to the aggregate need for *regulation services* to be assessed, must be divided between *regions* in proportion to the aggregate of the *adjusted consumed energy* amounts ~~total *customer energy*~~ for the *regions*;

(4) the individual *Cost Recovery Market Participant's*~~*Market Participant's*~~ contribution to the aggregate need for *regulation services* will be determined over a period of time to be determined by *AEMO*;

(5) a *Registered Participant* which has classified a *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled load*, or ~~*ancillary service generating unit* or *ancillary service load*~~*ancillary service unit* (called a **Scheduled Participant**) will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *trading interval*:

(i) the Scheduled Participant achieves its *dispatch* target at a uniform rate;

(ii) the Scheduled Participant is *enabled* to provide a *market ancillary service* and responds to a control signal from *AEMO* to *AEMO's* satisfaction; or

(iii) the Scheduled Participant is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services* in a way which tends to reduce the aggregate deviation;

(6) where contributions are aggregated for *regions* that are operating asynchronously during the calculation period under paragraph (i), the contribution factors should be normalised so that the total contributions from any non-synchronised *region* or *regions* is in the same proportion as the total *load* ~~total *customer energy*~~ for that *region* or *regions*; and

(7) a *Semi-Scheduled Generator* will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *trading interval*, the *semi-scheduled generating unit*:

(i) achieves its *dispatch level* at a uniform rate;

(ii) is *enabled* to provide a *market ancillary service* and responds to a control signal from *AEMO* to *AEMO's* satisfaction; or

(iii) is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services*.

(l) *AEMO* may amend the procedure referred to in clause 3.15.6A(j) from time to time.

(m) *AEMO* must comply with the *Rules consultation procedures* when making or amending the procedure referred to in clause 3.15.6A(k).

(n) *AEMO* must *publish*, in accordance with the *timetable*, the historical data used in determining a factor for each *Market Participant* for the purposes of clauses 3.15.6A(h) and (i) in accordance with the procedure contemplated by clause 3.15.6A(k).

(na) Notwithstanding any other provisions of the *Rules*, *AEMO* must *publish* the factors determined in accordance with clause 3.15.6A(j)(1) at least 10 *business days* prior to the application of those factors in accordance with clauses 3.15.6A(h) and 3.15.6A(i).

(nb) When a *region* is or *regions* are operating asynchronously, *AEMO* must *publish* (where appropriate in accordance with the procedure developed under paragraph (k)), an estimate of the contribution factors referred to in paragraph (j)(2) to be applied for information purposes only by *Cost Recovery Market Participants* ~~*Market Participants*~~ for the duration of the separation.

(o) **[Deleted]**

(p) When *AEMO* dispatches a quantity of *regulating raise service* or *regulating lower service* in addition to the quantity it determines in accordance with the *dispatch algorithm*, *AEMO* must:

(1) for the purposes of paragraphs (f) and (g), include the additional quantity in the cost of *delayed services*; and

(2) for the purposes of paragraphs (h) and (i), exclude the additional quantity in the cost of *regulation services*,

taking into account the requirements in clauses 3.8.1(a) and (b) to maximise the value of *spot market* trading.

3.15.6AA [Deleted]~~Substitution of regional customer energy values for insufficient net demand recovery periods~~

~~(a) In this clause:~~

~~demand substitution reference period means the last four complete billing periods prior to the start of the relevant recovery period, or another period **determined** by AEMO following a review in accordance with paragraph (d).~~

~~relevant recovery period means a trading interval or other period consisting of **multiple** trading intervals for which AEMO must calculate amounts to be recovered from Market Customers under:~~

~~(1) clause 3.15.6A(c8), (c9), (e), (g) or (i), to fund payments for ancillary services;~~

~~(2) clause 3.15.8(b), (f) or (g), to fund compensation for directions; or~~

~~(3) clause 3.15.8A(b) or (f), to fund compensation for market suspension pricing schedule periods.~~

~~(b) Where the following conditions apply:~~

~~(1) amounts are to be recovered by AEMO from Market Customers in respect of a relevant recovery period by reference to a formula that includes the value of AAGE, ATCE, RATCE or ∑E; and~~

~~(2) the applicable value of AAGE, ATCE, RATCE or ∑E for the relevant recovery period is equal to or less than 25 MWh,~~

~~AEMO must calculate the amounts to be recovered from each Market Customer under clauses 3.15.6A and 3.15.8 upon substituted values determined under paragraph (c) for each of the following corresponding terms in each formula (as applicable):~~

~~(3) AGE and AAGE;~~

~~(4) TCE and either ATCE or RATCE; and~~

~~(5) E and ∑E.~~

~~(c) For each trading interval that makes up a relevant recovery period to which paragraph (b) applies:~~

~~(1) the substituted value of AGE for each Market Customer is the average per trading interval of the total adjusted gross energy figures over the demand~~

~~substitution reference period for that Market Customer's relevant connection points in the relevant region;~~

~~(2) the substituted value of AAGE is the aggregate of the substituted AGE amounts under subparagraph (1);~~

~~(3) the substituted value of TCE for each Market Customer is the average per trading interval of the total customer energy figures over the demand substitution reference period for that Market Customer's relevant connection points in the relevant region;~~

~~(4) the substituted value of ATCE is the aggregate of the substituted TCE amounts under subparagraph (3);~~

~~(5) the substituted value of E for each Market Customer is the average per trading interval of the sum of the adjusted gross energy figures over the demand substitution reference period at each connection point for which that Market Customer is financially responsible in the relevant region;~~

~~(6) for the purpose of clause 3.15.8(b), the adjusted gross energy amount representing any scheduled load is to be excluded from the substituted value of E for the relevant Market Customer and intervention price trading interval; and~~

~~(7) the substituted value of $\sum$E is the aggregate of the substituted E amounts under subparagraphs (5) and (6).~~

~~(d) If required under paragraph (e), AEMO must review whether the current demand substitution reference period is a suitable period for the purpose of determining a representative average adjusted gross energy value for Market Customers in respect of potential relevant recovery periods, and may vary the demand substitution reference period based on its findings. In conducting the review AEMO must:~~

~~(1) consult with Market Customers on the suitability of the relevant demand substitution reference period and any proposed alternatives;~~

~~(2) publish a report on the review on its website, including reasons for varying the demand substitution reference period (if applicable); and~~

~~(3) specify an effective date for the application of any varied demand substitution reference period in settlements calculations (including revisions) with such date being no earlier than four weeks after the date of publication of the report.~~

~~(e) AEMO is required to conduct a review under paragraph (d) if:~~

~~(1) values have been substituted under this clause 3.15.6AA for relevant recovery periods occurring in at least 5 billing periods since 1 September 2021 or, if applicable, since the date of the report on the previous review; and~~

~~(2) AEMO, or a Market Customer by notice to AEMO, reasonably considers the current demand substitution reference period may not be suitable for the purpose of determining a representative average adjusted gross energy value for Market Customers,~~

~~provided that AEMO is not required to conduct a review more than once in any 12 month period.~~

3.15.7 Payment to Directed Participants

(a) Subject to paragraphs (b) and (d1), *AEMO* must pay compensation to *Directed Participants* calculated in accordance with clauses 3.15.7, 3.15.7A and 3.15.7B, as the case may be, for any service which the *Directed Participant* was required to provide in order to comply with the *direction*.

(a1) *AEMO* must compensate each *Directed Participant* for the provision of:

(1) *energy* or *market ancillary services* pursuant to a *direction,* under this clause 3.15.7 and clause 3.15.7B, as the case may be; and

(2) services, other than *energy* or *market ancillary services,* pursuant to a *direction* (**other compensable services**), in accordance with the fair payment compensation for those services determined under clause 3.15.7A.

(a2) For the purpose of paragraph (a1) a *Directed Participant* provides *energy* or *market ancillary services* if it was *directed* to provide one or more of the following services:

(1) *energy*;

(2) any one of the *market ancillary services*;

(3) a service that is a direct substitute for *energy* or a *market ancillary service*; or

(4) a service that was provided by the *Directed Participant* where *energy* or *market ancillary services* are provided incidental to the provision of that service, including without limitation:

(i) *inertia*;

(ii) *voltage* control; and

(iii) system strength.

(b) For the purpose of clause 3.15.8 and 3.15.10C the amount of compensation due to a *Directed Participant* pursuant to clause 3.15.7(a) must include interest on the sum of that amount less any payment made in accordance with clause 3.15.10C(a), computed at the average *bank bill rate* for the period beginning on the day on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *direction* was issued and ending on the day on which payment is required to be made pursuant to clause 3.15.10C.

(c) Subject to clause 3.15.7(d) and clause 3.15.7B, the compensation payable to each *Directed Participant* for the provision of *energy* or *market ancillary services* pursuant to a *direction* is to be determined in accordance with the formula set out below

$$DCP = AMP \times DQ$$

where:

DCP = the amount of compensation the *Directed Participant* is entitled to receive;

AMP = the price below which are 90% of the *spot prices* or *ancillary service prices* (as the case may be) for the relevant service provided by *Scheduled Generators*, *Semi-Scheduled Generators*, *Scheduled Integrated Resource Providers*, *Scheduled Network Service Providers*, *Demand Response Service Providers* or *Market Customers* in the *region* to which the *direction* relates, for the 12 months immediately preceding the *trading day* in which the *direction* was issued; and

DQ = is either:

(A) the difference between the total *adjusted gross energy* ~~*adjusted consumed energy* amounts or total *adjusted sent out energy* amounts (as applicable)*adjusted gross energy*~~ delivered or consumed by the *Directed Participant* and the total *adjusted gross energy* ~~*adjusted consumed energy* amounts or total *adjusted sent out energy* amounts (as applicable) *adjusted gross energy*~~ that would have been delivered or consumed by the *Directed Participant* had the *direction* not been issued; or

(B) the amount of the relevant *market ancillary service* which the *Directed Participant* has been *enabled* to provide in response to the *direction*.

(d) If at the time *AEMO* issues a *direction*:

(1) the *Directed Participant* had submitted a *dispatch bid*~~, *dispatch offer*~~ or *rebid* acknowledged by *AEMO* in accordance with clause 3.8.8 for *dispatch* of the service that is to be *dispatched* in accordance with the *direction*; and

(2) the *direction* was issued because *AEMO* was prevented from *dispatching* the *Directed Participant's plant* in accordance with that *dispatch bid*~~, *dispatch offer*~~ or *rebid* due to a failure of the *central dispatch* process,

the *Directed Participant* is entitled to receive compensation for the provision of that service at a price equal to the price in that *dispatch bid*~~, *dispatch offer*~~ or *rebid* acknowledged by *AEMO* in accordance with clause 3.8.8, as the case may be.

(d1) Where a *Directed Participant* is also a *Market Suspension Compensation Claimant* with respect to any *trading interval* in relation to which *AEMO* has issued a *direction*, such *Directed Participant*:

(1) may be entitled to compensation calculated in accordance with clause 3.14.5A(d); and

(2) is not entitled to compensation calculated in accordance with paragraph (c).

(e) *AEMO* must, in accordance with the *intervention settlement timetable*, advise each *Directed Participant* in writing of the amount the *Directed Participant* is entitled to receive pursuant to clause 3.15.7(c) or clause 3.15.7(d).

3.15.7A Payment to Directed Participants for services other than energy and market ancillary services

AEMO to determine if Directed Participant provided an other compensable service

(a) If *AEMO* has issued a *direction, AEMO* must, in its reasonable opinion, determine whether the *Directed Participant* that was issued the *direction* was required to provide an *other compensable service* in order to comply with that *direction*.

(b) *AEMO* must within 10 *business days* of issuing the *direction* referred to in paragraph (a), notify the relevant *Directed Participant* of *AEMO's* determination under paragraph (a), and such notice must include:

(1) the date and time of the relevant *direction;*

(2) the *directed resource* ~~scheduled *plant* or *market generating unit*~~ the subject of the relevant *direction*;

(3) the circumstances of the relevant *direction*;

(4) *AEMO's* determination as to whether an *other compensable service* was provided in order to comply with the *direction* and, if applicable, a description of the *other compensable service* provided; and

(5) *AEMO's* reasons for its determination.

(c) If *AEMO* determines pursuant to paragraph (a) that the *Directed Participant* was not required to provide an *other compensable service* in order to comply with the relevant *direction,* the *Directed Participant* may, within 10 *business days* of receipt of the notice referred to in paragraph (b), make a written submission to *AEMO* setting out its reasons for why it considers that an *other compensable service* was required to be provided by the *Directed Participant* in complying with that *direction.*

(d) *AEMO* must take into consideration any submissions referred to in paragraph (c), and must within 10 *business days* of receipt of such submissions, notify the *Directed Participant* of its final determination as to whether an *other compensable service* was required to be provided by the *Directed Participant* in complying with the relevant *direction,* including *AEMO's* reasons for its determination.

Directed Participant not required to provide an other compensable service not entitled to compensation

(e) A *Directed* Participant that was not required to provide an *other compensable service* in order to comply with a *direction:*

(1) is not entitled to compensation under this clause 3.15.7A; and

(2) is not entitled to claim additional compensation under clause 3.15.7B.

Directed Participant required to provide an other compensable service can claim fair payment compensation

(f) If *AEMO* determines pursuant to paragraph (a) that the *Directed Participant* was required to provide an *other compensable service* in order to comply with the relevant *direction,* the *Directed Participant* may, within 15 *business days* of receipt of the notice referred to in paragraph (b), make a written submission to *AEMO* claiming compensation under this clause 3.15.7A at the fair payment compensation of the *other compensable services* provided pursuant to that *direction*.

(g) For the purpose of determining the fair payment compensation under this clause 3.15.7A, the following must be taken into account:

(1) relevant contractual arrangements which specify a price for the relevant service;

(2) the loss of revenue incurred by the *Directed Participant* in respect of its *directed resource* ~~*a scheduled generating unit, semi-scheduled generating unit, scheduled load, ancillary service generating unit, market generating unit, ancillary services load or scheduled network services, as the case may be,*~~ as a result of the provision of the *other compensable service* under *direction;*

(3) the net direct costs incurred by the *Directed Participant* in respect of that *directed resource*~~*scheduled generating unit, semi-scheduled generating unit, market generating unit, ancillary service generating unit, scheduled load, ancillary services load or scheduled network services, as the case may be,*~~ as a result of the provision of the *other compensable service* under *direction* including without limitation:

(i) fuel costs in connection with the relevant *directed resource*~~*generating unit, or scheduled network services*~~;

(ii) incremental maintenance costs in connection with the relevant *directed resource*~~*generating unit, load or scheduled network services*~~;

(iii) incremental manning costs in connection with the relevant *directed resource*~~*generating unit, load or scheduled network services*~~;

(iv) acceleration costs of maintenance work in connection with the relevant *directed resource*~~*generating unit, load or scheduled network services*~~, where such acceleration costs are incurred to enable the *directed resource* ~~*generating unit, load or scheduled network services*~~ to comply with the *direction*;

(v) delay costs for maintenance work in connection with the relevant *directed resource*~~*generating unit, load or scheduled network services*~~, where such delay costs are incurred to enable the *directed resource* ~~*generating unit, load or scheduled network services*~~ to comply with the *direction*; and

(vi) other costs incurred in connection with the relevant *directed resource*~~*generating unit, load or scheduled network services*~~, where such costs are incurred to enable the *directed resource*

~~*generating unit, load or scheduled network services*~~ to comply with the *direction*.

AEMO must refer claims to an independent expert in certain circumstances

(h) *AEMO* must, in accordance with the *intervention settlement timetable* refer a claim by a *Directed Participant* pursuant to paragraph (f) to an independent expert to determine such claim in accordance with clause 3.12.3 if:

(1) the claim is equal to or greater than $20,000; or

(2) *AEMO* considers that the claim is unreasonable; or

(3) *AEMO* considers that the assessment of the claim involves issues of complexity or difficulty.

(i) If *AEMO* considers that either of paragraphs (h)(2) or (h)(3) apply, *AEMO* must, in accordance with the *intervention settlement timetable* advise the *Directed Participant* in writing of its decision, setting out its reasons.

(j) *AEMO* must include as part of the terms of appointment of an independent expert all the requirements set out in clause 3.12.3(c), and the additional following requirements:

(1) that the independent expert must, in determining the fair payment compensation of the relevant *other compensable service* for the purposes of this clause 3.15.7A, only take into account:

(i) the factors referred to in paragraph (g) and:

(ii) the following principles:

(A) the disinclination of *Directed Participants* to provide the *other compensable service* the subject of the *direction* must be disregarded; and

(B) the urgency of the need for the *other compensable service* the subject of the *direction* must be disregarded;

(2) that the independent expert's draft report must set out a description of the *other compensable services* provided in response to the *direction*;

(3) that the independent expert's final report must set out the description of the *other compensable services* provided in response to the *direction*.

AEMO may determine compensation itself in some circumstances

(k) If none of the factors set out in paragraph (h) apply, then *AEMO* may, after taking into account any submissions received in accordance with paragraph (f), determine in its sole discretion the amount of compensation payable to a *Directed Participant* under this clause 3.15.7A in relation to that *Directed Participant's* claim pursuant to paragraph (f).

(l) Subject to paragraph (h), if a *Directed Participant* entitled to make a written submission pursuant to paragraph (f) has not provided such a submission to *AEMO* within 15 *business days* of receipt of the notice referred to in paragraph (b), then *AEMO* may at its sole discretion determine the amount of compensation payable to that *Directed Participant* under this clause 3.15.7A

at the fair payment compensation of the *other compensable services* provided pursuant to the relevant *direction*.

(m) If *AEMO* decides in accordance with either of paragraphs (k) or (l) to determine compensation payable to a *Directed Participant* under this clause 3.15.7A in relation to that *Directed Participant's* claim pursuant to paragraph (f) *AEMO* must in accordance with the *intervention settlement timetable*:

(1) *publish* and deliver in writing to the relevant *Directed Participant* a draft determination detailing *AEMO's* calculation of the amount of compensation receivable by that party pursuant to clause 3.15.7A, and request submissions from the *Directed Participant* on that draft determination;

(2) take into consideration any written submissions made by the relevant *Directed Participant* in relation to the draft determination, if *AEMO* receives those submissions within 15 *business days* of delivering the draft assessment to that *Directed Participant*; and

(3) prepare, *publish* and deliver in writing to the relevant Directed Participant its final determination of the amount of compensation receivable by that *Directed Participant* pursuant to this clause 3.15.7A.

(n) The final determination by *AEMO* in accordance with paragraph (m)(3) is final and binding.

3.15.7B Claim for additional compensation by Directed Participants

(a) Subject to clause 3.15.7B(a4), a *Directed Participant* entitled to compensation pursuant to clause 3.14.5A(d) or clause 3.15.7 may, within 15 *business days* of receipt of the advice referred to in clauses 3.14.5A(g) or 3.15.7(e), make a written submission to *AEMO* claiming an amount equal to the sum of:

(1) the aggregate of the loss of revenue and additional net direct costs incurred by the *Directed Participant* in respect of its *directed resource* ~~*a scheduled generating unit, semi-scheduled generating unit or scheduled network services*, as the case may be,~~ as a result of the provision of the service under *direction*; less

(2) the amount notified to that *Directed Participant* pursuant to clause 3.14.5A(g) or clause 3.15.7(e); less

(3) the aggregate amount the *Directed Participant* is entitled to receive in accordance with clause 3.15.6(c) for the provision of a service rendered as a result of the *direction*.

(a1) [Deleted]

(a2) Subject to clause 3.15.7B(a4), if a *Directed Participant* entitled to compensation pursuant to clause 3.15.7(d) considers that the amount notified pursuant to clauses 3.15.7(e) is less than the amount it is entitled to receive pursuant to that clause, the *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *AEMO* requesting compensation from *AEMO* for that difference.

(a3) For the purposes of the calculation of additional net direct costs pursuant to paragraph (a)(1), the additional net direct costs incurred by the *Directed Participant* in respect of *directed resource*~~that *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled network services* (as the case may be)~~ includes without limitation:

(1) fuel costs in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~;

(2) incremental maintenance costs in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~;

(3) incremental manning costs in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~;

(4) acceleration costs of maintenance work in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~, where such acceleration costs are incurred to enable the *Directed Participant* ~~*generating unit* or *scheduled network services*~~ to comply with the *direction*;

(5) delay costs for maintenance work in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~, where such delay costs are incurred to enable the *Directed Participant* ~~*generating unit* or *scheduled network services*~~ to comply with the *direction*; and

(6) other costs incurred in connection with the relevant *directed resource*~~*generating unit* or *scheduled network services*~~, where such costs are incurred to enable the *Directed Participant* ~~*generating unit* or *scheduled network services*~~ to comply with the *direction*.

(a4) In respect of a single *direction*, a *Directed Participant* may only make a claim pursuant to clauses 3.15.7B(a) or 3.15.7B(a2) if the amount of the claim is greater than $5,000.

(b) The submissions pursuant to clauses 3.15.7B(a) and 3.15.7B(a2) must:

(1) itemise each component of a claim;

(2) contain sufficient data and information to substantiate each component of a claim for loss of revenue and additional direct costs incurred, as the case may be; and

(3) be signed by an authorised officer of the applicant certifying that the written submission is true and correct.

(c) *AEMO* must, in accordance with the *intervention settlement timetable*:

(1) refer a claim by a *Directed Participant* under clause 3.15.7B(a) or 3.15.7B(a2) to an independent expert to determine such claim in accordance with clause 3.12.3 if the claim is equal to or greater than $20,000 and the *additional intervention claim* that includes that claim is equal to or greater than $100,000; and

(2) determine in its sole discretion if all other claims by a *Directed Participant* in respect of that *direction* pursuant to clauses 3.15.7B(a)

and 3.15.7B(a2) are reasonable and if so pay the amount claimed in accordance with clause 3.15.10C.

(d) If *AEMO* considers that a claim by a *Directed Participant* under clause 3.15.7B(a) or 3.15.7B(a2) is unreasonable, it must, in accordance with the *intervention settlement timetable*:

(1) advise the *Directed Participant* of its determination in writing, setting out its reasons; and

(2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.3.

3.15.8 Funding of Compensation for directions

Definitions

(a0) In this clause 3.15.8:

ancillary service compensation recovery amount has the meaning given to it in clause 3.15.8(e).

~~**customer energy** in respect of a *Market Customer* for a *trading interval* means the sum of the *adjusted gross energy figures* calculated for that *trading interval* in respect of that *Market Customer's* relevant *connection points*, provided that, if the sum of those figures is positive, then the *Market Customer's customer energy* for that *trading interval* is zero;~~

~~a *connection point* is a "relevant connection point" of a *Market Customer* if:~~

~~(1) the *Market Customer* is *financially responsible* for the *connection point*; and~~

~~(2) the *load* at that *connection point* has been classified (or is deemed to be classified) as a *market load*.~~

~~**generator energy** in respect of a *Market Generator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Generator's* applicable connection points, provided that, if the sum of those figures is negative, then the *Market Generator's* generator energy for that *trading interval* is zero;~~

~~a *connection point* is an "applicable connection point" of a *Market Generator* if:~~

~~(1) the *Market Generator* is financially responsible for the *connection point*; and~~

~~(2) the *connection point* connects a *market generating unit* to the *national grid*.~~

~~**small generator energy** in respect of a *Market Small Generation Aggregator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Small Generation Aggregator's* applicable connection points, provided that, if the sum of those figures is negative, then the *Market Small Generation Aggregator's* small generator energy for that *trading interval* is zero; and~~

~~a *connection point* is an "applicable connection point" of a *Market Small Generation Aggregator* if:~~

~~(1) the *Market Small Generation Aggregator* is *financially responsible* for the *connection point*; and~~

~~(2) the *connection point* connects a *small generating unit* classified as a *market generating unit* to the *national grid*.~~

(a) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate the *compensation recovery amount* being:

(1) the sum of:

(i) the total of the compensation payable to *AEMO* by *Affected Participants* and *Ancillary Service Providers* under clause 3.12.2 in respect of a *direction* for the provision of *energy*; plus

(ii) the total of the amounts retained by *AEMO* pursuant to clause 3.15.6(b) in respect of a *direction* for the provision of *energy*;

(2) less the sum of:

(i) the total of the compensation payable by *AEMO* to *Affected Participants*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* pursuant to clause 3.12.2 in respect of a *direction* for the provision of *energy*; plus

(ii) the total of the compensation payable by *AEMO* to *Directed Participants* (other than *Directed Participants* who are also *Market Suspension Compensation Claimants*) pursuant to clause 3.15.7(a) in respect of a *direction* for the provision of *energy*; plus

(iii) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c).

(b) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate a figure for each *Cost Recovery Market Participant* ~~*Market Customer*~~ in each *region* applying the following formula:

$$MCP = \frac{E}{\sum E} \times \frac{RB}{\sum RB} \times CRA$$

$$CRP = \frac{E}{\sum E} \times \cancel{x} \frac{RB}{\sum RB} \times \cancel{x} CR$$

where:

CRP~~MCP~~ is the amount payable or receivable by a *Cost Recovery Market Participant* ~~*Market Customer*~~ pursuant to this paragraph (b)~~clause 3.15.8(b)~~;

E is the sum of the *Cost Recovery Market Participant*'s *adjusted consumed energy* ~~*Market Customer's adjusted gross energy*~~ amounts at its *market connection points* in the *region*~~*each connection point* for which the *Market Customer* is *financially responsible* in a *region*~~, ~~determined in accordance with clauses 3.15.4 and 3.15.5~~ in respect of the relevant *intervention price trading intervals* excluding *adjusted consumed energy* of *scheduled loads* or *scheduled bidirectional units*~~any *loads*~~, in respect of which the *Cost Recovery*

Market Participant ~~*Market Customer*~~ submitted a *dispatch bid* for the relevant *intervention price trading interval* in that *region*; and

RB is the regional benefit determined by *AEMO* pursuant to clause 3.15.8(b1) at the time of issuing the *direction*.

CRA is the *compensation recovery amount*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

~~**Note**~~

~~The values of E and ΣE are subject to substitution in accordance with clause 3.15.6AA.~~

(b1) *AEMO* must, as soon as practicable following the issuance of a *direction*, determine the relative benefit each *region* received from the issuance of a *direction* in accordance with the *regional benefit directions procedures*.

(b2) *AEMO* must develop in accordance with the *Rules consultation procedures* a procedure to determine the relative benefit each *region* receives from the issuance of a *direction* (the *regional benefit directions procedures*). Such procedures must take into account, where applicable to the reason the *direction* was given, the *load* at risk of not being supplied if the *direction* were not issued or the extent of improvement in available *energy* reserve in the *region*, capability to control *voltage* in the *region*, and capability to control *power system frequency* within the *region* and any other relevant matters.

(c) If the figure calculated for a *Cost Recovery Market Participant* under paragraph (b)~~*Market Customer* under clause 3.15.8(b)~~ is negative, the absolute value of that amount is the amount payable by the *Cost Recovery Market Participant* ~~*Market Customer*~~ to *AEMO* pursuant to paragraph (b)~~clause 3.15.8(b)~~.

(d) Subject to clause 3.15.22, if the figure calculated for a *Cost Recovery Market Participant* under paragraph (b)~~*Market Customer* under clause 3.15.8(b)~~ is positive, such amount is the amount receivable by the *Cost Recovery Market Participant* ~~*Market Customer*~~ from *AEMO* pursuant to paragraph (b)~~clause 3.15.8(b)~~, subject to the provisions of clause 3.15.22.

(e) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate for each *ancillary service* the subject of a *direction*, the "***ancillary service compensation recovery amount***" being:

(1) the sum of:

(i) the total of the compensation payable to *AEMO* by *Affected Participants* and *Ancillary Service Providers* under clause 3.12.2 in respect of a *direction* for the provision of that *ancillary service*; plus

(ii) the total of the amounts retained by *AEMO* pursuant to clause 3.15.6(b) in respect of a *direction* for the provision of that *ancillary service*;

(2) less the sum of:

(i) the total of the compensation payable by *AEMO* to *Affected Participants*, *Affected Load Participants*~~*Market Customers*~~ and *Ancillary Service Providers* pursuant to clause 3.12.2 in respect of a *direction* for the provision of that *ancillary service*; plus

(ii) the total of the compensation payable by *AEMO* to *Directed Participants* pursuant to clause 3.15.7(a) in respect of a *direction* for the provision of that *ancillary service*; plus

(iii) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c), if the *direction* the subject of the independent expert's determination was with respect to that *ancillary service*.

(f) The *trading amount* must be calculated as follows:

(1) subject to clause 3.15.8(f)(2) and (3) *AEMO* must use the appropriate formula set out in clause 3.15.6A(c8), (c9), (d), (e), (f), (f1), (g), (g1), (h) or (i) depending on which *ancillary service* was the subject of the *direction*;

(2) TNSCAS~~TNSCASP~~, ~~TSRP,~~ RTCRSP, RTCLSP or TSFCAS (as applicable) in the relevant formula is equal to the *ancillary service compensation recovery amount* for the relevant *ancillary service* in respect of the *direction*; and

(3) for each other defined term in the relevant formula, a reference to a *trading interval* in the definition is to be read as a reference to all of the *trading intervals* during which the *direction* applied~~if TCE, TGE, TSGE, AGE, ATCE, ATGE, ATSGE or AAGE is used in the relevant formula, then the words 'the *trading interval*' in the definitions of those terms in the formula are to be read as 'all of the *trading intervals* during which the *direction* applied'~~.

~~**Note**~~

~~The values of TCE, AGE, ATCE and AAGE are subject to substitution in accordance with clause 3.15.6AA.~~

(g) Any compensation payable by *AEMO* under clause 3.12.2 and 3.15.7 not recovered under paragraph (b) or paragraph (e) ~~clauses 3.15.8(b) and 3.15.8(e)~~ must be recovered from *Cost Recovery Market Participants*~~*Market Customers, Market Generators* and *Market Small Generation Aggregators*~~. *AEMO* must, in accordance with the *intervention settlement timetable*, calculate a figure for each *Cost Recovery Market Participant* ~~*Market Customer, Market Generator* and *Market Small Generation Aggregator*~~ in each *region* applying the following formula:

$$MCP = \frac{TGE + TSGE - TCE}{RATGE + RATSGE - RATCE} \times \frac{RB}{\Sigma RB} \times CRA \times -1$$

$$CRP = \frac{TSOE - TCE}{RATSOE - RATCE} \times \frac{RB}{\sum RB} \times CRA \times -1$$

where:

CRP~~MCP~~ (in $)	=	the amount payable or receivable by a *Cost Recovery Market Participant* ~~*Market Customer*, *Market Generator* or *Market Small Generation Aggregator*~~ under this paragraph (g)~~clause 3.15.8(g)~~;
TSOE~~TGE~~ (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted sent out energy* in all relevant *intervention price trading intervals*;~~the generator energy for the *Market Generator* in that *region* of the relevant *trading interval* for the period of the *direction*;~~
~~TSGE~~	~~=~~	~~the small generator energy for the *Market Small Generation Aggregator* in that *region* of the relevant *trading interval* for the period of the *direction*;~~
TCE (in MWh)	=	the sum, for all *connection points* of the *Cost Recovery Market Participant* located in the *region*, of the *adjusted consumed energy* amounts in all relevant *intervention price trading intervals*; ~~the *customer energy* for the *Market Customer* in that *region* of the relevant *trading interval* for the period of the *direction*;~~
RATSOE (in MWh)		the sum, for all *connection points* located in the *region* of all *Cost Recovery Market Participants*, of the *adjusted consumed energy* amounts in all relevant *intervention price trading intervals*;
~~RATGE~~	~~=~~	~~the aggregate of the generator energy for all *Market Generators* in that *region* of the relevant *trading interval* for the period of the *direction*;~~
~~RATSGE~~	~~=~~	~~the aggregate of the small generator energy for all *Market Small Generation Aggregation* in that *region* of the relevant *trading interval* for the period of the *direction*;~~
RATCE (in MWh)	=	the sum, for all *connection points* located in the *region* of all *Cost Recovery Market*

Participants, of the *adjusted consumed energy* amounts in all relevant *intervention price trading intervals*;~~the aggregate of the *customer energy* for all *Market Customers* in that *region* of the relevant *trading interval* for the period of the *direction*;~~

RB (number)	=	the regional benefit determined by *AEMO* under paragraph (b1)~~clause 3.15.8(b1)~~ at the time of issuing the *direction*; and
CRA	=	the *compensation recovery amount*.

~~**Note**~~

~~The values of TCE and RATCE are subject to substitution in accordance with clause 3.15.6AA.~~

3.15.8A Funding of compensation for market suspension pricing schedule periods

Definitions

(a0) In this clause:

ancillary service compensation recovery amount has the meaning given to it in paragraph (f)~~clause 3.15.8A(f)~~.

(a) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate the *market suspension compensation recovery amount* being the sum of:

(1) the total of the compensation payable by *AEMO* to *Market Suspension Compensation Claimants* calculated in accordance with clauses 3.14.5A(d), 3.14.5B and 3.15.7B (as the case may be) for the provision of *energy* during a *market suspension pricing schedule period*; plus

(2) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c); less

(3) any administrative costs payable by *Market Suspension Compensation Claimants* pursuant to clause 3.14.5B(e).

(b) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate a figure for each *Cost Recovery Market Participant* ~~*Market Customer*~~ in each *region* applying the following formula:

$$MCP = \frac{E}{\sum E} \times \frac{RB}{\sum RB} \times CRA$$

$$CRP = \frac{E}{\sum E} \times \cancel{x} \frac{RB}{\sum RB} \times \cancel{x}\, CRA$$

where:

CRP~~MCP~~ is the amount payable by a *Cost Recovery Market Participant* ~~*Market Customer*~~ pursuant to this paragraph (b)~~clause 3.15.8A(b)~~.

E is the sum of the *Cost Recovery Market Participant's adjusted consumed energy* ~~*Market Customer's adjusted gross energy*~~ amounts at each *connection point* for which the *Cost Recovery Market Participant* ~~*Market Customer*~~ is *financially responsible* in the~~a~~ *region*~~, determined in accordance with clauses 3.15.4 and 3.15.5,~~ in respect of the *trading intervals* that occur during a *market suspension pricing schedule period*.

RB is the regional benefit determined by *AEMO* pursuant to paragraph (e).

CRA is the *market suspension compensation recovery amount*.

~~**Note**~~

~~The values of E and ∑E are subject to substitution in accordance with clause 3.15.6AA.~~

(c) If the figure calculated for a *Cost Recovery Market Participant*~~*Market Customer*~~ under ~~clause 3.15.8A~~paragraph (b) is negative, the *Cost Recovery Market Participant* ~~*Market Customer*~~ is liable to pay the absolute value of that amount to *AEMO*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) If the figure calculated for a *Cost Recovery Market Participant* ~~*Market Customer*~~ under paragraph (b) ~~clause 3.15.8A(b)~~ is positive, then the amount payable by the *Cost Recovery Market Participant* ~~*Market Customer*~~ to *AEMO* is deemed to be zero.

(e) *AEMO* must, as soon as practicable, determine the relative benefit each *region* received from the payment of compensation under clauses 3.14.5A and 3.14.5B (as the case may be). In determining the relative benefit each *region* received from the payment of such compensation, *AEMO* must take into account, where applicable, the reason the compensation was paid, the *load* at risk of not being supplied if the compensation was not paid or the extent of improvement in available *energy* reserves in the *region*, capability to control *voltage* in the *region* and capability to control *power system frequency* within the *region*, and any other relevant matters.

(f) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate for each *market ancillary service* the subject of a *direction*, the "***ancillary service compensation recovery amount***" being:

(1) the total of the compensation payable by *AEMO* to *Market Suspension Compensation Claimants* calculated in accordance with clauses 3.14.5A(d), 3.14.5B and 3.15.7B (as the case may be) for the provision of *market ancillary services* during a *market suspension pricing schedule period*; plus

(2) the total amount payable by *AEMO* to the independent expert pursuant to clause 3.12.3(c); less

(3) any administrative costs payable by *Market Suspension Compensation Claimants* pursuant to clause 3.14.5B(e).

(g) The *trading amount* must be calculated as follows:

(1) subject to subparagraphs (2) and (3),~~clause 3.15.8A(g)(2) and (3)~~ *AEMO* must use the appropriate formula set out in clause 3.15.6A(c8), (c9), (d), (e), (f), (f1), (g), (g1), (h) or (i) depending on which *market ancillary service* was provided during a *market suspension pricing schedule period*;

(2) TNSCAS~~P~~, ~~TSRP,~~ RTCRSP, RTCLSP or TSFCAS (as applicable) in the relevant formula is equal to the *ancillary service compensation recovery amount* for the relevant *ancillary service* in respect of that *market suspension pricing schedule period*; and

(3) for each other defined term in the relevant formula, a reference to a *trading interval* in the definition is ~~if TCE, TGE, TSGE, AGE, ATCE, ATGE, ATSGE or AAGE is used in the relevant formula, then the words 'the *trading interval*' in the definitions of those terms in the formula are~~ to be read as a reference to 'all of the *trading intervals* within the *market suspension pricing schedule period* in which the *Market Suspension Compensation Claimant* provided *market ancillary services*'.

~~**Note**~~

~~The values of TCE, AGE, ATCE and AAGE are subject to substitution in accordance with clause 3.15.6AA .~~

3.15.9 Reserve settlements

(a) *AEMO's* costs incurred in contracting for the provision of *reserves* are to be met by fees imposed on *Cost Recovery Market Participants* ~~*Market Customers*~~ in accordance with this clause 3.15.9.

(a1) If clause 3.15.9A applies in respect of a *region*, fees imposed under this clause 3.15.9 may be subject to subsequent adjustment under clause 3.15.9A.

(b) *AEMO* must, in accordance with the *intervention settlement timetable*, calculate:

(1) the aggregate of the amounts payable by *AEMO* under *reserve contracts* in respect of the relevant *billing period*;

(2) any amounts determined as payable by *AEMO*:

(i) by the independent expert under clause 3.12.3 in respect of an *AEMO intervention event* that is an exercise of the *RERT* during the relevant *billing period*; or

(ii) as a result of a *scheduled generating unit*, *scheduled bidirectional unit*, *scheduled network service*, *wholesale demand response unit* or *scheduled load* under a *scheduled reserve contract* being *dispatched* or *generating units*, *bidirectional units* or other *plant*~~*loads*~~ under an *unscheduled reserve contract* being *activated*; or

(iii) to *Affected Participants* and *Ancillary Service Providers* pursuant to clause 3.12.2 in respect of an *AEMO intervention event* that is an exercise of the *RERT* during the relevant *billing period*,

in respect of the relevant *billing period*;

(3) the aggregate of the amounts receivable by *AEMO* under the *Rules* in respect of *reserve contracts* during the relevant *billing period*; and

(4) any amounts determined as receivable by *AEMO*:

(i) by the independent expert under clause 3.12.3 in respect of an *AEMO intervention event* that is an exercise of the *RERT* during the relevant *billing period*; or

(ii) from *Affected Participants* and *Ancillary Service Providers* pursuant to clause 3.12.2 in respect of an *AEMO intervention event* that is an exercise of the *RERT* during the relevant *billing period*,

in respect of the relevant *billing period.*

(c) Separate amounts must be calculated under paragraph (b):

(1) for *reserve contracts* entered into by *AEMO* specifically in respect of the *Market Participant's region* in accordance with paragraph (d); and

(2) for *reserve contracts* other than those entered into for and allocated to a specific *region* or *regions*.

(d) Where either:

(1) without the intervention in the *market* of *AEMO* a *region* would otherwise, in *AEMO's* reasonable opinion, fail to meet the minimum *power system security standards* or *the reliability standard*; or

(2) a *region* requires a level of *power system reliability* or *reserves* which, in *AEMO's* reasonable opinion, exceeds the level required to meet the *reliability standard*,

then *AEMO* must:

(3) recover its net liabilities, or distribute its net profits, under the terms of *reserve contracts* entered into to meet these requirements; and

(4) recover any amounts determined as payable by *AEMO* to *Affected Participants*, *Affected Load Participants*~~*Market Customers*~~ and *Ancillary Service Providers* (less any amounts determined as receivable by *AEMO* from *Affected Participants* and *Ancillary Service Providers*) pursuant to clause 3.12.2 in respect of an *AEMO intervention event* that is an exercise of the *RERT*; and

(5) recover any amounts determined as payable by *AEMO* by the independent expert under clause 3.12.3 in respect of an *AEMO intervention event* that is an exercise of the *RERT*,

from or to the *Cost Recovery Market Participants* ~~*Market Customers*~~ in that *region* in accordance with paragraph (e).

(e) In respect of:

(1) *reserve contracts* entered into by *AEMO*; and

(2) any amounts determined as payable by *AEMO* to *Affected Participants*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* (less any amounts determined as receivable by *AEMO* from

Affected Participants and *Ancillary Service Providers*) pursuant to clause 3.12.2 in respect of an *AEMO intervention event* that is an exercise of the *RERT*; and

(3) any amounts determined as payable by *AEMO* by the independent expert under clause 3.12.3 in respect of an *AEMO intervention event* that is an exercise of the *RERT,*

AEMO must calculate in relation to each *Cost Recovery Market Participant* ~~*Market Customer*~~ for each *region* in respect of each *billing period* a sum determined by applying the following formula:

$$\text{MCP} = \left[\frac{\text{E}_{\text{UC}} \text{ x UC}}{\sum \text{E}_{\text{UC}}}\right] + \left[\frac{\text{E}_{\text{OC}} \text{ x OC}}{\sum \text{E}_{\text{OC}}}\right]$$

$$CRP = \left[\frac{(E_{UC} \times UC)}{\sum E_{UC}}\right] + \left[\frac{(E_{OC} \times OC)}{\sum E_{OC}}\right]$$

where:

CRP~~MCP~~ is the amount payable by a *Cost Recovery Market Participant* ~~*Market Customer*~~ for a *region* in respect of a *billing period*;

UC is:

(1) the total usage charges (or equivalent charges) paid by *AEMO* under *reserve contracts*, as allocated in accordance with paragraph (e1); and

(2) the total amount determined as payable by *AEMO* to *Affected Participants*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* (less any amounts determined as receivable by *AEMO* from *Affected Participants* and *Ancillary Service Providers*) pursuant to clause 3.12.2 in respect of an *AEMO intervention event* that is an exercise of the *RERT*; and

(3) the total amount determined as payable by *AEMO* by the independent expert under clause 3.12.3 in respect of an *AEMO intervention event* that is an exercise of the *RERT*.

E_{UC} is the sum of all that *Cost Recovery Market Participant's adjusted consumed energy* ~~*Market Customer's adjusted gross energy*~~ amounts in the relevant *region* (the "**relevant region**") in each *trading interval* during which *reserves* were *dispatched* or *activated* under a *reserve contract* in the *billing period*, excluding *adjusted consumed energy* of any *scheduled loads* or *scheduled bidirectional units*~~*loads*~~ in that *region* in respect of which the *Cost Recovery Market Participant* ~~*Market Customer*~~ submitted a *dispatch bid* for any such *trading interval*;

$\sum E_{UC}$ is the sum of all amounts determined as "E_{UC}" in accordance with this paragraph (e) in respect of that *region* for the relevant *billing period*;

OC is the total amount paid by *AEMO* under *reserve contracts* in the relevant *region* in the *billing period*, other than:

(1) amounts determined as "UC" in accordance with this paragraph (e) in respect of that *billing period*; and

(2) operational and administrative costs described in paragraph (g);

E_{OC} is the sum of all that *Cost Recovery Market Participant's adjusted consumed energy* ~~*Market Customer's adjusted gross energy*~~ amounts in the relevant *region* in the *billing period*, excluding *adjusted consumed energy* of any *scheduled loads* or *scheduled bidirectional units* ~~*any loads*~~ in that *region* in respect of which the *Cost Recovery Market Participant*~~*Market Customer*~~ submitted a *dispatch bid* for any *trading interval* during that *billing period*; and

$\sum E_{OC}$ is the sum of all amounts determined as "E_{OC}" in accordance with this paragraph (e) in respect of that *region* for the relevant *billing period*.

(e1) For the purposes of determining amount "UC" in paragraph (e), *AEMO* must reasonably allocate usage charges (or equivalent charges) under *reserve contracts* to the *trading intervals* during which *reserves* were *dispatched* or *activated* in the relevant *region* in the *billing period*.

(f) A *Cost Recovery Market Participant* ~~*Market Customer*~~ is liable to pay *AEMO* an amount equal to the sum calculated under paragraph (e) in respect of that *Cost Recovery Market Participant*~~*Market Customer*~~.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) Operational and administrative costs incurred by *AEMO* in arranging for the provision of *reserves*, other than its liabilities under the terms of the *reserve contracts* into which it has entered, are to be recovered by *AEMO* from all *Market Participants* as part of the fees imposed in accordance with rule 2.11.

(h) For the purposes of clause 3.15.19, a re-determination by a panel established under clause 3.12.2 is to be taken to be an agreement between *AEMO* and each of the *Market Participants* ~~and *Scheduled Generators*~~.

3.15.10 Administered price cap or administered floor price compensation payments

(a1) In this clause 3.15.10:

cost recovery region means the *region* in which:

(1) the *spot price* was set by the *administered price cap* or *administered floor price*; or

(2) the *ancillary service price* was set by the *administered price cap*,

in the *eligibility period*.

eligibility period has the same meaning as in clause 3.14.6(a).

(a) If the *AEMC* awards compensation ~~to a *Scheduled Generator*, *Non-Scheduled Generator*, *Market Participant*, *Scheduled Network Service Provider*, *Demand Response Service Provider* or *Ancillary Service Provider*~~ under clause 3.14.6, then *AEMO* must determine an amount which shall be payable by each *Cost Recovery Market Participant* ~~*Market Customer*~~ who purchased electricity from the *spot market* in the cost recovery region.

(b) *AEMO* shall determine the amounts payable for each *eligibility period* by each ~~of the~~ *Cost Recovery Market Participant* ~~*Market Customers* referred to in clause 3.15.10(a)~~ as follows:

$$\frac{APC \times E_i}{\sum E_i}$$

where

APC is the total amount of any compensation payments awarded by the *AEMC* ~~to *Scheduled Generators*, *Non-Scheduled Generators*, *Market Participants*, *Scheduled Network Service Providers* or *Ancillary Service Providers*~~ in respect of that *eligibility period* in accordance with clause 3.14.6.

E_i is the sum of all of the *Cost Recovery Market Participant's adjusted consumed energy*~~*Market Customer's adjusted gross energy*~~ amounts~~, determined in accordance with clauses 3.15.4 and 3.15.5,~~ in respect of each *trading interval* in the *eligibility period* and each *connection point* for which the *Cost Recovery Market Participant* ~~*Market Customer*~~ is *financially responsible* in the cost recovery region.

$\sum E_i$ is the sum of all amounts determined as "E_i" in accordance with this clause 3.15.10 for all *Market Customers* in the cost recovery region.

(c) Within 25 *business days* of being notified by the *AEMC* that compensation is to be paid ~~to a *Scheduled Generator*, *Non-Scheduled Generator*, *Market Participant*, *Scheduled Network Service Providers* or *Ancillary Service Provider*~~ in accordance with clause 3.14.6, *AEMO* shall include in statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable by or to *Cost Recovery Market Participants* ~~*Market Participants*~~ as determined in accordance with this clause 3.15.10.

3.15.10C Intervention and Market Suspension Pricing Schedule Period Settlements

(a) *AEMO* must include in the *final statements* provided under clause 3.15.15 for a *billing period* in which one or more *intervention price trading intervals* occurred:

(1) for each *Affected Participant*, *Affected Load Participant* ~~*Market Customer*~~ and *Ancillary Service Provider* in relation to the relevant *AEMO intervention event* the amount calculated pursuant to clause 3.12.2(c);

(2) for each *Directed Participant* in relation to the relevant *AEMO intervention event* the amount calculated pursuant to clause 3.15.7(c) or clause 3.15.7(a1)(2), as the case may be;

(3) for each *Cost Recovery Market Participant* ~~*Market Customer*~~ in relation to an *AEMO intervention event* that is a *direction*, the amount calculated pursuant to clause 3.15.8(b) by application of clause 3.15.8 mutatis mutandis provided that the amount for the purposes of:

(i) clause 3.15.8(a)(1)(i) shall be the total amount payable to *AEMO* by *Affected Participants* and *Ancillary Service Providers* calculated pursuant to clause 3.12.2(c);

(ii) clause 3.15.8(a)(1)(ii) shall be the amount calculated in accordance with that clause;

(iii) clause 3.15.8(a)(2)(i) shall be the total amount payable by *AEMO* to *Affected Participants*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* calculated pursuant to clause 3.12.2(c);

(iv) clause 3.15.8(a)(2)(ii) shall be the sum of the total amount payable by *AEMO* to *Directed Participants* calculated pursuant to clause 3.15.7(c) and 3.15.7(a1)(2); and

(v) clause 3.15.8(a)(2)(iii) shall be zero;

(4) for each *Market Customer*, *Market Generator*, *Integrated Resource Provider* and *Small Resource Aggregator* ~~*Market Small Generation Aggregator*~~ in relation to an *AEMO intervention event* that is a *direction* an amount calculated pursuant to clause 3.15.8(e) by application of clause 3.15.8 mutatis mutandis provided that for the purposes of clause 3.15.8(f)(2) $TNSCAS_i$ ~~P~~, ~~TSRP,~~ RTCRSP, RTCLSP and TSFCAS shall be the total compensation payable by *AEMO* for the relevant *ancillary service* calculated in accordance with clause 3.15.7(c) or clause 3.15.7(a1)(2), as the case may be; and

(4A) for each *Cost Recovery Market Participant* ~~*Market Customer*~~ in relation to an *AEMO intervention event* that is an exercise of the *RERT*, the amounts calculated pursuant to clause 3.15.9(b)(1), (b)(2)(ii) and (b)(3), and clause 3.15.9(e).

(a1) *AEMO* must include in the final statement provided under clauses 3.15.14 and 3.15.15 for a *billing period* in which a *market suspension pricing schedule period* occurred:

(1) for each *Market Suspension Compensation Claimant* in relation to that *market suspension pricing schedule period*:

(i) the amount calculated in accordance with clauses 3.14.5A(d), 3.14.5B and 3.15.7B (as the case may be); and

(ii) any administrative fees payable under clause 3.14.5B(e); and

(2) for each *Cost Recovery Market Participant* ~~*Market Customer*~~ in relation to that *market suspension pricing schedule period*, the amount payable pursuant to clause 3.15.8A(c).

(b) *AEMO* must include in each statement it provides under clause 3.12.1(a) following a final determination of all total amounts payable or receivable by it pursuant to clauses 3.12.2, 3.14.5A, 3.14.5B, 3.15.7(a), 3.15.8, 3.15.8A and 3.15.9, separate details of the amount:

(1) receivable by each *Directed Participant* pursuant to clause 3.15.7(a) less the amount, if any, paid to that *Directed Participant* pursuant to clause 3.15.10C(a)(2);

(1A) receivable by each *Market Suspension Compensation Claimant* pursuant to clauses 3.14.5A(b) and 3.14.5B (as the case may be);

(2) receivable by each *Affected Participant*, *Affected Load Participant* ~~*Market Customers*~~ and *Ancillary Service Providers* pursuant to clause 3.12.2:

(i) less the amount paid to that *Affected Participant*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers*, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any; or

(ii) plus the amount paid by that *Affected Participant*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any;

(3) payable by each *Affected Participant* or *Ancillary Service Provider* pursuant to clause 3.12.2:

(i) less the amount paid by that *Affected Participant* or *Ancillary Service Provider*, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any; or

(ii) plus the amount paid to that *Affected Participant* or *Ancillary Service Provider* in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(1), if any;

(4) receivable by each *Cost Recovery Market Participant* ~~*Market Customer*~~ pursuant to clause 3.15.8(b):

(i) less the amount paid to that *Cost Recovery Market Participant* ~~*Market Customer*~~ in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any; or

(ii) plus the amount paid by that *Cost Recovery Market Participant* ~~*Market Customer*~~ in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any;

(5) payable by each *Cost Recovery Market Participant* ~~*Market Customer*~~ pursuant to clause 3.15.8(b) or clause 3.15.9(e):

(i) less the amount paid by that *Cost Recovery Market Participant* ~~*Market Customer*~~ in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any; or

(ii) plus the amount paid to that *Cost Recovery Market Participant* ~~*Market Customer*~~ in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(3), if any;

(6) if an *Affected Participant*, *Affected Load Participant*~~*Market Customer*~~ or *Ancillary Service Provider* is not entitled to any compensation pursuant to clause 3.12.2, the amount:

(i) receivable by that person equal to the amount paid by that person pursuant to clause 3.15.10C(a); or

(ii) payable by that person equal to the amount paid to that person pursuant to clause 3.15.10C(a);

(7) payable by each *Cost Recovery Market Participant* ~~*Market Customer, Market Generator* and *Market Small Generation Aggregator*~~ equal to:

(i) the amount payable by the *Cost Recovery Market Participant*~~*Market Customer*, *Market Generator* or *Market Small Generation Aggregator*, as the case may be,~~ pursuant to clause 3.15.8(e) by application of clause 3.15.8 mutatis mutandis provided that for the purposes of clause 3.15.8(f)(2) TNSCAS~~$_i$P~~, ~~TSRP,~~ RTCRSP, RTCLSP and TSFCAS shall be the total compensation payable by *AEMO* for the relevant *ancillary service* calculated in accordance with clause 3.15.7(a1)(2); less

(ii) the amount paid by the *Cost Recovery Market Participant*~~*Market Customer*, *Market Generator* or *Market Small Generation Aggregator*~~, as the case may be, in accordance with the statement issued to it pursuant to clause 3.15.10C(a)(4); and

(8) payable by *Cost Recovery Market Participants* ~~*Registered Participants*~~ pursuant to clause 3.15.8(g).

(c) If on application by the *AER* a court determines, in relation to a *direction*, that a *Directed Participant* has breached clause 4.8.9(c2) then:

(1) the *Directed Participant* shall not be entitled to, and must repay, any compensation plus interest pursuant to clauses 3.15.7, 3.15.7A and 3.15.7B, in relation to that *direction*; and

(2) the *AER* must forward to *AEMO* a written notice of the court's determination.

(3) *AEMO* must include in the first relevant statement it provides under clauses 3.15.14 and 3.15.15 following receipt of the notice from the *AER* issued pursuant to clause 3.15.10C(c)(2) separate details of:

(i) an amount payable to *AEMO* by the *Directed Participant* equal to the total compensation received by that *Directed Participant* in accordance with clauses 3.15.7, 3.15.7A and 3.15.7B plus interest on that total compensation computed at the average *bank bill rate* for the period from the date of payment of such amount to the *Directed Participant* until the date of that first statement;

(ii) an amount payable by *AEMO* to each relevant *Cost Recovery Market Participant* ~~*Market Customer*~~ calculated by applying clause 3.15.8(b) mutatis mutandis except that:

(A) CRP~~MCP~~ shall equal the amount receivable by the *Cost Recovery Market Participant*~~*Market Customer*~~; and

(B) CRA shall equal that part of the amount, including interest, calculated pursuant to clause 3.15.10C(c)(3)(i) attributable to the provision of *energy* by the *Directed Participant*; and

(iii) an amount payable by *AEMO* to each relevant *Cost Recovery Market Participant* ~~*Market Customer*, *Market Generator* and *Market Small Generation Aggregator*~~ calculated by applying clause 3.15.8(f)(2) mutatis mutandis except that:

(A) all *trading amounts* determined by this clause 3.15.10C(c)(3)(iii) shall be positive; and

(B) TNSCAS$_i$~~P~~, ~~TSRP,~~ RTCRSP, RTCLSP, and TSFCAS shall all be an amount equal to that part of the amount, including interest, calculated pursuant to clause 3.15.10C(c)(3)(i) attributable to the provision of the relevant *ancillary service*.

3.15.21 Default procedure

Definitions

(a0) In this clause 3.15.21:

default notice has the meaning given to it in clause 3.15.21(b).

(a) Each of the following is a *default event* in relation to a *Market Participant*:

(1) the *Market Participant* does not pay money due for payment to *AEMO* under the *Rules* by the appointed *time* on the due date;

(2) *AEMO* does not receive payment in full of any amount claimed by *AEMO* under any *credit support* in respect of a *Market Participant*, within 90 minutes after the due time for payment of that claim;

(3) the *Market Participant* fails to provide *credit support* required to be supplied under the *Rules* by the appointed time on the due date;

(4) it is unlawful for the *Market Participant* to comply with any of its obligations under the *Rules* or any other obligation owed to *AEMO* or it is claimed to be so by the *Market Participant*;

(5) it is unlawful for any *credit support provider* in relation to the *Market Participant* to comply with any of its obligations under the *Rules* or any other obligation owed to *AEMO* or it is claimed to be so by that *credit support provider*;

(6) an authorisation from a government body necessary to enable the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* to carry on their respective principal business or activities ceases to be in full force and effect;

(7) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* ceases or threatens to cease to carry on its business or a substantial part of its business;

(8) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* enters into or takes any action to enter into an arrangement (including a scheme of arrangement), composition or compromise with, or assignment for the benefit of, all or any class of their respective creditors or members or a moratorium involving any of them;

(9) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* states that it is unable to pay from its own money its debts when they fall due for payment;

(10) a receiver or receiver and manager is appointed in respect of any property of the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant*;

(11) an administrator, provisional liquidator, liquidator, trustee in bankruptcy or person having a similar or analogous function is appointed in respect of the *Market Participant* or a provider of *credit support* for the *Market Participant*;

(12) an order is made, or a resolution is passed, for the winding up of the *Market Participant* or a provider of *credit support* for the *Market Participant*;

(13) A notice under section 601AB(3) of the Corporations Act is given to the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* unless the registration of that *Market Participant* or *credit support provider* is reinstated under section 601AH of the Corporations Act;

(14) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* dies or is dissolved unless such notice of dissolution is discharged;

(15) the *Market Participant* or a *credit support provider* which has provided *credit support* for that *Market Participant* is taken to be insolvent or unable to pay its debts under any applicable legislation.

(b) Where a *default event* has occurred in relation to a *Market Participant*, *AEMO* may:

(1) issue a "*default notice*" specifying the alleged default and requiring the *Market Participant* to remedy the default by 1.00 pm (*Sydney time*) the next day following the date of issue of the *default notice*; and/or

(2) if it has not already done so, make claim upon any *credit support* held in respect of the obligations of the *Market Participant* for such amount as *AEMO* determines represents the amount of any money actually or contingently owing by the *Market Participant* to *AEMO* pursuant to the *Rules*.

(c) If a *default event* that is not an *external administration default event* is not remedied by 1.00 pm (*Sydney time*) the next *day* following the date of issue of the *default notice* or any later deadline agreed to in writing by *AEMO*, or if *AEMO* receives notice from the *defaulting Market Participant* that it is not likely to remedy the default, then *AEMO* may issue a *suspension notice*. For the avoidance of doubt, nothing in paragraphs (c1) to (c6) limits *AEMO*'s discretion in relation to issuing a *suspension notice* under this paragraph (c).

(c1) If an *external administration default event* is not remedied by 1.00 pm (*Sydney time*) the next *day* following the date of issue of the *default notice* or any later deadline agreed to in writing by *AEMO*, or if *AEMO* receives notice from the *defaulting Market Participant* that it is not likely to remedy the default, then *AEMO* must:

(1) issue a *suspension notice* to the *defaulting Market Participant* under which the *Market Participant* is suspended from all activities in relation

to each category of *Market Participant* for which it is registered (each a *registration category*); or

(2) make a *non-suspension decision* in relation to all activities in relation to each *registration category* of the *Market Participant*; or

(3) issue a *suspension notice* to the *defaulting Market Participant* under which the *Market Participant* is suspended from some specified activities or *registration categories* of the *Market Participant* and make a *non-suspension decision* in relation to the activities or *registration categories* that are not the subject of the suspension notice issued under this subparagraph (3).

(c2) *AEMO* may only make a *non-suspension decision* in relation to any activities or *registration categories* of a *defaulting Market Participant* if:

(1) the external administrator has requested or consented to the *non-suspension decision* and has undertaken that the *defaulting Market Participant* will meet its relevant liabilities under the *Rules*; and

(2) taking into account the following matters, *AEMO* considers that the *defaulting Market Participant* should not be suspended in relation to that activity or *registration category*:

(i) the likelihood that the *defaulting Market Participant* will comply with its obligations under the *Rules* relevant to that registration;

(ii) ~~in the case where the *defaulting Market Participant* is a *Market Generator*, *Market Small Generator Aggregator* or *Market Network Service Provider*, the potential impact of the suspension of that registration on the *reliability* of the *power system*;~~the potential impact of the suspension of the registration of a *Market Participant* on the *reliability* of the *power system*; and

(iii) ~~in the case where the *Market Participant* is not in a category referred to in subparagraph (ii), the potential impact of the suspension of that registration on the *reliability* of the *power system* if *AEMO* considers that matter to be relevant; and~~**[Deleted]**

(iv) any other matters *AEMO* considers relevant to the making of the *non-suspension decision*.

(c3) *AEMO* may make a *non-suspension decision* conditional on the *defaulting Market Participant* continuing to satisfy specified obligations including, without limitation, conditions relating to compliance with the *Rules*.

(c4) A *defaulting Market Participant* must comply with any conditions specified in a *non-suspension decision*.

(c5) Promptly after making a *non-suspension decision* in relation to a *defaulting Market Participant*, *AEMO* must:

(1) notify the *defaulting Market Participant* of its decision and any conditions that must be satisfied by the *defaulting Market Participant* if the *non-suspension decision* is to remain in effect; and

(2) *publish* a notice specifying:

(i) that an *external administration default event* has occurred in respect of the *defaulting Market Participant*;

(ii) that *AEMO* has made a *non-suspension decision* in accordance with paragraph (c2);

(iii) the *registration categories* of the *defaulting Market Participant* affected by the *non-suspension decision* and the activities (or subset of activities) of those *registration categories* that are the subject of the *non-suspension decision*; and

(iv) that despite the *non-suspension decision*, *AEMO* may issue a *suspension notice* in relation to the *registration categories* and activities covered by the *non-suspension decision* in the circumstances set out in subparagraphs (c6)(1) to (3).

(c6) Despite paragraph (c), if at any time after the issue of a *non-suspension decision*:

(1) *AEMO* considers that the *defaulting Market Participant* has failed to satisfy any of the conditions that apply to the *non-suspension decision*;

(2) a further *default event* occurs in respect of the *defaulting Market Participant*; or

(3) *AEMO* is not satisfied that the *defaulting Market Participant* will meet its relevant liabilities under the *Rules*,

then *AEMO* may immediately issue a *suspension notice* to the *defaulting Market Participant* in relation to the *registration categories* and activities of the *defaulting Market Participant* covered by that *non-suspension decision*.

(d) At the time of issue of a *suspension notice*, or as immediately thereafter as is practicable, *AEMO* must forward a copy of the *suspension notice* to the *AER* and to each *Market Participant* which is *financially responsible* for a *transmission network connection point* to which is allocated a *connection point* for which the defaulting *Market Participant* is *financially responsible*.

(e) *AEMO* must lift a *suspension notice* if the *default event* is remedied and there are no other circumstances in existence which would entitle *AEMO* to issue a *suspension notice*.

(f) *AEMO* must issue a public announcement that the *Market Participant* has been suspended from the *market* including details of the extent of the suspension, simultaneously with, or at any time after, a *suspension notice* is issued. *AEMO* must issue a public notice promptly after a *suspension notice* is lifted.

(g) From the time of suspension that *AEMO* stipulates in a *suspension notice* to a *Market Participant* the *Market Participant* is ineligible to trade or enter into any *transaction* in the *market* to the extent specified in the notice, until such time that *AEMO* notifies the *Market Participant* and all other *Market Participants* of the date and time that the suspension has been lifted.

(h) The *defaulting Market Participant* must comply with a *suspension notice*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) Following the issue of a *suspension notice*, *AEMO* may do all or any of the following to give effect to the *suspension notice*:

(1) reject any *dispatch bid* ~~*or dispatch offer*~~ submitted by the *defaulting Market Participant*;

(2) withhold the payment of any amounts otherwise due to the *defaulting Market Participant* under the *Rules*; or

(3) deregister or reject any *reallocation request* to which the *defaulting Market Participant* is a party.

The issue of a *suspension notice* which has not been lifted is a "**relevant disconnection event**" (ie. an event for which a *Registered Participant's* *market connection points* ~~*market loads*~~ may be *disconnected*) within the meaning of section 63(2) of the *National Electricity Law*.

3.16 Participant compensation fund

3.16.1 Establishment of Participant compensation fund

(a) *AEMO* must continue to maintain, in the books of the corporation, a fund called the *Participant compensation fund* for the purpose of paying compensation to *Scheduled Generators*, *Semi-Scheduled Generators*, *Scheduled Integrated Resource Providers* and *Scheduled Network Service Providers* as determined by the *dispute resolution panel* for *scheduling errors* under this Chapter 3.

(b) *AEMO* must pay to the *Participant compensation fund* that component of *Participant fees* under rule 2.11 attributable to the *Participant compensation fund*.

(c) The funding requirement for the *Participant compensation fund* for each *financial year* is the lesser of:

(1) $1,000,000; and

(2) $5,000,000 minus the amount which *AEMO* reasonably estimates will be the balance of the *Participant compensation fund* at the end of the relevant *financial year*.

(d) The *Participant compensation fund* is to be maintained by *AEMO* and is the property of *AEMO*.

(e) Any interest paid on money held in the *Participant compensation fund* will accrue to and form part of the *Participant compensation fund*.

(f) *AEMO* must pay from the *Participant compensation fund* all income tax on interest earned by the *Participant compensation fund* and must pay from the *Participant compensation fund* all bank account debit tax, financial institutions duty and bank fees in relation to the *Participant compensation fund*.

(g) ~~Upon ceasing to be a *Scheduled Generator* or a *Semi-Scheduled Generator*, the relevant *Generator*~~ A person is not entitled to a refund of any contributions made to the *Participant compensation fund* upon ceasing to be a *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Scheduled Network Service Provider*.

(h) **[Deleted]**~~Upon ceasing to be a *Scheduled Network Service Provider*, a *Scheduled Network Service Provider* is not entitled to a refund of any contributions made to the *Participant compensation fund*.~~

3.16.2 Dispute resolution panel to determine compensation

(a) Where a *scheduling error* occurs, a *Market Participant* may apply to the *dispute resolution panel* for a determination as to compensation under this clause 3.16.2.

(b) Where a *scheduling error* occurs, the *dispute resolution panel* may determine that compensation is payable to *Market Participants* and the amount of any such compensation payable from the *Participant compensation fund*.

(c) A determination by the *dispute resolution panel* as to compensation must be consistent with this clause 3.16.2.

(d) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* who receives an instruction in respect of a *scheduled generating unit*, ~~or~~ *semi-scheduled generating unit* or *scheduled bidirectional unit* (as the case may be) to operate at a *loading level* different to the *loading level* ~~lower level than the level~~ at which it would have been instructed to operate had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(e) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer less *power* on the *scheduled network service* than it would have been instructed to transfer had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(f) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* who receives a *dispatch instruction* in respect of a *generating unit* or *bidirectional unit* to operate at a level consistent with a ~~*dispatch offer price*~~*dispatch bid price* (with reference to the relevant *regional reference node*) which is higher than the *spot price*, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(g) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer *power* on the *scheduled network service* consistent with a ~~*network dispatch offer price*~~*dispatch bid price* but receives less net revenue than would be expected under clause 3.8.6A(f) due to adjustment of the *spot price* for a trading interval under clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.

(h) In determining the level of compensation to which *Market Participants* are entitled in relation to a *scheduling error*, the *dispute resolution panel* must:

(1) where the entitlement to compensation arises under clause 3.16.2(f), determine compensation on the basis of the actual *loading level* and not the *dispatch instruction* applicable to the relevant *scheduled generating unit*, ~~or~~ *semi-scheduled generating unit* or *scheduled bidirectional unit* for that *trading interval*;

(2) where the entitlement to compensation arises under clause 3.16.2(g), determine compensation on the basis of the actual *loading level* and not the *dispatch instruction* applicable to the relevant *scheduled network service* for that *trading interval*;

(3) use the *spot price* as determined under rule 3.9, including any *spot prices* that have been adjusted in accordance with clause 3.9.2B;

(4) take into account the current balance of the *Participant compensation fund* and the potential for further liabilities to arise during the year;

(5) recognise that the aggregate liability in any year in respect of *scheduling errors* cannot exceed the balance of the *Participant compensation fund* that would have been available at the end of that year if no compensation payments for *scheduling errors* had been made during that year.

(i) The manner and timing of payments from the *Participant compensation fund* are to be determined by the *dispute resolution panel*.

(j) To the maximum extent permitted by law, *AEMO* is not liable in respect of a *scheduling error* except out of the *Participant compensation fund* as contemplated in this clause 3.16.2.

3.18 Settlements Residue Auctions

3.18.2 Auctions and eligible persons

(a) *AEMO* may conduct *auctions* to determine which *eligible persons* will be issued with *SRD units* under *SRD agreements* with *AEMO*.

(b) *AEMO* may only enter into a *SRD agreement* with a person (called an *eligible person*) who satisfies the following criteria:

(1) the person is a *Market Customer*, a *Generator*, an *Integrated Resource Provider* or a *Trader*, or a person seeking to be eligible for registration as a *Trader* under rule 2.5A; and

(2) the person satisfies any criteria specified in the *auction rules*, which criteria must comply with paragraph (g).

(c) *Auctions* must be conducted in accordance with this rule 3.18 and the *auction rules*.

(d) *AEMO* may, with the approval of the *settlement residue committee*, suspend, or remove a suspension, on conducting *auctions* for one or more *directional interconnectors* for a specified period if *AEMO* believes it is not practicable to conduct those *auctions* or those *auctions* are unlikely to lead to the entry

into of *SRD agreements* in relation to all of the *settlements residues* being auctioned.

(e) *AEMO* may, after complying with the *Rules consultation procedures*, cease conducting *auctions*.

(f) If *AEMO* takes any action under paragraph (d) or (e), then it must post a notice on its website specifying the action taken as soon as practicable after taking it.

(g) Any criteria specified in the *auction rules* concerning persons with whom *AEMO* may enter into *SRD agreements* must be consistent with paragraph (b), not exclude any persons other than those specified in subparagraphs (1) – (6) below and must exclude the persons specified in subparagraphs (1), (2), (5) and (6) below:

(1) persons who have not entered into an *auction participation agreement*;

(2) *Transmission Network Service Providers*;

(3) **[Deleted]**

(4) persons:

(i) who have previously defaulted on payment obligations under an *auction participation agreement* or a *SRD agreement*; or

(ii) in relation to whom a *default event* has occurred;

(5) any person who *AEMO* considers is acting on behalf of or in concert with a person described in subparagraphs (1) or (2);

(5a) any person who *AEMO* considers is acting on behalf of or in concert with a person described in subparagraph (4); or

(6) any person who would be a **retail client** as defined in section 761GA of the *Corporations Act 2001* (Cth), if they entered into an *SRD agreement* with *AEMO*.

(h) **[Deleted]**

3.18.5 Settlement residue committee

(a) *AEMO* must establish a *settlements residue committee*.

(b) The functions of the *settlement residue committee* are to:

(1) approve any suspension, or removal of a suspension, imposed by *AEMO* on the conducting of *auctions*;

(2) approve proposed amendments to the *auction rules* developed by *AEMO*;

(3) monitor, review and report on the *auctions* conducted by *AEMO* under this rule 3.18; and

(4) approve the costs and expenses incurred by *AEMO* in conducting *auctions* under this rule 3.18 and in entering into and administrating *auction participation agreements* and *SRD agreements* under this rule 3.18.

(c) The *settlement residue committee* is to consist of:

(1) an employee of *AEMO* appointed by *AEMO*, who will act as chairman of the committee;

(2) a person representing *Generators* or *Integrated Resource Providers*;

(3) a person representing *Market Customers*;

(4) a person representing *Transmission Network Service Providers*;

(5) a person representing *Traders*;

(6) a person appointed jointly by the relevant *Ministers* of the *participating jurisdictions*; and

(7) a person appointed by the *AEMC* to represent *retail customers*.

(d) *AEMO* may remove the person referred to in clause 3.18.5(c)(1) at any time for any reason.

(e) The persons referred to in clauses 3.18.5(c)(2), (3), (4) and (5) must be appointed and removed by *AEMO* after consultation with the class of *Registered Participants* the person is to represent, and *AEMO* must:

(1) appoint a person agreed to by at least one third in number of the relevant class of *Registered Participants*; and

(2) commence consultation on the removal of such a person if requested to do so by a member of the relevant class of *Registered participants*, and must remove that person if so agreed by at least one third in number of the relevant class of *Registered Participants*.

(f) The *Ministers* of the *participating jurisdictions* acting jointly may remove the person referred to in clause 3.18.5(c)(6) at any time for any reason.

(g) The *AEMC* may remove the person referred to in clause 3.18.5(c)(7) at any time for any reason.

(h) A person holds office as a member of the *settlement residue committee* until that person:

(1) resigns from office;

(2) if the person is the person referred to in clause 3.18.5(c)(1), is removed from office by *AEMO* in accordance with clause 3.18.5(d);

(3) if the person is a person referred to in clauses 3.18.5(c)(2), (3), (4) or (5), is removed from office by *AEMO* in accordance with clause 3.18.5(e)(2);

(4) if the person is the person referred to in clause 3.18.5(c)(6), is removed from office by the *Ministers* of the *participating jurisdictions* in accordance with clause 3.18.5(f); or

(5) if the person is the person referred to in clause 3.18.5(c)(7), is removed from office by the *AEMC* in accordance with clause 3.18.5(g),

and such a person is eligible for re-appointment.

(i) A person may resign as a member of the *settlement residue committee* by giving notice in writing to that effect to *AEMO*.

3.20 Reliability and Emergency Reserve Trader

3.20.3 Reserve contracts

(a) Subject to paragraph (f), and in order to ensure that the reliability of *supply* in a *region* meets the *reliability standard* for the *region*, *AEMO* may enter into one or more contracts with any person in relation to the capacity of:

(1) *scheduled generating units*, *scheduled bidirectional units*, *wholesale demand response units*, *scheduled network services* or *scheduled loads* (being *scheduled reserve contracts*); and

(2) *unscheduled reserves* (being *unscheduled reserve contracts*).

(b) Subject to paragraph (f), *AEMO* may:

(1) enter into *reserve contracts*; or

(2) vary existing *reserve contracts*,

in addition to the contracts already entered into by *AEMO* under this rule 3.20.

(c) If, at any time *AEMO* determines that it is necessary to commence contract negotiations for the provision of additional *reserves* under this rule 3.20, *AEMO* must *publish* a notice of its intention to do so.

Consultation with jurisdictions

(d) *AEMO* must consult with persons nominated by the relevant *participating jurisdictions* in relation to any determination to enter into contracts under this rule 3.20.

(e) In entering into *reserve contracts* under this rule 3.20, *AEMO* must agree with the relevant nominated persons referred to in paragraph (d) cost-sharing arrangements between the *regions* for the purpose of clause 3.15.9.

Procurement trigger and lead time

(f) *AEMO* must not enter into a *reserve contract* for a *region* (or vary a *reserve contract* for a *region* that was entered into following a previous declaration under clause 4.8.4 for that *region*):

(1) unless it has made a declaration under clause 4.8.4 for that *region*; and

(2) more than 12 months prior to the:

(i) commencement of any time period specified in the declaration in accordance with clause 4.8.5(a1)(2); or

(ii) where no such time period is specified, the date *AEMO* reasonably expects that the *reserves* under that contract may be required to address the *low reserve* or *lack of reserve* condition, having regard to the *reliability standard implementation guidelines*.

For the avoidance of doubt, *AEMO* may negotiate with potential tenderers in relation to *reserve contracts* at any time.

Offering scheduled reserves into the market

(g) When contracting for the provision of *scheduled reserves* under *scheduled reserve contracts*, *AEMO* must not enter contracts in relation to capacity of *scheduled generating units*, *scheduled bidirectional units*, *wholesale demand response units*, *scheduled network services* or *scheduled loads* for which ~~*dispatch offers* or~~ *dispatch bids* have been submitted or are considered by *AEMO* to be likely to be submitted or be otherwise available for *dispatch* at any time during:

(1) the period from the date of execution of the *scheduled reserve contract* until the end of its term; and

(2) the 12 month period immediately preceding the date of execution of the *scheduled reserve contract*, except where that capacity was *dispatched* under a *reserve contract*.

(h) A person must not enter into a *scheduled reserve contract* in relation to capacity for which ~~*dispatch offers* or~~ *dispatch bids* were submitted, or that was otherwise available for *dispatch* at any time during the 12 month period immediately preceding the date of execution of the *scheduled reserve contract*, except where that capacity was *dispatched* under a *scheduled reserve contract*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

Offering unscheduled reserves during specified trading intervals

(i) A person must not enter into an *unscheduled reserve contract* if the person is party to another contract or arrangement under which it is required to offer the *unscheduled reserves* the subject of the *unscheduled reserve contract* in the market for the *trading intervals* to which the contract with *AEMO* relates.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

Terms and conditions of a contract

(j) If *AEMO* seeks to enter into a *reserve contract* with a *Registered Participant* then the *Registered Participant* must negotiate with *AEMO* in good faith as to the terms and conditions of the contract.

(k) *AEMO* may only enter into a *scheduled reserve contract* if the contract contains:

(1) a provision that the other party to the contract has not and will not otherwise offer the *scheduled reserve* the subject of the contract in the market at any time during the period from the date of execution of that contract until the end of its term; and

(2) a nominal MW value reflecting *AEMO's* view of the likely available capacity of that *reserve contract*.

(l) *AEMO* may only enter into ana ~~a~~ *unscheduled reserve contract* if the contract contains:

(1) a provision that the other party to the contract has not and will not otherwise offer the *unscheduled reserve* the subject of the contract in the market for the *trading intervals* to which the contract with *AEMO* relates; and

(2) a nominal MW value reflecting *AEMO's* view of the likely available capacity of that *reserve contract*.

(m) *AEMO* must use reasonable endeavours to ensure that:

(1) subject to subparagraph (f)(2), the term of a *reserve contract* is no longer than *AEMO* considers is reasonably necessary to address the relevant *low reserve* or *lack of reserve* condition; and

(2) the amount of *reserve* procured under a *reserve contract* is no more than *AEMO* considers is reasonably necessary to address the relevant *low reserve* or *lack of reserve* condition.

having regard to the *RERT principles*.

3.20.4 Dispatch pricing methodology for unscheduled reserve contracts

(a) Subject to paragraph (c), *AEMO* must develop in accordance with the *Rules consultation procedures* and *publish* details of the methodology it will use to request that *generating units*, *bidirectional units* or other *connected plant* ~~*loads*~~ under *unscheduled reserve contracts* be *activated*.

(b) *AEMO* may develop and *publish* the methodology developed in accordance with this clause 3.20.4 as part of the methodology *AEMO* is required to develop under clause 3.9.3(e).

(c) *AEMO* may make minor and administrative amendments to the methodology developed in accordance with this clause 3.20.4 without complying with the *Rules consultation procedures*.

3.20.6 Reporting on RERT by AEMO

Post-dispatch or activation report

Definitions

(a0) In this clause 3.20.6:

RERT report has the meaning given to it in clause 3.20.6(b).

(a) If *AEMO dispatches* or *activates reserves*, then *AEMO* must, as soon as practicable, and in any event no later than 5 *business days* thereafter, *publish* and make available on its website a report that includes details of:

(1) the total estimated payments made under *reserve contracts*;

(2) the total estimated volume (in MWh) of *reserves dispatched* or *activated* under *reserve contracts*; and

(3) if applicable, the information required under clause 3.8.14A(c),

for the relevant *region*. In circumstances where *reserves* are *dispatched* or *activated* over consecutive days, the reference to "5 *business days*" in this clause 3.20.6(a) is to be read as "5 *business days* from the final consecutive day in which the *reserves* were *dispatched* or *activated*".

RERT report

(b) *AEMO* must:

(1) *publish* a report (**RERT report**) that includes the information specified in paragraphs (d) to (f); and

(2) update the RERT report from time to time,

in accordance with paragraph (c).

(c) *AEMO* must:

(1) *publish* the first RERT report no later than 30 *business days* after 31 December 2019;

(2) *publish* any updated RERT report no later than 30 *business days* after the end of each calendar quarter; and

(3) maintain on its website a copy of the RERT report as updated.

Information to include in RERT report – reserve contracts

(d) The RERT report must, with respect to any *reserve contracts* entered into by *AEMO*, include a detailed explanation of:

(1) the estimated average amount payable by *AEMO* under *reserve contracts* for each *region*, broken down by payment type;

(2) *AEMO's* modelling, forecasts and analysis used to determine:

(i) whether to enter into those *reserve contracts*; and

(ii) the amount of *reserve* procured under those *reserve contracts*, including how those amounts were determined in accordance with the methodology specified in clause 3.20.7(e)(2),

and where *AEMO* procured an amount of *reserves* greater than any shortfall identified in the relevant declaration under clause 4.8.4, an explanation of why a greater amount was procured;

(3) the periods in which the *reserves* are expected to be required to address the relevant *low reserve* or *lack of reserve* condition, including whether they align with any periods identified in the relevant declaration under clause 4.8.4;

(4) the term of the *reserve contract*, including the basis on which *AEMO* considered the term to be reasonably necessary to address the relevant *low reserve* or *lack of reserve* condition; and

(5) the basis on which *AEMO* had regard to the *RERT principle* in clause 3.20.2(b)(3) when entering into those *reserve contracts*, and where the average amount payable by *AEMO* under *reserve contracts* exceeded the estimated average VCR for the relevant *region*, an explanation of why this had occurred.

Information to include in RERT report – dispatch or activation of reserves

(e) The RERT report must, with respect to any *reserves dispatched* or *activated* under *reserve contracts*, include a detailed explanation of:

(1) the circumstances giving rise to the need for the *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves*, including the modelling, forecasts and analysis used by *AEMO* to determine the need for such *dispatch* or *activation* of *reserves*;

(2) the basis on which it determined the latest time for that *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves* and on what basis it determined that a market response would not have avoided the need for the *dispatch* of *scheduled reserves* or the *activation* of *unscheduled reserves*;

(3) the changes in *dispatch* outcomes due to the *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves*;

(4) the processes implemented by *AEMO* to *dispatch* the *scheduled reserves* or *activate* the *unscheduled reserves*;

(5) if applicable, reasons why *AEMO* did not follow any or all of the processes set out in rule 4.8 either in whole or in part prior to the *dispatch* of *scheduled reserves* or the *activation* of *unscheduled reserves*;

(6) the basis upon which *AEMO* determined its approach to setting *spot prices* and *ancillary service prices* in accordance with clause 3.9.3;

(7) the total amount of *reserves dispatched* or *activated*, and if applicable, why such amounts were different to those previously forecast or modelled by *AEMO*;

(8) the periods in which *reserves* were *dispatched* or *activated*, and if applicable, why such periods were different to those previously forecast or modelled by *AEMO*;

(9) the estimated costs of *load shedding* (including an amount expressed in $/MWh) in a *region* avoided as a result of the *dispatch* or *activation* of *reserves*; and

(10) the impact of the *dispatch* of *scheduled reserves* or *activation* of *unscheduled reserves* on:

(i) the reliability of *supply* into the market; or

(ii) where applicable, *power system security*.

(f) Where *AEMO* has, in accordance with clause 3.15.9, included the amounts arising under a *reserve contract* in a *final statement* provided under clause 3.15.15, the RERT report must include a detailed explanation of:

(1) *AEMO's* costs associated with exercising the *RERT* (including an amount expressed in $/MWh), including the payments under the *reserve contract* for the relevant *billing periods*; and

(2) a breakdown of the recovery of those costs (including an amount expressed in $/MWh) from each *Market Customer* or *Integrated Resource Provider*, as determined by *AEMO*, in each *region*.

Information to include in RERT report – end of financial year

(g) The first updated RERT report following the end of each *financial year* must, in addition to the requirements of paragraphs (d) to (f) specify:

(1) each occasion during the *financial year* on which it secured the availability of *reserves* by entering into *reserve contracts*;

(2) each occasion during the *financial year* when a ~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~*scheduled resource* under a *scheduled reserve contract* was *dispatched* or *unscheduled reserves* available ~~*generating units* or *loads*~~ under an *unscheduled reserve contract* were *activated*; and

(3) its costs and finances in connection with its *RERT* activities during the *financial year* according to appropriate accounting standards including profit and loss, balance sheet, sources and applications of funds (including an amount expressed in $/MWh).

3.20.7 AEMO's exercise of the RERT

(a) Notwithstanding clauses 4.8.5A and 4.8.5B, if *AEMO* considers the latest time for exercising the *RERT* by:

(1) the *dispatch* of *scheduled reserves* it has available under *scheduled reserve contracts*; or

(2) the *activation* of *unscheduled reserves* it has available under *unscheduled reserve contracts*,

has arrived, *AEMO* may *dispatch* such *scheduled reserves* or *activate* such *unscheduled reserves* to ensure that the reliability of supply in a *region* or *regions* meets the *reliability standard* or, where practicable, to maintain *power system security*.

(b) *AEMO* must follow the relevant procedures in this rule ~~3.20~~ prior to *dispatching* a *scheduled resource* ~~*scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load*~~ the subject of a *scheduled reserve contract* or *activating* *unscheduled reserves* it has available under ~~*generating units* or loads the subject of~~ an *unscheduled reserve contract* unless it is not reasonably practicable to do so.

(c) Subject to paragraph (b), *AEMO* must only *dispatch* a *scheduled resource* ~~*scheduled generating unit*, a *wholesale demand response unit*, a *scheduled network service* or a *scheduled load*~~ the subject of a *scheduled reserve contract* or *activate* *unscheduled reserves* it has available under ~~*generating units* or *loads* the subject of~~ an *unscheduled reserve contract* in accordance with the procedures developed pursuant to paragraph (e).

(d) In order to effect the *dispatch* of a *scheduled resource* the subject of a *scheduled reserve contract* or the *activation* of *unscheduled reserves* it has available under an *unscheduled reserve contract*, *AEMO* may:

(1) submit, update or vary *dispatch bids* in relation to all or part of such a *scheduled resource* which is the subject of a *scheduled reserve contract*; or

(2) change other inputs to the *dispatch process* to give effect to the *dispatch* of *scheduled resources* the subject of a *scheduled reserve contract* or the *activation* of *unscheduled reserves* it has available under an *unscheduled reserve contract*.

~~(d) In order to effect the *dispatch* of a *scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* the subject of a *scheduled reserve contract* or the *activation* of *generating units* or *loads* the subject of an *unscheduled reserve contract* *AEMO* may:~~

~~(1) submit, update or vary *dispatch bids* or *dispatch offers* in relation to all or part of such a *scheduled generating unit*, *wholesale demand response unit*, *scheduled network service* or *scheduled load* which is the subject of a *scheduled reserve contract*; or~~

~~(2) change other inputs to the *dispatch process* to give effect to the *dispatch* of *scheduled generating units*, *wholesale demand response units*, *scheduled network services* or *scheduled loads* the subject of a *scheduled reserve contract* or the *activation* of *generating units* or *loads* the subject of an *unscheduled reserve contract*.~~

(e) *AEMO* must develop, *publish*, and may amend from time to time, in accordance with the *Rules consultation procedures*, procedures for the exercise of the *RERT* under this rule 3.20 that take into account the *RERT principles* and *RERT guidelines*. These procedures must include:

(1) the methodology, information and assumptions that *AEMO* uses to satisfy itself that a person complies with:

(i) clause 3.20.3(i) in relation to *unscheduled reserves* it has available under ~~*generating units* or *loads* that are the subject of~~ *unscheduled reserve contracts* and

(ii) clause 3.20.3(h) in relation to *wholesale demand response units* that are the subject of *scheduled reserve contracts*;

(1A) the measures *AEMO* will adopt in order to reduce the possibility that *unscheduled reserves* ~~*generating units* or *loads*~~ likely to be *activated* under *unscheduled reserve contracts* are otherwise engaged at the time the *unscheduled reserve contracts* are required to be *activated* by *AEMO*;

(2) a methodology to be used by *AEMO* to determine the appropriate term of a *reserve contract* and the amount of *reserves* to procure in accordance with clause 3.20.3(m); and

(3) the basis on which *AEMO* determines the estimated average VCRs for the purposes of the *RERT principle* in clause 3.20.2(b)(3).

(e1) If *AEMO* develops standardised forms of *reserve contracts*, it:

(1) must *publish* and maintain on its website a document that specifies the standard terms, conditions and specifications for each type of *reserve*

contract, including permitted variations from those standard terms, conditions and specifications; and

(2) may amend such document from time to time.

(f) When exercising the *RERT* under this rule 3.20, *AEMO* must take into account the *RERT guidelines*.

(g) **[Deleted]**

Schedule 3.1 ~~Bid and Offer Validation Data~~Bid Validation Data

(a) The *bid validation data*~~*bid and offer validation data*~~ are the standard data requirements for verification and compilation of *dispatch bids* ~~and *dispatch offers*~~ on the *trading day* schedule.

(b) ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ *Market Participants* must notify *AEMO* of their *bid validation data*~~*bid and offer validation data*~~ in accordance with this schedule 3.1 in respect of each of their *scheduled resources* and *ancillary service units* ~~*scheduled loads*, *wholesale demand response units*, *semi-scheduled generating units* and *scheduled generating units*~~ at least six weeks prior to commencing participation in the *market*.

(c) ~~*Scheduled Generators*, *Semi-Scheduled Generators* and~~ *Market Participants* must review their *bid validation data*~~*bid and offer validation data*~~ annually in accordance with the *timetable* advised by *AEMO* and provide details of any changes to *AEMO*.

(d) A ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* must notify *AEMO* of any proposed change to its *bid validation data*~~*bid and offer validation data*~~ in accordance with clause 3.13.3(h) at least six weeks prior to the date of the proposed change and any proposed change may be subject to audit at *AEMO*'s request and must be consistent with *AEMO*'s register of *performance standards* referred to in rule 4.14(n) in respect of the relevant *plant*.

(e) A copy of all changes to the data must be returned to each ~~*Scheduled Generator*, *Semi-Scheduled Generator* and~~ *Market Participant* for verification and resubmission by the ~~*Scheduled Generator*, *Semi-Scheduled Generator* or~~ *Market Participant* as necessary.

(f) **[Deleted]**

Scheduled Generating Unit Data:

Data	Units of Measurement
Power station **information:**	
power station name	
Scheduled generating unit **information:** **Note:** Repeat the following items for each *scheduled generating unit* where there are two or more *scheduled generating units* in the *power station*.	

Data	Units of Measurement
scheduled generating unit name **Note:** This may be the same name as the *power station* name when the *power station* has only one single or aggregated *scheduled generating unit*.	
Dispatchable unit identifier	
maximum *generation* of the *scheduled generating unit*, to which the *scheduled generating unit* may be dispatched.	MW (*generated*)
maximum ramp rate of the *scheduled generating unit*	MW/minute

Semi-Scheduled Generating Unit Data:

Data	Units of Measurement
***Power station* information:**	
power station name	
***Semi-scheduled generating unit* information:**	
Note: Repeat the following items for each *semi-scheduled generating unit* where there are two or more *semi-scheduled generating units* in the *power station*.	
semi-scheduled generating unit name **Note:** This may be the same name as the *power station* name when the *power station* has only one *semi-scheduled generating unit*.	
Dispatchable unit identifier	
maximum *generation* of the *semi-scheduled generating unit*, to which the *semi-scheduled generating unit* may be dispatched. **Note:** For a *coupled production unit* classified as a *semi-scheduled generating unit*, the maximum *generation* must be limited to the maximum *generation* of that part of the *coupled production unit* that is *intermittent*.	MW (*generated*)
maximum ramp rate of the *semi-scheduled generating unit*	MW/minute

Scheduled Load Data:

Data	Units of Measurement
***Load* installation information:**	
load installation name	
***Scheduled load* information:** **Note:** Repeat the following items for each *scheduled load* where there are two or more *scheduled loads*.	
scheduled load name **Note:** This may be the same name as the *load* installation name when the *load* installation has only one *scheduled load*.	
Dispatchable unit identifier	
maximum *consumption~~load~~* of the *scheduled load*, to which the *scheduled load* may be *dispatched*	MW
maximum ramp rate of the *scheduled load*	MW/minute

Scheduled Bidirectional Unit Data

Data	**Units of measurement**
Facility information	
Facility name	
Scheduled bidirectional unit information **Note:** Repeat the following items for each *scheduled bidirectional unit* where there are two or more *scheduled bidirectional units* in the *power station* or connected at the same *connection point*	
Scheduled bidirectional unit name **Note:** This may be the same as the *power station* name when the *power station* has only one single or aggregated *scheduled bidirectional unit*	
Dispatchable unit identifier	
Maximum *generation* of the *scheduled bidirectional unit*, to which the *scheduled bidirectional unit* may be *dispatched.*	MW (produced)
Maximum consumption of the *scheduled bidirectional unit*, to which the *scheduled bidirectional unit* may be *dispatched.*	MW (consumed)
Maximum *ramp rate* of the *scheduled bidirectional unit* (in relation to *generation*).	MW/minute
Maximum *ramp rate* of the *scheduled bidirectional unit* (in relation to consumption)	MW/minute

Scheduled Network Service Data:

Data	Units of Measurement
installation/link name	
Dispatchable Unit Identifier	
connection point identifiers for terminal nodes A and B	

Data	Units of Measurement
maximum *power transfer capability* to node A	MW
maximum *power transfer capability* to node B	MW
maximum ramp rate of *power transfer capability* of the installation	MW/minute

Ancillary Service ~~Generating Unit and Ancillary Service Load~~Unit Data:

Data	Units of Measurement
***Power station/load* installation information:**	
power station/load installation name	
***Ancillary service unit* information ~~*Ancillary service generating unit* and *ancillary service load* information~~** **Note:** Repeat the following items for each *dispatchable unit identifier* where there are two or more *ancillary service units* in a *power station* or *connected* at the same *connection point*~~of them in the *power station*/installation~~.	
Unit/*load* name	
Dispatchable unit identifier	
*market ancillary service**	
maximum *market ancillary service* capacity*	MW
*minimum enablement level**	MW
*maximum enablement level**	MW
*maximum lower angle**	Degrees
*maximum upper angle**	Degrees

Note:

For those items marked with an asterisk, repeat the block of data for each *market ancillary service* offered.

Wholesale demand response unit data:

Data	Units of Measurement
Wholesale demand response unit **information:**	
Wholesale demand response unit name	
Dispatchable unit identifier	
Maximum responsive component of the *wholesale demand response unit*	MW
Maximum *ramp rate*	MW/minute

Dispatch Inflexibility Profile:

[Deleted]

Aggregation Data:

[Deleted]

CHAPTER 4

4. Power System Security

4.1 Introduction

4.1.1 Purpose

(a) This Chapter:

(1) provides the framework for achieving and maintaining a secure *power system*;

(2) provides the conditions under which *AEMO* can intervene in the processes of the *spot market* and issue *directions* to *Registered Participants* so as to maintain or re-establish a secure and reliable *power system*;

(3) has the following aims:

(i) to detail the principles and guidelines for achieving and maintaining *power system security*;

(ii) to establish the processes for the assessment of the adequacy of *power system* reserves;

(iii) to establish processes to enable *AEMO* to plan and conduct operations within the *power system* to achieve and maintain *power system security*; and

(iv) to establish processes for the actual *dispatch* of ~~*scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services*~~*scheduled resources* and *ancillary services* by *AEMO* and for *AEMO* to *enable inertia network services* or *system strength services*.

(b) By virtue of this Chapter and the *NEL*, *AEMO* has responsibility to maintain and improve *power system security*. This Chapter also requires the *Jurisdictional System Security Coordinator* for each *participating jurisdiction* to advise *AEMO* of the requirements of the *participating jurisdiction* regarding *sensitive loads* and priority of *load shedding* and requires *AEMO* to provide copies of the relevant *load shedding procedures* and *EFCS settings schedules* to the *Jurisdictional System Security Coordinator*.

4.2 Definitions and Principles

This rule sets out certain definitions and concepts that are relevant to this Chapter.

4.2.3 Credible and non-credible contingency events and protected events

(a) A ***contingency event*** means an event affecting the *power system* which *AEMO* expects would be likely to involve the failure or removal from operational service of one or more *generating units* and/or *bidirectional units* and/or *transmission elements*.

(b) A ***credible contingency event*** means a *contingency event* the occurrence of which *AEMO* considers to be reasonably possible in the surrounding circumstances including the *technical envelope*. Without limitation, examples of *credible contingency events* are likely to include:

(1) the unexpected automatic or manual *disconnection* of, or the unplanned reduction in capacity of, one operating *generating unit* or one operating *bidirectional unit*; or

(2) the unexpected *disconnection* of one major item of *transmission plant* (e.g. *transmission line*, *transformer* or *reactive plant*) other than as a result of a three phase electrical fault anywhere on the *power system*.

(c) **[Deleted]**

(d) **[Deleted]**

(e) A ***non-credible contingency event*** is a *contingency event* other than a *credible contingency event*. Without limitation, examples of *non-credible contingency events* are likely to include:

(1) three phase electrical faults on the *power system*; or

(2) simultaneous disruptive events such as:

(i) multiple *generating unit* or *bidirectional unit* failures; or

(ii) double circuit *transmission line* failure (such as may be caused by tower collapse).

(f) A ***protected event*** means a *non-credible contingency event* that the *Reliability Panel* has declared to be a *protected event* under clause 8.8.4, where that declaration has come into effect and has not been revoked. *Protected events* are a category of *non-credible contingency event*.

4.2.6 General principles for maintaining power system security

The *power system security* principles are as follows:

(a) To the extent practicable, the *power system* should be operated such that it is and will remain in a *secure operating state*.

(b) Following a *contingency event* (whether or not a *credible contingency event*) or a significant change in *power system* conditions, *AEMO* should take all reasonable actions:

(1) to adjust, wherever possible, the operating conditions with a view to returning the *power system* to a *secure operating state* as soon as it is practical to do so, and, in any event, within thirty minutes; or

(2) if any principles and guidelines have been *published* under clause 8.8.1(a)(2a), to adjust, wherever possible, the operating conditions, in accordance with such principles and guidelines, with a view to returning the *power system* to a *secure operating state* within at most thirty minutes.

(c) *Emergency frequency control schemes* should be available and in service to:

(1) restore the *power system* to a *satisfactory operating state* following *protected events*; and

(2) significantly reduce the risk of *cascading outages* and *major supply disruptions* following significant multiple *contingency events*.

(d) **[Deleted]**

(e) Sufficient *SRASs* should be available in accordance with the *system restart standard* to allow the restoration of *power system security* and any necessary restarting of *generating units* or *bidirectional units* following a *major supply disruption*.

(f) Sufficient *inertia* should be available in each *inertia sub-network* to meet the applicable *inertia requirements*.

(g) Sufficient *three phase fault level* should be maintained at each *system strength node* to meet the applicable *system strength requirements*.

4.3 Power System Security Responsibilities and Obligations

4.3.1 Responsibility of AEMO for power system security

The *AEMO power system security responsibilities* are:

(a) to maintain *power system security*;

(b) to monitor the operating status of the *power system*;

(c) to co-ordinate the *System Operators* in undertaking certain of its activities and operations and monitoring activities of the *power system*;

(d) to ensure that *high voltage* switching procedures and arrangements are utilised by *Network Service Providers* to provide adequate protection of the *power system*;

(e) to assess potential infringement of the *technical envelope* or *power system operating procedures* which could affect the security of the *power system*;

(f) to ensure that the *power system* is operated within the limits of the *technical envelope*;

(g) to ensure that all *plant* and equipment under its control or co-ordination is operated within the appropriate operational or emergency limits which are advised to *AEMO* by the respective *Network Service Providers* or *Registered Participants*;

(h) to assess the impacts of technical and any operational *plant* on the operation of the *power system*;

(i) to arrange the *dispatch* of ~~*scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services*~~*scheduled resources* and *ancillary services* (including *dispatch* by remote control actions or specific directions) in accordance with the *Rules*, allowing for the dynamic nature of the *technical envelope*;

(j) to determine any potential *constraint* on the *dispatch* of *scheduled resources* ~~*generating units, wholesale demand response units, loads, market network services*~~ and *ancillary services* and to assess the effect of this *constraint* on the maintenance of *power system security*;

(k) to assess the availability and adequacy, including the dynamic response, of *contingency capacity reserves* and *reactive power reserves* in accordance with the *power system security standards* and to ensure that appropriate levels of *contingency capacity reserves* and *reactive power reserves* are available:

(1) to ensure the *power system* is, and is maintained, in a *satisfactory operating state*; and

(2) to arrest the impacts of a range of significant multiple *contingency events* (affecting up to 60% of the total *power system load*) or *protected events* to allow a prompt restoration or recovery of *power system security*, taking into account under-*frequency* initiated *load shedding* capability provided under *connection agreements*, by *emergency frequency control schemes* or otherwise;

(l) to monitor demand and *generation* capacity in accordance with the *reliability standard implementation guidelines* and, if necessary, initiate action in relation to a *relevant AEMO intervention event*;

(m) to publish as appropriate, information about the potential for, or the occurrence of, a situation which could significantly impact, or is significantly impacting, on *power system security*, and advise of any *low reserve* condition for the relevant periods determined in accordance with the *reliability standard implementation guidelines*;

(n) to refer to *Registered Participants*, as *AEMO* deems appropriate, information of which *AEMO* becomes aware in relation to significant risks to the *power system* where actions to achieve a resolution of those risks are outside the responsibility or control of *AEMO*;

(o) to utilise resources and services provided or procured as *ancillary services*, *system strength services* or *inertia network services* or otherwise to maintain or restore the *satisfactory operating state* of the *power system*;

(p) to manage activities reasonably required to effectively prepare for and coordinate a response to a *major supply disruption*, including (but not limited to):

(1) procuring adequate *SRASs* in accordance with clause 3.11.9 to enable *AEMO* to co-ordinate a response to a *major supply disruption*;

(2) developing the *system restart plan* and coordinating activities among *Registered Participants*, including the testing of *SRASs* or any other equipment, as reasonably necessary to prepare for the implementation of the *system restart plan*; and

(3) managing and coordinating the restoration of *supply* following a *major supply disruption*;

(pa) to coordinate the provision of *emergency frequency control schemes* by *Network Service Providers* and to determine the settings and intended sequence of response by those schemes;

(pb) to determine the boundaries of *inertia sub-networks* and the *inertia requirements* for each *inertia sub-network* and to *enable inertia network services*;

(pc) to determine the *system strength requirements* for each *region* and to *enable system strength services*;

(q) to interrupt, subject to clause 4.3.2(l), *Registered Participant connections* as necessary during emergency situations to facilitate the re-establishment of the *satisfactory operating state* of the *power system*;

(r) to issue a *direction* or *clause 4.8.9 instruction* (as necessary) to any *Registered Participant*;

(s) to co-ordinate and direct any rotation of widespread interruption of demand in the event of a major *supply* shortfall or disruption;

(t) to liaise with *participating jurisdictions* should there be a need to manage an extensive disruption, including the use of emergency services powers in a *participating jurisdiction*;

(u) to determine the extent to which the levels of *contingency capacity reserves* and *reactive power reserves* are or were appropriate through appropriate testing, auditing and simulation studies;

(v) to investigate and review all major *power system* operational incidents and to initiate action plans to manage any abnormal situations or significant deficiencies which could reasonably threaten *power system security*. Such situations or deficiencies include without limitation:

(1) *power system frequencies* outside those specified in the definition of *satisfactory operating state*;

(2) *power system voltages* outside those specified in the definition of *satisfactory operating state*;

(3) actual or potential *power system* instability; and

(4) unplanned/unexpected operation of major *power system* equipment; and

(w) to ensure that each *System Operator* satisfactorily interacts with *AEMO*, other *System Operators* and *Distribution System Operators* for both *transmission* and *distribution network* activities and operations, so that *power system security* is not jeopardised by operations on the *connected transmission networks* and *distribution networks*.

4.3.2 System security

(a) *AEMO* must use its reasonable endeavours, as permitted under the *Rules*, including through the provision of appropriate information to *Registered Participants* to the extent permitted by law and under the *Rules*, to achieve the *AEMO power system security responsibilities* in accordance with the *power system security* principles described in clause 4.2.6.

(b) Where an obligation is imposed on *AEMO* under this Chapter to arrange or control any act, matter or thing or to ensure that any other person undertakes or refrains from any act, that obligation is limited to a requirement for *AEMO* to use reasonable endeavours as permitted under the *Rules*, including to give such directions as are within its powers, to comply with that obligation.

(c) If *AEMO* fails to arrange or control any act, matter or thing or the acts of any other person notwithstanding the use of *AEMO's* reasonable endeavours, *AEMO* will not be taken to have breached such obligation.

(d) *AEMO* must make accessible to *Registered Participants* such information as:

(1) *AEMO* considers appropriate;

(2) *AEMO* is permitted to disclose in order to assist *Registered Participants* to make appropriate *market* decisions; and

(3) *AEMO* is able to disclose to enable *Registered Participants* to consider initiating procedures to manage the potential risk of any necessary action by *AEMO* to restore or maintain *power system security*,

provided that, in doing so, *AEMO* must use reasonable endeavours to ensure that such information is available to those *Registered Participants* who request the information on equivalent bases.

(e) The *Jurisdictional System Security Coordinator* for a *participating jurisdiction* may nominate an individual to be the principal point of contact with *AEMO* for the *Jurisdictional System Security Coordinator*.

(f) The *Jurisdictional System Security Coordinator* for each *participating jurisdiction* must provide *AEMO* with:

(1) a schedule of *sensitive loads* in that jurisdiction, specifying:

(i) the priority, in terms of security of *supply*, that each *load* specified in the schedule has over the other *loads* specified in the schedule; and

(ii) the *loads* (if any) for which the approval of the *Jurisdictional System Security Coordinator* must be obtained by *AEMO* under clause 4.3.2(l); and

(2) a schedule setting out the order in which *loads* in the *participating jurisdiction*, other than *sensitive loads*, may be shed by *AEMO* for the purposes of undertaking any *load shedding* under rule 4.8.

(g) A *Jurisdictional System Security Coordinator* may from time to time amend the schedules provided to *AEMO* under clause 4.3.2(f) and must provide to *AEMO* a copy of the amended schedules.

(h) *AEMO* must develop, update and maintain:

(1) a set of procedures for each *participating jurisdiction* under which *loads* will be shed (by means other than an *emergency frequency control scheme* included in an *EFCS settings schedule*) and restored in accordance with the priorities set out in the schedules for that *participating jurisdiction* (which procedures for a *participating jurisdiction* shall be known as the *load shedding procedures* for that jurisdiction); and

(2) schedules for each *participating jurisdiction* specifying, for each *emergency frequency control scheme* affecting each *region* in that *participating jurisdiction*, settings for operation of the scheme including the matters specified in paragraphs (m) to (p) (which

schedule for a *participating jurisdiction* shall be known as the *EFCS settings schedule* for that jurisdiction).

(ha) In developing and updating *EFCS settings schedules*, *AEMO* must consult with:

(1) affected *Network Service Providers*;

(2) the relevant *Jurisdictional System Security Coordinators*, in the case of information in the schedule relating to an *under-frequency scheme*; and

(3) affected *Generators* and *Integrated Resource Providers* in the case of information in the schedule relating to an *over-frequency scheme*.

(i) *AEMO* must provide the *Jurisdictional System Security Coordinator* for a *participating jurisdiction* with a copy of the *load shedding procedures* and the *EFCS settings schedule* for that *participating jurisdiction*, as amended from time to time.

(j) The *load shedding procedures* and the *EFCS settings schedule* for a *participating jurisdiction* must be consistent with the schedules of the *participating jurisdiction* provided under clause 4.3.2(f) and must, without limitation, include a requirement that:

(1) automatic *disconnection* of a *sensitive load* under clause 4.3.5(a) is not to occur until the occurrence of a specified *power system frequency* referred to in the *load shedding procedures* or *EFCS settings schedule*;

(2) any such *sensitive load* (or part thereof) which would otherwise have been part of a block of *interruptible load* in an under-*frequency* band specified in clause 4.3.5(b), must be replaced in that band in relation to the *participating jurisdiction* with an equivalent amount of *interruptible load* nominated by other *Market Customers* in the relevant *participating jurisdiction*;

(3) after *supply* is interrupted to a *load*, *supply* to that *load* must be restored as soon as this can be achieved and in accordance with the schedules of *loads* referred to in clause 4.3.2(f); and

(4) in the case of the *load shedding procedures*, in the event of a major *supply* shortfall, the rotation of any *load shedding* requirements within *regions* (or parts of *regions*) in the *participating jurisdiction* must be in accordance with the *load shedding procedures*.

(k) Notwithstanding any other provision of the *Rules*, *AEMO* must use its reasonable endeavours to ensure that the *power system* is operated in a manner that maintains security of *supply* to any *sensitive loads* prescribed by the *Jurisdictional System Security Coordinator* for each *participating jurisdiction* under clause 4.3.2(f).

(l)

(1) Notwithstanding any other provision of the *Rules*, in the event that *AEMO*, in its reasonable opinion for reasons of public safety or for *power system security*, needs to interrupt *supply* to any *sensitive loads*, *AEMO* may only give a direction requiring that interruption:

(i) in accordance with the *load shedding procedures*; and

(ii) if it is a *sensitive load* of a type described in clause 4.3.2(f)(1)(ii), once the *Jurisdictional System Security Coordinator* for the relevant *participating jurisdiction* has given *AEMO* its approval (which approval must not be unreasonably withheld).

(2) Other than to ensure the maintenance of *power system security* or public safety, after *disconnection*, notwithstanding any other provision of the *Rules*, *AEMO* must not take any steps to prevent the reconnection of a *sensitive load* of the type described in clause 4.3.2(f)(1)(ii) without the approval of the *Jurisdictional System Security Coordinator* for the relevant *participating jurisdiction* (which approval must not be unreasonably withheld).

(3) *AEMO* must seek the approval of the relevant *Jurisdictional System Security Coordinator* for the order in which a *sensitive load* is to be shed and restored under an *EFCS settings schedule* (which approval must not be unreasonably withheld).

(m) For each *under-frequency scheme*, the applicable *EFCS settings schedule* must set out the manner in which *loads* are to be shed and restored.

(n) For each *over-frequency scheme*, the applicable *EFCS setting schedule* must set out the manner in which *generating units* or *bidirectional units* will be interrupted or have output reduced.

(o) *AEMO* must determine the matters referred to in paragraph (n) in a manner *AEMO* considers is best calculated to be consistent with the *power system security* principles in clause 4.2.6. To that end, *AEMO* 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*.

(p) Subject to paragraph (i), *EFCS settings schedules* are *confidential information*.

4.3.6 System restart test obligations

Test program

(a) The relevant *Transmission Network Service Provider* and the *Registered Participants* notified of a *system restart test* under paragraph (b), or identified under paragraph (c), are *Test Participants*.

(b) *AEMO* may, by notice to the relevant *Transmission Network Service Provider*, *SRAS Providers* and any other *Generators* and *Integrated Resource Providers* that *AEMO* considers would be required to participate, request the conduct of a *system restart test* for an *electrical sub-network* to verify whether the *system restart plan* as it relates to that *electrical sub-network* is likely to be consistent with the achievement of the *system restart standard* or the *AEMO power system security responsibilities*.

(c) If a *Transmission Network Service Provider* receives a notice under paragraph (b), it must, within 10 *business days* or such other period proposed by the *Transmission Network Service Provider* and accepted by *AEMO* (acting reasonably), notify *AEMO* of any other *Registered Participant* in

respect of *facilities* connected to its *network* that it considers would be required to participate in the *system restart test*.

(d) *AEMO* must consult with the *Test Participants* on the timing and scope of the *system restart test* and, after considering any submissions, notify the *Test Participants* of the proposed *energisation* path and approximate timing of the *system restart test*.

(e) Each *Test Participant* must:

(1) within 15 *business days* of receiving notice under paragraph (d), or such longer period agreed to by *AEMO* (acting reasonably), prepare and submit to *AEMO* detailed *system restart test* procedures for its *facilities* that will be included in the *system restart test*; and

(2) within 10 *business days* of receiving a request, or such longer period agreed to by *AEMO* or the *Transmission Network Service Provider* (acting reasonably), provide any other information reasonably requested by *AEMO* or the *Transmission Network Service Provider* about the operation of its *facilities*.

(f) After consulting with the *Test Participants* and incorporating the *system restart test* procedures and any other information provided under paragraph (e), *AEMO* may prepare a *test program* and provide that *test program* to the *Test Participants*.

(g) The *test program* must be designed to achieve the objective of the *system restart test* set out in paragraph (b) having regard to the following principles:

(1) *power system security* must be maintained in accordance with Chapter 4;

(2) the extent and duration of variation from the *central dispatch* outcomes that would otherwise occur in the absence of the *system restart test* should be minimised; and

(3) to the extent reasonably practicable, the timing, duration and technical specifications of the *system restart test* should consider and be coordinated with the operational requirements of the *Test Participants* so as to minimise the cost and impact of the *system restart test* on the operations of all parties.

(h) The *test program* must include:

(1) at least 2 periods for testing (each a **test window**) of not more than 4 weeks, in which a *system restart test* may occur;

(2) unless otherwise agreed by *AEMO* and all *Test Participants*, a first test window that starts at least 30 *business days* after the date the *test program* is provided to the *Test Participants* under paragraph (f); and

(3) a proposed test date that occurs in the first test window.

(i) If, at any time before or during a *system restart test*, *AEMO* considers that it is necessary to modify the *test program*, *AEMO* may modify the *test program* (including the proposed test date) by giving notice as soon as reasonably practicable to the *Test Participants*. If *AEMO* defers the *system restart test*, it must reschedule the *system restart test* to a date within a test window

specified in the *test program* having regard to the principles in paragraph (g), by giving notice to the *Test Participants* as soon as reasonably practicable.

(j) *AEMO* and the *Test Participants* must conduct the *system restart test* in accordance with the *test program*, as may be modified under paragraph (i).

(k) Each *Test Participant* must:

(1) prepare and provide the *system restart test* procedures and information required under paragraph (e) in accordance with *good electricity industry practice*;

(2) cooperate with, and comply with instructions given by *AEMO* and the *Transmission Network Service Provider* in conducting the *system restart test*; and

(3) act in good faith in respect of, and not unreasonably delay, the preparation for and conduct of the *system restart test*.

Costs

(l) Each *Test Participant* and *AEMO* must bear its own costs associated with *system restart tests* except to the extent provided for under this clause 4.3.6. Nothing in this clause 4.3.6 prevents recovery of testing costs under an *ancillary services agreement*.

(m) A *Test Participant* (other than a *Transmission Network Service Provider*, *Distribution Network Service Provider* or *SRAS Provider*) that is required to participate in a *system restart test* may, within 10 *business days* after the date of the *system restart test* or the permanent deferral of a *system restart test*, submit a written claim to *AEMO* for compensation in respect of its direct costs incurred as a result of its participation in the *system restart test* or preparing for a deferred *system restart test*, where direct costs:

(1) include fuel costs and incremental operation and maintenance costs attributable to the specific circumstances related to the *facility's* operation during, or in preparation for, a *system restart test*; and

(2) exclude claims for loss of revenue (including from the *market*), losses by third parties and opportunity costs.

(n) A *Test Participant* may only submit one claim under paragraph (m) in respect of each *system restart test* and each claim must contain sufficient detail and supporting information to substantiate each component of the direct costs claimed.

(o) *AEMO* must:

(1) if the total amount of all claims by *Test Participants* in relation to the same *system restart test* is less than $100,000 and *AEMO* determines, at its sole discretion, that all such claims are reasonable, pay the amount claimed as soon as reasonably practicable; or

(2) otherwise, refer the claim to an independent expert to determine the claim and pay the amount determined by the independent expert.

(p) A referral of a claim by *AEMO* to an independent expert under subparagraph (o)(2), and the determination of the independent expert, must be consistent with the requirements of clause 3.12.3 except that, in applying that clause:

(1) each relevant *Test Participant* is taken to be a *Referred Directed Participant* and the *system restart test* is taken to be an *AEMO intervention event*;

(2) references to *intervention settlement timetable* are taken to be references to a timetable published by *AEMO* on its website for the independent expert's appointment and to be included in their terms of engagement, with the objective of publishing the final report within 20 weeks of the date of the referral;

(3) the independent expert must only apply the principles in paragraph (m) in determining compensation; and

(4) references to paragraphs in clause 3.12.3 are taken to be references to paragraphs in this clause 4.3.6 as appropriate.

(q) *AEMO* must recover the amount of any compensation paid under paragraph (o) from relevant *Market Participants* in accordance with clause 3.15.6A(d).

(r) The *AER* must exclude the impact of any *system restart test* from the operation of a *service target performance incentive scheme* for a *Transmission Network Service Provider*.

Results and reporting

(s) Each *Test Participant* must:

(1) within 1 month of completion of a *system restart test*, give *AEMO* any relevant data, measurements, results and analysis required by the *SRAS Guideline* or the *test program*; and

(2) promptly comply with any reasonable request by *AEMO* for other data, measurements, results and analysis of the performance of its *facilities* in the *system restart test.*

(t) Within 3 months of completion of a *system restart test*, *AEMO* must:

(1) provide a detailed report to the *Transmission Network Service Provider* on the results of the *system restart test*; and

(2) report to each other *Test Participant* on the performance of its *facilities* in the *system restart test*.

4.4 Power System Frequency Control

4.4.2 Operational frequency control requirements

To assist in the effective control of *power system frequency* by *AEMO* the following provisions apply:

(a) *AEMO* may give *dispatch instructions* in respect of ~~*scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services*~~*scheduled resources* and *market ancillary services* pursuant to rule 4.9;

(b) each *Generator* and *Integrated Resource Provider* must ensure that all of its *generating units* and *bidirectional units* meet the technical requirements for *frequency* control in clause S5.2.5.11;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) *AEMO* must use reasonable endeavours to arrange to be available and allocated to *regulating duty* such *generating units* or *bidirectional units* ~~*generating plant*~~ as *AEMO* considers appropriate for automatic control or direction by *AEMO* to ensure that all normal *load* variations do not result in *frequency* deviations outside the limitations specified in clause 4.2.2(a);

(c1) [**Deleted**]

(d) *AEMO* must use reasonable endeavours to ensure that adequate *facilities* are available and under the direction of *AEMO* to allow the managed recovery of the *satisfactory operating state* of the *power system*.

4.4.2A [Deleted]

4.4.2B [Deleted]

4.4.3 Generator protection requirements

Generators and *Integrated Resource Providers* must, in accordance with schedule 5.2 and Chapter 5, provide any necessary automatically initiated protective device or systems to protect their *plant* and associated *facilities* against abnormal *voltage* and extreme *frequency* excursions of the *power system*.

Note

This clause is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.4.4 Instructions to enable inertia network services

(a) Where a *contingency event* that would result in the *islanding* of an *inertia sub-network* has been classified as a *credible contingency event* or defined as a *protected event*:

(1) *AEMO* may require a range and quantity of *inertia network services* to be *enabled* that will provide *inertia* to the *inertia sub-network* to the level required under subparagraph (2) while the *contingency event* remains classified or defined in that way; and

(2) the level of *inertia* referred to in subparagraph (1) is:

(i) the *minimum threshold level of inertia* for the *inertia sub-network*; or

(ii) if the *minimum threshold level of inertia* for the *inertia sub-network* has been adjusted for *inertia support activities* under clause 5.20B.5(a), that adjusted level of *inertia*.

(b) Where an *inertia sub-network* is *islanded*:

(1) *AEMO* may *enable* a range and quantity of *inertia network services* that will provide *inertia* to the *inertia sub-network* to the level required under subparagraph (2) while the *inertia sub-network* remains *islanded*; and

(2) the level of *inertia* referred to in subparagraph (1) is:

(i) the *secure operating level of inertia* for the *inertia sub-network*; or

(ii) if the *secure operating level of inertia* for the *inertia sub-network* has been adjusted for *inertia support activities* under clause 5.20B.5(a), that adjusted level of *inertia*.

(c) In selecting the *inertia network services* to be *enabled* under paragraph (a) or (b), *AEMO* must use reasonable endeavours to select services in the order of priority specified by the *Inertia Service Provider* in its schedule of *inertia network services* given to *AEMO* under clause 5.20B.6(a).

(d) For the purposes of paragraphs (a) and (b), *AEMO* may at any time give an instruction to an *Inertia Service Provider* who is providing *inertia network services* or a *Registered Participant* who has agreed with an *Inertia Service Provider* to provide *inertia network services* stating that *AEMO* requires *inertia network services* to be *enabled*. Where *inertia network services* are provided by an ~~*inertia generating unit*~~*inertia unit*, the instruction must be given in accordance with the procedures for giving *dispatch instructions* under the *Rules*. Otherwise, the instruction must be given in accordance with the arrangements for giving instructions applicable to the *inertia network service* approved by *AEMO* under clause 5.20B.6(e).

(e) *AEMO* may at any time give an instruction stating that *AEMO* requires the provision of an *inertia network service* to cease. The instruction must be given in the manner provided for in paragraph (d).

(f) An instruction to *enable* or cease providing *inertia network services* must include:

(1) specific reference to the *inertia network service* to which the instruction applies;

(2) the time the instruction is issued; and

(3) the time at which the service is to be *enabled* or cease, if that is different from the time the instruction is issued.

(g) An *Inertia Service Provider* or *Registered Participant* providing *inertia network services* must comply with an instruction given under paragraph (d) or (e).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) An *Inertia Service Provider* or *Registered Participant* providing *inertia network services* must ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon

instructions issued by *AEMO* to *enable* the *inertia network service* or cease providing it.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.4.5 Instructions to enable system strength services

(a) *AEMO* may at any time *enable* a range and quantity of *system strength services* to maintain the minimum *three phase fault level* at a *system strength node* when the *three phase fault level* at the *system strength node* would otherwise be below the minimum *three phase fault level* or when reasonably considered necessary by *AEMO* to maintain the *power system* in a *secure operating state*.

(b) In selecting the *system strength services* to be *enabled* under paragraph (a), *AEMO* must use reasonable endeavours to select services in the order of priority specified by the *System Strength Service Provider* in its schedule of *system strength services* given to *AEMO* under clause 5.20C.4(a).

(c) For the purposes of paragraph (a), *AEMO* may at any time give an instruction to a *System Strength Service Provider* who is providing *system strength services* or a *Registered Participant* who has agreed with a *System Strength Service Provider* to provide *system strength services* stating that *AEMO* requires *system strength services* to be *enabled*. Where the *system strength services* are provided by a *system strength production unit*~~*system strength generating unit*~~, the instruction must be given in accordance with the procedures for giving *dispatch instructions* under the *Rules*. Otherwise, the instruction must be given in accordance with the arrangements for giving instructions applicable to the *system strength service* approved by *AEMO* under clause 5.20C.4(e).

(d) *AEMO* may at any time give an instruction stating that *AEMO* requires the provision of a *system strength service* to cease. The instruction must be given in the manner provided for in paragraph (c).

(e) An instruction to *enable* or cease providing *system strength services* must include:

(1) specific reference to the *system strength service* to which the instruction applies;

(2) the time the instruction is issued; and

(3) the time at which the service is to be *enabled* or cease, if that is different from the time the instruction is issued.

(f) A *System Strength Service Provider* or a *Registered Participant* providing *system strength services* must comply with an instruction given under paragraph (c) or (d).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) A *System Strength Service Provider* or a *Registered Participant* providing *system strength services* must ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon instructions issued by *AEMO* to enable the *system strength service* or cease providing it.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.6 Protection of Power System Equipment

4.6.6 System strength impact assessment guidelines

(a) *AEMO* must make, publish and may amend *system strength impact assessment guidelines* that:

(1) in accordance with paragraph (b), set out the methodology to be used by *Network Service Providers* when undertaking *system strength impact assessments* under clause 5.3.4B and calculating a *system strength locational factor*;

(2) define, and provide guidance on the calculation of, *available fault levels* at *system strength nodes* including for the purposes of forecasts under clause 5.20C.3(f)(3) and for the calculation of the *system strength locational factor* for a *connection point*;

(3) prescribe, for clauses S5.2.5.15(b), S5.3.11(b) and S5.3a.7(b), the methodology for assessing the *short circuit ratio*;

(4) provide guidance on the information that must be provided to demonstrate compliance with the *minimum access standard* in clause S5.2.5.15(b), clause S5.3.11(b) or clause S5.3a.7(b) (as applicable), or if the procedures in clause 5.3.4A have been followed, the relevant *negotiated access standard*;

(5) prescribe, for the purposes of the definition of *inverter based load* in Chapter 10, the criteria for classification of *plant* ~~*a load*~~ as an *inverter based load*;

(6) prescribe, for the purposes of the definition of *large inverter based resource* in Chapter 10, the criteria for classification of an *inverter based resource* as a *large inverter based resource* which must take into account *plant* type and size and other matters *AEMO* considers relevant to identifying *inverter based resources* that may have a *general system strength impact* above the threshold referred to in subparagraph (b)(7);

(7) describe how *AEMO* assesses *adverse system strength impacts*; and

(8) provide guidance on the methodology to be used by *Network Service Providers* when undertaking modelling to verify the stability of *plant* in accordance with clause 5.3.4B(a2)(4).

(b) For subparagraph (a)(1), the *system strength impact assessment guidelines* must:

(1) provide for a two-stage assessment process comprising:

(i) a preliminary assessment to screen for the need for a full assessment and calculate the applicable *system strength locational factor*; and

(ii) a full assessment to be used in the circumstances described in clause 5.3.4B(a2)(3);

(1A) require the preliminary assessment to be carried out using a simple isolated model such as a single machine infinite bus model;

(2) require the full assessment to be carried out using a *power system* model that is reasonably appropriate for conducting *system strength impact assessments* and applicable to the location the *transmission network* or *distribution network* at which the *facility* is or may be *connected* and specified by *AEMO* from time to time for this purpose;

(3) exclude from the assessment of the *general system strength impact* the impact on any *protection system* for a *transmission network* or *distribution network*;

(4) provide guidance about the different *network* conditions and *dispatch* patterns and other relevant matters that should be examined when undertaking a full assessment;

(5) specify the nature of the impacts that *AEMO* considers to *general system strength impacts* for the purposes of clause 5.3.4B;

(6) provide guidance about the matters that must be considered when determining whether a *connection* or alteration will result in a *general system strength impact*;

(7) include if applicable any thresholds below which an impact may be disregarded for the purposes of clause 5.3.4B(f)(3);

(8) provide general guidance about options for *system strength remediation schemes* and *system strength connection works*;

(9) specify a methodology for calculation of the *system strength locational factor* for a *connection point*, which must be representative of the impedance between the *connection point* and the applicable *system strength node* and must use *available fault level* as the basis for the methodology; and

(10) provide guidance about the circumstances in which a *system strength locational factor* is not reasonably able to be determined or would be manifestly excessive.

Example

Where the *system strength locational factor* tends to infinity, or where it would result in a *system strength charge* that could not reasonably be expected to be paid in preference to *system strength connection works* or a *system strength remediation scheme*.

(c) Subject to paragraph (d), *AEMO* must comply with the *Rules consultation procedures* when making or amending the *system strength impact assessment guidelines*.

(d) *AEMO* may make minor or administrative amendments to the *system strength impact assessment guidelines* without complying with the *Rules consultation procedures*.

(e) *AEMO* must provide the model referred to in subparagraph (b)(2) to a *Local Network Service Provider* or, subject to paragraph (f), to a person seeking a *connection* or proposing to alter *connected plant* referred to in clause 5.3.4B(a) who requests the model in connection with a *system strength impact assessment*.

(f) If *AEMO* receives a request under paragraph (e) from a person seeking a *connection* or proposing to alter *connected plant* referred to in clause 5.3.4B(a):

(1) *AEMO* must treat the request as if it were information reasonably required by a *Registered Participant* under clause 3.13.3(k)(2) and *AEMO* is only required to provide the model referred to in subparagraph (b)(2) (or the source code for that model) in the form contemplated by clause 3.13.3(l)(2); and

(2) *AEMO* may require a *Connection Applicant* who is not a *Registered Participant* to give an undertaking in a form satisfactory to *AEMO* to comply with rule 8.6 as if the *Connection Applicant* were a *Registered Participant* as a condition of providing a model to the *Connection Applicant* under paragraph (e).

4.8 Power System Security Operations

4.8.3 AEMO's advice on power system emergency conditions

(a) *AEMO* must *publish* all relevant details promptly after *AEMO* becomes aware of any circumstance with respect to the *power system* which, in the reasonable opinion of *AEMO*, could be expected to materially adversely affect *supply* to or from *Registered Participants*.

(b) Without limitation, such circumstances may include:

(1) electricity *supply* capacity shortfall, being a condition where there are insufficient *generation* or *supply* options available to securely *supply* the total *load* ~~load~~ in a *region*;

(2) unexpected disruption of *power system security*, which may occur when:

(i) an unanticipated major *power system* or *generation plant* (including for a *bidirectional unit*) *contingency event* occurs; or

(ii) significant environmental or similar conditions, including weather, storms or fires, are likely to, or are affecting, the *power system*; or

(3) a *major supply disruption*.

4.8.5 Managing declarations of conditions

(a) *AEMO* must as soon as reasonably practicable *publish* any declaration under clause 4.8.4.

(a1) The *publication* of any such declaration must, to the extent reasonably practicable, include the following:

(1) the nature and extent of the *low reserve* or *lack of reserve* condition; and

(2) the time period over which the *low reserve* or *lack of reserve* condition applies.

(b) If *AEMO* makes a declaration under clause 4.8.4, *AEMO* must use its reasonable endeavours to follow the processes set out in clauses 4.8.5A and 4.8.5B.

(c) Following a declaration under clause 4.8.4, *AEMO* must as soon as reasonably practicable *publish* notice of:

(1) any cancellation of that declaration; or

(2) any significant change in the *low reserve* or *lack of reserve* condition due to changed positions of ~~*Scheduled Network Service Providers, Market Customers, Demand Response Service Providers, Semi-Scheduled Generators* and *Scheduled Generators*~~*Market Participants* in respect of *scheduled resources* or due to other reasons.

4.8.5A Determination of the latest time for AEMO intervention

(a) *AEMO* must immediately *publish* a notice of any foreseeable circumstances that may require *AEMO* to implement a *AEMO intervention event*.

(b) A notice referred to in paragraph (a) must include the forecast circumstances creating the need for the *AEMO intervention event*.

(c) *AEMO* must, as soon as reasonably practicable after the *publication* of a notice in accordance with paragraph (a), estimate and *publish* the latest time at which it would need to intervene through a *AEMO intervention event* should the response from the *market* not be such as to obviate the need for the *AEMO intervention event*.

(d) In order to estimate the time referred to in paragraph (c), *AEMO* may request information from a *Scheduled Network Service Provider*, *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Market Customer* and may specify the time within which that information is to be provided.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) The information that *AEMO* may request in accordance with paragraph (d) may include, but is not limited to:

(1) *plant* status;

(2) any expected or planned *plant outages* and the MW capacity affected by the *outage*, proposed start date and time and expected end date and time associated with the *outage* and an indication of the possibility of deferring the *outage*; and

(3) estimates of the relevant costs to be incurred by the *Scheduled Network Service Provider*, *Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Market Customer* should it be the subject of a *direction*, but only if *AEMO* considers it reasonably likely that such *Scheduled Network Service Provider*, *Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Market Customer* will be subject to a *direction*.

(f) A *Scheduled Network Service Provider*, *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator*, *Scheduled Integrated Resource Provider* or *Market Customer* must use reasonable endeavours:

(1) to comply with a request for information under paragraph (d); and

(2) to provide *AEMO* with the information required in the time specified by *AEMO*.

(g) *AEMO* must regularly review its estimate of the latest time at which it would need to intervene through an *AEMO intervention event*, and *publish* any revisions to the estimate.

(h) *AEMO* must treat any information provided in response to a request under paragraph (d) as *confidential information* and use it for the sole purpose of assessing to which *Scheduled Network Service Provider*, *Market Customer*, ~~or~~ *Scheduled Generator* or *Scheduled Integrated Resource Provider* it should issue *directions*.

4.8.7 Managing a power system contingency event

(a) During the period when the *power system* is affected by a *contingency event* *AEMO* must carry out actions, in accordance with the guidelines set out in the *power system security standards* and its obligations concerning *sensitive loads*, to:

(1) identify the impact of the *contingency event* on *power system security* in terms of the capability of *generating units*, *bidirectional units*, ~~or~~ *transmission networks* or *distribution networks*; and

(2) identify and implement the actions required in each affected *region* to restore the *power system* to its *satisfactory operating state*.

(b) When *contingency events* lead to potential or actual electricity *supply* shortfall events, *AEMO* must follow the procedures outlined in clause 4.8.9.

4.8.9 Power to issue directions and clause 4.8.9 instructions

(a) Notwithstanding any other provision of rule 4.8:

(1) *AEMO* may require a *Registered Participant* to do any act or thing if *AEMO* is satisfied that it is necessary to do so to maintain or re-establish the *power system* to a *secure operating state*, a *satisfactory operating state*, or a *reliable operating state*; and

(2) *AEMO* may authorise a person to do any of the things contemplated by section 116 of the *NEL* if *AEMO* is satisfied that it is necessary to do so for reasons of public safety or the security of the electricity system.

(a1) If *AEMO*, or a person authorised by *AEMO*, requires a *Registered Participant* to:

(1) take action as contemplated by clause 4.8.9(a) or section 116 of the *NEL* in relation to ~~*scheduled plant*~~*a scheduled resource* (other than a *wholesale demand response unit*), an *ancillary service unit*,~~or~~ a *market generating unit* or a *market bidirectional unit*, *AEMO* is taken to have issued a *direction*; or

(2) take some other action contemplated by clause 4.8.9(a) or section 116 of the *NEL*, *AEMO* is taken to have issued a *clause 4.8.9 instruction*.

(a2) *AEMO* must use reasonable endeavours to ensure that persons authorised by *AEMO* under clause 4.8.9(a)(2) follow all relevant processes in clause 4.8 prior to issuing a *direction*, unless it is not reasonably practical to do so.

(b) *AEMO* must develop, and may amend from time to time, in accordance with the *Rules consultation procedures*, procedures for the issuance of *directions*. Such procedures must reflect the following principles:

(1) *AEMO* must use its reasonable endeavours to minimise any cost related to *directions* and compensation to *Affected Participants*, *Affected Load Participants* ~~*Market Customers*~~ and *Ancillary Service Providers* pursuant to clause 3.12.2 and compensation to *Directed Participants* pursuant to clauses 3.15.7 and 3.15.7A;

(2) a *direction* should be revoked as soon as *AEMO* determines that the *direction* is no longer required;

(3) *AEMO* must take into account any applicable guidelines issued by the *Reliability Panel*;

(4) *AEMO* must observe its obligations under clause 4.3.2 concerning *sensitive loads*;

(5) *AEMO* must expressly notify a *Directed Participant* that *AEMO's* requirement or that of another person authorised by *AEMO* pursuant to clause 4.8.9(a) is a *direction*.

(c) A *Registered Participant* must use its reasonable endeavours to comply with a *direction* or *clause 4.8.9 instruction* unless to do so would, in the *Registered Participant's* reasonable opinion, be a hazard to public safety, or materially risk damaging equipment, or contravene any other law.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c1) Subject to clause 4.8.9(c) a *Registered Participant* must use its best endeavours to comply with a *direction* or *clause 4.8.9 instruction* in accordance with the timeframe specified by *AEMO* in the *direction* or *clause 4.8.9 instruction*.

(c2) A *Market Participant* must not by any act or omission, whether intentionally or recklessly, cause or significantly contribute to the circumstances causing a *direction* to be issued, without reasonable cause.

(d) A *Registered Participant* must immediately notify *AEMO* of its inability to comply or its intention not to comply with a *direction* or *clause 4.8.9 instruction*.

(e) If a *Registered Participant* does not comply with a *direction* or *clause 4.8.9 instruction*, it must within 2 *business days* of the *direction* or *clause 4.8.9 instruction* deliver to *AEMO* and the *AER* a report detailing the reasons for the non compliance together with all relevant facts.

(f) *AEMO* must *publish* a report in accordance with clause 3.13.6A.

(g) Any *Registered Participant* who is aware of a failure to comply with a *direction* or *clause 4.8.9 instruction* or who believes any such failure has taken place must notify *AEMO* and the *AER* in writing and as soon as practicable of that fact.

(h) If *AEMO* issues a *direction* or *clause 4.8.9 instruction*, *AEMO* may, to give effect to the *direction* or *clause 4.8.9 instruction*:

(1) submit, update or vary *dispatch bids*~~, *dispatch offers*~~ or *rebids* in relation to the *plant* of *Directed Participants* and *Affected Participants*; or

(2) change other inputs to the *dispatch process*.

(i) When issuing *clause 4.8.9 instructions* to implement *load shedding* across *interconnected regions*, *AEMO* must use reasonable endeavours to implement *load shedding* in an equitable manner as specified in the *power system security standards*, taking into account the *power transfer capability* of the relevant *networks*.

(j) When issuing *clause 4.8.9 instructions* to implement *load shedding*, *AEMO* must comply with its obligations under clauses 4.3.2(e) to (l) and Part 8 of the *NEL*.

4.8.10 Disconnection of generating units, bidirectional units and market network services

(a) Where, under the *Rules*, *AEMO* has the authority or responsibility to *disconnect* a *generating unit*, a *bidirectional unit* or a *market network service*, then it may do so (either directly or through any agent) as described in rule 5.9.

(b) The relevant *Generator*, *Integrated Resource Provider* or *Market Network Service Provider* must provide all reasonable assistance to *AEMO* for the purpose of such *disconnection*.

4.8.12 System restart plan and local black system procedures

System restart plan

(a) *AEMO* must prepare, and may amend, a *system restart plan* for the purpose of managing and coordinating system restoration activities during any *major supply disruption*.

(a1) The *system restart plan* must cover the entire *national grid* but may consist of one or more separable components.

(a2) For the purposes of section 54A(2) of the *NEL*, *AEMO* may disclose the whole or any component of the *system restart plan* to:

(1) a *Jurisdictional System Security Coordinator*;

(2) a *Network Service Provider*;

(3) a *Generator* or *Integrated Resource Provider* contracted to provide *SRAS*;

(4) any other *Registered Participant* whose assistance *AEMO* considers is necessary for the implementation of the *system restart plan*,

for the purposes of preparing for, and participating in, system restoration activities during a *major supply disruption*.

(a3) A *Jurisdictional System Security Coordinator* to whom the whole or any component of the *system restart plan* is provided to under paragraph (a2)(1) is deemed to be a *Registered Participant* for the purposes of Part C of Chapter 8.

(b) The *system restart plan* is *confidential information*.

(c) The *system restart plan* must be consistent with the *system restart standard*.

Local black system procedures

(d) Each *Generator*, *Integrated Resource Provider* and *Network Service Provider* must develop *local black system procedures* in accordance with the guidelines referred to in clause 4.8.12(e). ~~*A Generator's* or *Network Service Provider's*~~The *Registered Participant's* *local black system procedures* must be consistent with any *ancillary services agreement* to provide *SRASs* to which that *Registered Participant* ~~*Generator* or *Network Service Provider*~~ is a party. On request from *AEMO*, or as a result of a significant change of circumstances, a *Registered Participant*~~*Generator* or *Network Service Provider*~~ must review, and amend if appropriate, its *local black system procedures*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) Subject to clause 4.8.12(f), *AEMO* must develop and *publish*, and may amend, guidelines for the preparation of *local black system procedures* in consultation with *Generators*, *Integrated Resource Providers* and *Network Service Providers*.

(f) *Local black system procedures* must:

(1) provide sufficient information to enable *AEMO* to understand the likely condition and capabilities of *plant* following any *major supply disruption* such that *AEMO* is able to effectively co-ordinate the safe implementation of the *system restart plan*;

(1A) include any action the *Generator*, *Integrated Resource Provider* or *Network Service Provider* must take following any *major supply disruption* prior to *energisation* or *synchronisation*; and

(2) appropriately incorporate any relevant *energy support arrangements* to which a *Generator*, *Integrated Resource Provider* or *Network Service Provider* may be party.

(g) Each *Generator*, *Integrated Resource Provider* and *Network Service Provider* must submit its *local black system procedures*, including any amendments to those procedures, to *AEMO* for approval. In considering whether to grant approval, *AEMO* must take into account the consistency of the *local black system procedures* with:

(1) the guidelines referred to in clause 4.8.12(e); and

(2) relevant components of the *system restart plan*.

(h) *AEMO* may request amendments to *local black system procedures*, including, without limitation, imposing conditions in respect of any *energy support arrangement* as *AEMO* reasonably considers necessary to ensure the integrity of the *system restart plan*. When requesting amendments to the *local black system procedures*, *AEMO* must provide reasons for those requested amendments.

(i) Requests by *AEMO* for amendments under clause 4.8.12(h) must be by notice in writing to a *Generator*, *Integrated Resource Provider* or *Network Service Provider*. Reasonable requests by *AEMO* for amendments under clause 4.8.12(h) must be complied with by a *Generator*, *Integrated Resource Provider* or *Network Service Provider*.

Communication protocols

(j) *AEMO* and *Network Service Providers* must jointly develop, and may jointly amend, written communication protocols to facilitate the exchange of all information relevant to the roles played by *AEMO* and other *Registered Participants* in the preparation and implementation of the *system restart plan*.

(k) The written communication protocols prepared under clause 4.8.12(j) must:

(1) specify the categories of information required to, and the timing and process by which information will, be exchanged between:

(i) *AEMO* and *Registered Participants* as relevant, in order for *AEMO* to prepare and implement the *system restart plan* and for *AEMO* and the relevant parties to give effect to the *system restart plan*;

(ii) *Transmission Network Service Providers* and parties connected to the *Transmission Network Service Provider's transmission network* regarding the nature of *connection point* and *load* characteristics;

(iii) *Network Service Providers*, ~~and~~ *Generators* and *Integrated Resource Providers* regarding *connection point* characteristics and the steps that may need to be conducted before or during the process of restoring the *power system*; and

(iv) *Distribution Network Service Providers* and parties connected to the *Distribution Network Service Provider's distribution network* regarding the nature of *connection point* and *load* characteristics.

(2) where the communication protocols prepared under clause 4.8.12(j) are constituted by a number of documents, be clearly identifiable as the communication protocols established under that clause; and

(3) where the communication protocols incorporate procedures or protocols in other documents, the document must be clearly identified and referenced and the circumstances under which those procedures or protocols are to be used in a *major supply disruption* must be clearly identified.

(l) *AEMO* and relevant *Registered Participants* must take all reasonable steps to comply with the written communication protocols developed pursuant to clause 4.8.12(j).

(m) *AEMO* and relevant *Registered Participants* must comply with a reasonable request for information made by *AEMO* or a *Network Service Provider* pursuant to the written communication protocols prepared pursuant to clause 4.8.12(j).

4.8.14 Power system restoration

(a) *AEMO* must notify a *Registered Participant* if, in *AEMO's* reasonable opinion, there is a *major supply disruption* which is affecting, or which may affect, that *Registered Participant*.

(b) If *AEMO* advises a *Generator*, *Integrated Resource Provider* or *Network Service Provider* of a *major supply disruption*, or if the terms of the relevant *local black system procedures* require the *Generator*, *Integrated Resource Provider* or *Network Service Provider* to take action, then the *Generator*, *Integrated Resource Provider* or *Network Service Provider* must comply with the requirements of the *local black system procedures* as quickly as is practicable.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) Where in *AEMO's* reasonable opinion the *system restart plan* cannot be implemented to effectively ameliorate the actual *power system* conditions created by a *major supply disruption*, *AEMO* may adapt or vary the *system restart plan* as it considers reasonably necessary to suit those actual *power system* conditions.

(d) If there is a *major supply disruption*, a *Generator*, *Integrated Resource Provider* or *Network Service Provider* must comply with *AEMO's directions* or *clause 4.8.9 instructions* regarding the restoration of the *power system*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) If there is a *major supply disruption*, a *Market Customer* must comply with *AEMO's directions* with respect to the timing and magnitude of *load* restoration.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9 Power System Security Related Market Operations

4.9.1 Load forecasting

Definitions

(a0) In this clause 4.9.1:

forecast load (as generated) has the meaning given to it in clause 4.9.1(b).

forecast load (sent out) has the meaning given to it in clause 4.9.1(b).

(a) *AEMO* must produce (at the intervals indicated and in accordance with the *timetable*) an indicative *load* forecast for each *region* for the periods indicated below:

(1) each *day*, a forecast for the *day* ahead, such forecast divided into half-hourly *load* forecasts for each *30-minute period*;

(2) each *day*, a forecast for 2 to 7 *days* (inclusive) ahead, the forecasts for each *day* divided into half-hourly *load* forecasts for each *30-minute period*;

(3) every week, a forecast for the 24 *months* ahead of the *day* on which the forecast is produced, with a daily profile based on an estimated weekly *peak load* condition with allowances for weekends and holidays.

(b) These forecasts must provide an indicative estimate of the total *generation* or *wholesale demand response* capacity required to meet the forecast *load* (called "**forecast load (as generated)**"), and an equivalent estimation of the *supply* required to be delivered to the relevant *transmission network* (called "**forecast load (sent out)**").

(c) The following factors must be taken into account in the development of the *load* forecasts, to the extent that such are relevant to the particular forecast:

(1) the annual *load* forecasts and *load* profiles collected by the *Network Service Providers* from all *Registered Participants* as required by schedule 5.7, including *load* management expectations and expected *sent out generation* from ~~*embedded generating units*~~ *distribution connected units*;

(2) historic *load* data, including *transmission* losses and *power station* in-house use of the *generated* output;

(3) weather forecasts and the current and historic weather conditions and pattern;

(4) the incidence of major events or activities which are known to *AEMO*;

(5) anticipated pumped storage *loads*;

(6) official economic activity forecasts from *participating jurisdictions*;

(6a) *DER register information*;

(6b) *demand side participation information*; and

(7) other information provided by *Registered Participants*.

(d) *AEMO* must develop a methodology to create the indicative *load* forecasts.

(e) **[Deleted]**

(f) **[Deleted]**

(g) The *load* forecasts produced by *AEMO* are indicative only as *AEMO* has no direct influence over *Market Participants* in their decisions about their level of demand and, accordingly, no person may claim any loss or damage from *AEMO* as a result of any difference between *load* forecasts and actual *load*.

4.9.2 Instructions to Scheduled Generators, ~~and~~ Semi-Scheduled Generators and Scheduled Integrated Resource Providers

(a) To implement *central dispatch* or, where *AEMO* has the power to direct or to instruct a *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* either under Chapter 3 or this Chapter, then for the purpose of giving effect to that direction or instruction, *AEMO* may at any time give an instruction to the *Generator* or *Integrated Resource Provider* in relation to any of its *generating units* or *bidirectional units* (a *dispatch instruction*), in accordance with clause 4.9.5(b), nominating:

(1) whether the facilities for *generation* remote control by *AEMO*, if available, must be in service; and

(2) in the case of a:

(i) *scheduled generating unit* or *scheduled bidirectional unit*, the level or schedule of power; and

(ii) *semi-scheduled generating unit*, the *dispatch level*,

applicable ~~to be supplied by the *generating unit*~~ over the specified period.

(b) Subject to paragraph (c), *AEMO* may at any time give an instruction to a *Generator* or *Integrated Resource Provider* in relation to any of its *generating units* with a *nameplate rating* of 30MW or more, or its *generating systems* ~~*systems*~~ of combined *nameplate rating* of 30 MW or more, nominating that:

(1) the *generating unit* or *generating system* transformer is to be set to a nominated tap position (if it has on-load tap changing capability);

(2) the *generating unit's* or *generating system's voltage control system* set-point is to be set to give a nominated *voltage*; or

(3) the *generating unit* or *generating system* is to be operated to supply or absorb a nominated level of *reactive power* at its *connection point*.

(b1) Subject to paragraph (c), *AEMO* may at any time give an instruction to an *Integrated Resource Provider* in relation to any of its *bidirectional units* with a *nameplate rating* of 5 MW or more, or its *integrated resource systems* of combined *nameplate rating* of 5 MW or more, nominating that:

(1) the *bidirectional unit* or *integrated resource system* transformer is to be set to a nominated tap position (if it has on-load tap changing capability);

(2) the *bidirectional unit's* or *integrated resource system's voltage control system* set-point is to be set to give a nominated *voltage*; or

(3) the *bidirectional unit* or *integrated resource system* is to be operated to supply or absorb a nominated level of *reactive power* at its *connection point*.

(c) Unless otherwise provided under an *ancillary services agreement*, a *network support agreement* or a *connection agreement*, *AEMO* must not give an instruction under paragraph (b) or (b1) that requires a *generating unit* or *generating system* or *bidirectional unit* or *integrated resource system* (as applicable) to supply or absorb *reactive power* at a level outside the *plant's* relevant *performance standard*.

(d) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* must, with respect to its *generating units* or *bidirectional units* that have an availability offer of other~~greater~~ than 0 MW (whether *synchronised* or not), ensure that appropriate personnel are available at all times to receive and immediately act upon *dispatch instructions* issued by *AEMO* to the relevant *Generator* or *Integrated Resource Provider*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9.2A Aggregated dispatch conformance for hybrid integrated resource systems

(a) This clause applies to an *integrated resource system*~~s~~ that comprises more than one *scheduled resource* and where *AEMO* gives separate *dispatch instructions* for each *scheduled resource*.

(b) An *Integrated Resource Provider* for an *integrated resource system* to which this clause applies may, in accordance with the *power system operating procedure* made under paragraph (d), comply in aggregate (**aggregated dispatch conformance**) with the *dispatch instructions* for a *trading interval* for two or more of the *scheduled resources* comprised in the *integrated resource system*, excluding any *scheduled resource* for which resource~~unit~~ level compliance has been specified in accordance with paragraph (c).

(c) *AEMO* may specify in a *dispatch instruction* for a *scheduled resource* in an *integrated resource system* that the *scheduled resource* the subject of the *dispatch instruction* is required to operate in accordance with that *dispatch instruction* (**resource level compliance**) where a *network constraint* would be violated if the relevant *scheduled resource* were to operate other than in accordance with the *dispatch instruction*, due to technical characteristics of the relevant *scheduled resource*.

(d) *AEMO* must make, as a *power system operating procedure*, a procedure setting out:

(1) for the purposes of paragraph (b), permitted forms of aggregated dispatch conformance by one or more *scheduled resources* comprised in an *integrated resource system*; and

(2) arrangements for *AEMO* to specify when resource level compliance is required for the purposes of paragraph (c).

4.9.3 Instructions to Registered Participants

(a) *AEMO* may, at any time, give instructions to a *Registered Participant*~~s~~ to reduce the electricity consumption of its~~their~~ *scheduled load* ~~for electricity~~ consistent with *dispatch bids* made in accordance with Chapter 3 (*dispatch instructions*).

(b) A *Registered Participant* ~~*Market Customer*~~ must, with respect to *scheduled loads* in relation to which a *dispatch bid* has been submitted for a particular *trading interval*, ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon *dispatch instructions* issued by *AEMO* to the *Registered Participant*~~*Market Customer*~~.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9.3A Ancillary services instructions

(a) *AEMO* may at any time give an instruction (a *dispatch instruction*) to an *Ancillary Service Provider*~~a *Market Participant* which has classified one or more of its *generating units* or *loads* as an *ancillary service generating unit* or an *ancillary service load*~~:

(1) stating that an *ancillary service unit* of the *Ancillary Service Provider* ~~the relevant *generating unit* or *load*~~ has been selected for the provision of a *market ancillary service*;

(2) stating the *market ancillary service* concerned; and

(3) nominating the range to be *enabled*.

(b) *AEMO* may at any time give an instruction (a *dispatch instruction*) to:

(1) an *NMAS provider* with whom *AEMO* has an *ancillary services agreement* in relation to the provision of *non-market ancillary services* under that *ancillary services agreement* or which *AEMO* is otherwise entitled to give under that *ancillary service agreement*; or

(2) a *Network Service Provider* in relation to the provision of any *non-market ancillary services* or similar services provided under any *connection agreement* or *network support agreement*.

~~(c) A *Market Participant* which has:~~

~~(1) classified one or more of its *generating units* or *loads* as an *ancillary service generating unit* or an *ancillary service load*; and~~

~~(2) submitted a *market ancillary service offer* in respect of that *generating unit* or *load*,~~

(c) An *Ancillary Service Provider* who has submitted a *market ancillary service bid* in respect of an~~its~~ *ancillary service unit* must ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon *dispatch instructions* issued to the *Ancillary Service Provider* ~~*Market Participant*~~ by *AEMO*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) An *NMAS provider* with whom *AEMO* has an *ancillary services agreement* must ensure that appropriate personnel or electronic facilities are available in accordance with that agreement at all times to receive and immediately act upon *dispatch instructions* issued to that *NMAS provider* by *AEMO*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9.4 Dispatch related limitations on Scheduled Generators, ~~and~~ Semi-Scheduled Generators and Scheduled Integrated Resource Providers

A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* (as the case may be) must not, unless in the *Generator's* or *Integrated Resource Provider's* reasonable opinion, public safety would otherwise be threatened or there would be a material risk of damaging equipment or the environment:

(a) send out any *energy* from a *generating unit* or *bidirectional unit*, except:

(1) in accordance with a *dispatch instruction*;

(2) in response to remote control signals given by *AEMO* or its agent;

(3) in connection with a test conducted in accordance with the requirements of this Chapter or Chapter 5; or

(3A) as a consequence of its operation in *frequency response mode* in order to adjust *power system frequency* in response to *power system* conditions; or

(4) in the case of a *scheduled generating unit*, in accordance with the *self-commitment* process specified in clause 4.9.6 up to the *self-dispatch level*;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) adjust the *transformer tap position* or *excitation control system voltage* set-point of a *scheduled generating unit*, *scheduled bidirectional unit* or *semi-scheduled generating unit* except:

(1) in accordance with a *dispatch instruction*;

(2) in response to remote control signals given by *AEMO* or its agent;

(3) if, in the *Generator's* or *Integrated Resource Provider's* reasonable opinion, the adjustment is urgently required to prevent material damage to the *Generator's* or *Integrated Resource Provider's plant* or associated equipment, or in the interests of safety; or

(4) in connection with a test conducted in accordance with the requirements of rule 5.7;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) *energise* a *connection point* in relation to a *generating unit* or *bidirectional unit* without obtaining approval from *AEMO* immediately prior to *energisation*;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) *synchronise* or *de-synchronise* a *scheduled generating unit* with a *nameplate rating* of 30MW or more, without prior approval from *AEMO* or other than in response to a *dispatch instruction* except:

(1) *de-synchronisation* as a consequence of the operation of automatic protection equipment; or

(2) where such action is urgently required to prevent material damage to *plant* or equipment or in the interests of safety;

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) change the *frequency response mode* of a *scheduled generating unit* or *scheduled bidirectional unit* without the prior approval of *AEMO*; or

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) remove from service or interfere with the operation of any *power system* stabilising equipment installed on that *generating unit* or *bidirectional unit*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9.5 Form of dispatch instructions

(a0) In this clause 4.9.5:

Non semi-dispatch interval means for a *semi-scheduled generating unit*, a *dispatch interval* other than a *semi-dispatch interval*.

(a) A *dispatch instruction* for a ~~*scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load*~~*scheduled resource* (other than a *wholesale demand response unit*) must include the following:

(1) specific reference to the ~~*generating unit* (including any aggregated *generating unit*), *scheduled network service* or *scheduled load* or other *facility*~~ *scheduled resource* (including any *scheduled resources* aggregated under clause 3.8.3) to which the *dispatch instruction* applies;

(2) the desired outcome of the *dispatch instruction* (if applicable) such as *active power*, *reactive power*, *transformer* tap or other outcome;

(3) in the case of a *dispatch instruction* under clause 4.9.2, the *ramp rate* (if applicable) which is to be followed by the *generating unit* or *bidirectional unit* or a specific target time to reach the outcome specified in the *dispatch instruction*;

(4) the time the *dispatch instruction* is issued;

(5) if the time at which the *dispatch instruction* is to take effect is different from the time the *dispatch instruction* is issued, the start time; and

(6) in the case of a *dispatch instruction* for a *semi-scheduled generating unit*:

(i) a notification as to whether the *trading interval* to which the *dispatch instruction* relates is a *semi-dispatch interval* or a *non semi-dispatch interval*; and

(ii) the *dispatch level*.

(a1) A *dispatch instruction* for an *ancillary service* must include:

(1) specific reference to the *ancillary service unit* ~~*generating unit* or *load*~~ to which the *dispatch instruction* applies;

(2) the desired outcome of the *dispatch instruction*;

(3) the time the *dispatch instruction* is issued; and

(4) if the time at which the *dispatch instruction* is to take effect is different from the time the *dispatch instruction* is issued, the start time.

(a2) A *dispatch instruction* for a *wholesale demand response unit* must include the following:

(1) specific reference to the *wholesale demand response unit* to which the *dispatch instruction* applies;

(2) the desired *baseline deviation* of the *wholesale demand response unit* at the end of the *trading interval* to which it relates;

(3) the *ramp rate* (if applicable) which is to be followed in the provision of the *baseline deviation* by the *wholesale demand response unit* or a

specific target time to reach the *baseline deviation* specified in the *dispatch instruction*;

(4) the time the *dispatch instruction* is issued; and

(5) if the time at which the *dispatch instruction* is to take effect is different from the time the *dispatch instruction* is issued, the start time.

(b) The *dispatch instruction* must be provided as provided in clause 3.8.21.

4.9.8 General responsibilities of Registered Participants

(a) A *Registered Participant* must comply with a *dispatch instruction* given to it by *AEMO* unless to do so would, in the *Registered Participant's* reasonable opinion, be a hazard to public safety or materially risk damaging equipment.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) A *Scheduled Generator*, ~~or~~ *Semi-Scheduled Generator* or *Scheduled Integrated Resource Provider* is not taken to have failed to comply with a *dispatch instruction* as a consequence of its *generating unit* or *bidirectional unit* operating in *frequency response mode* in order to adjust *power system frequency* in response to *power system* conditions.

(a2) A *Semi-Scheduled Generator* is taken to have complied with a *dispatch level* in a *dispatch instruction* if the *active power* of the relevant *semi-scheduled generating unit* at the end of the relevant *trading interval*:

(1) only varies from the *dispatch level* as a result of energy source availability; and

(2) in the case of a *semi-dispatch interval*, does not exceed the *dispatch level*, regardless of energy source availability.

(a3) A *Registered Participant* must ensure that each of its *scheduled resources* is at all times able to comply with the latest *dispatch bid* under Chapter 3 in respect of that *scheduled resource*.

[For information purposes only - Note

The AEMC will recommend that clause 4.9.8(a3) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. If that occurs, the AEMC will propose to delete paragraphs (b), (b1), (b2), (c), (e) and (f) as a minor rule change. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(b) A *Scheduled Generator* must ensure that each of its *scheduled generating units* is at all times able to comply with the latest *dispatch bid* ~~*generation dispatch offer*~~ under Chapter 3 in respect of that *generating unit*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) A *Scheduled Network Service Provider* must ensure that each of its *scheduled network services* is at all times able to comply with the latest *dispatch*

bid~~network dispatch offer~~ under Chapter 3 in respect of that *market network service*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) A *Registered Participant* must ensure that each of its *facilities* is at all times able to comply with any relevant *dispatch bid* under Chapter 3 in respect of the *facility* (as adjusted by any subsequent restatement of that bid under Chapter 3).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) An *Ancillary Service Provider* must ensure that each of its *ancillary service units* is at all times able to comply with the latest *market ancillary service bid* for the relevant *trading interval*.~~A *Market Participant* which has classified a *generating unit* or *load* as an *ancillary service generating unit* or an *ancillary service load*, as the case may be, must ensure that the *ancillary service generating unit* or *ancillary service load* is at all times able to comply with the latest *market ancillary service offer* for the relevant *trading interval*.~~

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) A *Semi-Scheduled Generator* must ensure that each of its *semi-scheduled generating units* is at all times able to comply with its latest *dispatch bid~~generation dispatch offer~~*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) A *Demand Response Service Provider* must ensure that each of its *wholesale demand response units* is at all times able to comply with its latest *dispatch bid*.

4.9.9 Scheduled Generator or Scheduled Integrated Resource Provider plant changes

A *Scheduled Generator* or *Scheduled Integrated Resource Provider* must, without delay, notify *AEMO* of any event which has changed or is likely to change the operational availability of any of its *scheduled generating units* or *scheduled bidirectional units*, whether the relevant *generating unit* or *bidirectional unit* is *synchronised* or not, as soon as the *Scheduled Generator* or *Scheduled Integrated Resource Provider* becomes aware of the event.

Note

This clause is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.9.9B Ancillary service plant changes

~~A *Market Participant* which has classified a *generating unit* or *load* as an *ancillary service generating unit* or an *ancillary service load*~~An *Ancillary Service Provider* must, without delay, notify *AEMO* of any event which has changed or is likely to change the availability of a *market ancillary service*, or the capability of ~~the~~ an *ancillary service unit* it has classified ~~*generating unit* or *load*~~ to respond in the manner contemplated by the *market ancillary service specification*, as soon as the *Market Participant* becomes aware of the event.

Note

This clause is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

4.11 Power System Security Support

4.11.1 Remote control and monitoring devices

(a) All remote control, operational metering and monitoring devices and local circuits as described in schedules 5.2, 5.3 and 5.3a, must be installed and maintained in accordance with the standards and protocols determined and advised by *AEMO* (for use in the *control centres*) for each:

(1) *scheduled generating unit*, *scheduled bidirectional unit* and *semi-scheduled generating unit connected* to the *transmission network* or *distribution network*; and

(2) *substation* connected to the *network*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) The provider of any *ancillary services*, *system strength services* or *inertia network services* must arrange the installation and maintenance of all *remote control equipment* and *remote monitoring equipment* in accordance with the standards and protocols determined and advised by *AEMO* for use in the relevant *control centre*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) The control and monitoring devices must include provision for indication of *active power* and *reactive power* output, provision for signalling the status and any associated alarm condition relevant to achieving adequate control of the *transmission network*, and provision for indication of *generating plant* active and reactive output.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c1) A *Demand Response Service Provider* must in respect of its *wholesale demand response units* arrange the installation and maintenance of all *remote control equipment* and *remote monitoring equipment* in accordance with the standards and protocols determined and advised by *AEMO* for use in the relevant *control centre*.

(d) Where reasonably necessary to allow *AEMO* to discharge its *market* and *power system security* functions *AEMO* may, by notice in writing, require a *Network Service Provider*, a *Generator*, an *Integrated Resource Provider* or a *Market Network Service Provider* to:

(1) install *remote monitoring equipment* which, in *AEMO's* reasonable opinion, is adequate to enable *AEMO* to remotely monitor the performance of a *transmission system* or *distribution system*, *generating unit* or *bidirectional unit* (including its *dynamic performance*) or a *market network service facility* as appropriate; and

(2) upgrade, modify or replace any *remote monitoring equipment* already installed in a *facility* provided that the existing *remote monitoring equipment* is, in the reasonable opinion of *AEMO*, no longer fit for the intended purpose.

(e) A *Network Service Provider*, *Generator*, *Integrated Resource Provider* or *Market Network Service Provider* who receives a notice in accordance with clause 4.11.1(d), must comply with the notice within 120 *business days* or such further period that *AEMO* requires.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) [Deleted]

(g) A *Generator*, *Integrated Resource Provider* or *Market Network Service Provider* wishing to receive *dispatch instructions* electronically from *AEMO's AGC* under clause 3.8.21(d) must comply with *AEMO's* reasonable requirements in respect of how the remote control signals are issued by the *AGC* and transmitted to the *facility*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

CHAPTER 4A

4A. Retailer Reliability Obligation

Part A Introduction

4A.A Definitions

4A.A.1 Definitions

In this Chapter:

actual demand means the demand determined in accordance with clause 4A.A.4(b).

adjustment day has the meaning given in clause 4A.E.7(f).

AEMO Opt-In Procedures means the procedures developed by *AEMO* under clause 4A.D.12.

AER Opt-In Guidelines means the guidelines made by the *AER* under clause 4A.D.13.

AER PoLR report has the meaning given in clause 4A.F.8(a).

aggregate MLO Group transactions has the meaning given in clause 4A.G.19(c).

application for adjustment has the meaning given in clause 4A.E.7(a).

Auditors Panel means the panel of persons (who may be individuals or firms) from whom an Independent Auditor may be appointed in accordance with clause 4A.E.5.

bespoke firmness methodology means a firmness methodology which is not a default firmness methodology.

bid-offer spread has the meaning given in clause 4A.G.18(h).

book build contract means a contract which satisfies the relevant criteria set out under the Book Build Procedures and which may be offered to other *book build participants* as part of a *voluntary book build*.

book build fees means fees imposed on *book build participants* to reimburse *AEMO* for its costs incurred in developing, establishing and conducting a *voluntary book build*.

book build participation agreement has the meaning given in clause 4A.H.4(b)(1).

Book Build Procedures means the procedures developed by *AEMO* under clause 4A.H.2.

change event has the meaning given in clause 4A.G.13(a)(3).

compliance TIs has the meaning given in clause 4A.F.2.

contract position day has the meaning given in the *NEL*.

Contracts and Firmness Guidelines means the guidelines made by the *AER* in accordance with clause 4A.E.8.

controlling entity has the meaning given in clause 4A.G.6(a).

default firmness methodology has the meaning given in clause 4A.E.4.

dispatch control has the meaning given in clause 4A.G.4(b).

firmness methodology has the meaning given in clause 4A.E.3.

firmness principles has the meaning given in clause 4A.E.3.

Forecasting Best Practice Guidelines means the guideline made by the *AER* under clause 4A.B.5.

forecast reliability gap period has the meaning given in the *NEL*.

gap trading intervals means the *trading intervals* stated in a T-1 reliability instrument.

~~**generator capacity** has the meaning given in clause 4A.G.3(b).~~

Independent Auditor means a member of the Auditors Panel.

large opt-in customer means a person registered as a large opt-in customer with the *AER* under clause 4A.D.4.

liable entity has the meaning given in the *NEL* and as determined in accordance with clause 4A.D.2.

liable load means the load determined under clause 4A.F.3(b).

liable share has the meaning given in clause 4A.F.3(a).

liquidity obligation means the obligation to be performed by a MLO generator in a *region* under rule 4A.G.17.

liquidity period means the period during which a liquidity obligation is in effect with respect to a *forecast reliability gap*, as determined under clause 4A.G.16.

matched book build participant means a *book build participant*:

(a) who offers to buy or sell a book build contract through the *voluntary book build*; and

(b) for which *AEMO* has identified another *book build participant* who has made an offer to buy or sell (as applicable) the book build contract referred to in paragraph (a),

in accordance with the Book Build Procedures.

minimum opt-in threshold has the meaning given in clause 4A.D.6(a)(2).

MLO exchange has the meaning given in clause 4A.G.23(a).

MLO exit notice has the meaning given in clause 4A.G.12(e).

MLO generator has the meaning given in clause 4A.G.11.

MLO group has the meaning given in clause 4A.G.10.

MLO Guidelines means the guidelines made by the *AER* under clause 4A.G.25.

MLO nominee has the meaning given in clause 4A.G.20(a).

MLO products means any product which satisfies the criteria set out under clause 4A.G.22(a) or which the *AER* approves to be a MLO product under clause 4A.G.22(b).

MLO register means the register established, maintained and *published* by the *AER* under clause 4A.G.12.

NCP report has the meaning given in clause 4A.E.6(a).

net contract position has the meaning given in the *NEL* and as determined in accordance with clause 4A.E.2.

new entrant has the meaning given in clause 4A.D.3.

new entrant contract position day means the first day of a *reliability gap period*, unless an alternative date is stated in a T-1 reliability instrument.

non-standard qualifying contract means a qualifying contract which is not a standard qualifying contract.

one-in-two year peak demand forecast has the meaning given in the *NEL* and as determined in accordance with clause 4A.A.3.

opt-in customer means a large opt-in customer or a prescribed opt-in customer.

opt-in customer threshold has the meaning given in clause 4A.D.6(a)(1).

opt-in cut-off day means the day determined in accordance with clause 4A.D.7.

opt-in register means a register established and maintained by the *AER* in accordance with clause 4A.D.9.

peak demand has the meaning given in the *NEL* and as determined in accordance with clause 4A.A.4.

PoLR liable entity has the meaning given in clause 4A.F.8(a)(1).

PoLR TI has the meaning given in clause 4A.F.8(a)(2).

position day means a contract position day or, for a new entrant, a new entrant contract position day.

prescribed opt-in customer means a person registered as a prescribed opt-in customer with the *AER* under clause 4A.D.5.

production capacity has the meaning given in clause 4A.G.3(b).

qualifying contract has the meaning given in the *NEL* and as determined in accordance with clause 4A.E.1.

registered capacity means in respect of a *generating unit* or *bidirectional unit*, the amount, in MW, shown as 'registered capacity' attributable to that *generating unit* or *bidirectional unit* in the 'NEM registration and exemption list' published by *AEMO* (in the case of a *bidirectional unit*, insofar as referable to its capacity to produce electricity).

Reliability Compliance Procedures and Guidelines has the meaning given in the *NEL*.

reliability instrument has the meaning given in the *NEL*.

Reliability Instrument Guidelines means the guidelines made by the *AER* under clause 4A.C.12.

reporting day

(a) has the meaning given in the *NEL*; and

(b) for a new entrant, means the day stated in the relevant T-1 reliability instrument.

standard qualifying contract means a qualifying contract which is specified to be a standard qualifying contract under the Contracts and Firmness Guidelines.

target trading periods has the meaning given in clause 4A.G.18(c).

traced capacity has the meaning given in clause 4A.G.7(a).

trading group has the meaning given in clause 4A.G.5.

trading group capacity has the meaning given in clause 4A.G.9(a).

trading period has the meaning given in clause 4A.G.18(a).

trading right has the meaning given in clause 4A.G.4.

trading right holder has the meaning given in clause 4A.G.4(a).

T-1 cut-off day has the meaning given in the *NEL*.

T-1 reliability instrument has the meaning given in the *NEL*.

T-3 cut-off day has the meaning given in the *NEL*.

T-3 reliability instrument has the meaning given in the *NEL*.

ultimate controlling entity has the meaning given in clause 4A.G.6(b).

uncontracted MW position has the meaning given in clause 4A.F.8(b).

unscheduled generation has the meaning given in clause 3.7D(a).

Part D Liable Entities

4A.D.2 Liable entities

(a) A person is a liable entity for a *region* if:

(1) the person is ~~registered as~~ a *Market Customer* or *Integrated Resource Provider* and is *financially responsible* for a *connection point* in that *region* at the end of the contract position day but only to the extent there is no opt-in customer for that *connection point* at the end of the contract position day;

Note

Section 14D(1)(a) of the *NEL* provides that a person who is a *Registered Participant* mentioned in section 11(4)(a) of the *NEL* is a liable entity.

(2) the person is registered as a large opt-in customer for a *connection point* in that *region* at the end of the contract position day;

(3) the person is registered as a prescribed opt-in customer for a *connection point* in that *region* at the end of the contract position day; or

(4) the person is a new entrant in that *region* under clause 4A.D.3.

(b) A person who is a *Market Customer* or *Integrated Resource Provider* is not a liable entity for a *region* if:

(1) it is not *financially responsible*~~registered~~ for a *connection point* in that *region* at the end of the contract position day; or

(2) the aggregate consumption of electricity of all ~~*loads* at the~~ *connection points* in that *region* for which it is ~~a *Market Customer*~~ *financially*

responsible at the end of the contract position day (excluding any *market connection point* for a *market generating unit* or *small generating unit*) is equal to or less than 10 GWh per annum as determined in accordance with the Contracts and Firmness Guidelines.

4A.D.3 New entrants

A person is a new entrant for a *region* if the person:

(a) is a *Market Customer* or *Integrated Resource Provider* that is *financially responsible* for a *connection point* in that *region* at the end of the new entrant contract position day;

(b) was not a liable entity for that *region* at the end of the contract position day; and

(c) the aggregate consumption of electricity of all ~~*loads* at the~~ *connection points* in that *region* for which it is *financially responsible*~~a *Market Customer*~~ at the end of the new entrant contract position day (excluding any *small resource connection points*) exceeds, or is expected to exceed, 10 GWh per annum as determined in accordance with the Contracts and Firmness Guidelines.

Note

Section 14N(1)(c)(ii) of the *NEL* provides that Part 2A, Division 3 of the *NEL* applies to a person who is a liable entity on the contract position day or, in circumstances for which a later day is prescribed by the *Rules*, the later day. The new entrant contract position day is the later day for new entrants.

4A.D.4 Application to register as large opt-in customer

(a) A person may, no later than the opt-in cut-off day, apply to the *AER* for approval to register as a large opt-in customer for a *connection point* for a forecast reliability gap period if:

(1) a T-3 reliability instrument has been made for the *region* in which the *connection point* is located and the *AER* has established an opt-in register in relation to that instrument under clause 4A.D.9;

(2) the person purchases electricity supplied to that *connection point* from the *Market Customer* or *Integrated Resource Provider* for that *connection point*;

(3) the person's aggregate consumption of electricity at all *connection points* in the *region* exceeds, or is expected to exceed, 50 GWh per annum as determined in accordance with the AER Opt-In Guidelines;

(4) to the extent required by the AEMO Opt-In Procedures (if any), the person does not satisfy the creditworthiness requirements set out in those procedures and *AEMO* requires credit support (at its discretion), the person provides that credit support to *AEMO* in accordance with the requirements of the AEMO Opt-In Procedures;

(5) there are one or more *connection points* at a site as determined in accordance with the AER Opt In Guidelines, the person opts-in for all *connection points* at that site; and

(6) the person satisfies any other requirements set out in the AEMO Opt-In Procedures (if any) and the AER Opt-In Guidelines.

(b) An application under paragraph (a) must comply with the AER Opt-In Guidelines.

(c) An applicant must provide evidence to the *AER* as part of the application that it has given notice of the application to the *Market Customer* or *Integrated Resource Provider* that is *financially responsible* for the *connection point*. The *financially responsible Market Participant's* ~~*Market Customer's*~~ consent is not required to make an application.

(d) The *AER* may only register a person as a large opt-in customer for the entire *load* at a *connection point* and for the entire forecast reliability gap period.

4A.D.5 Application to register as prescribed opt-in customer

(a) A person may, no later than the opt-in cut-off day, apply to the *AER* for approval to register as a prescribed opt-in customer for a *connection point* for a forecast reliability gap period if:

(1) a T-3 reliability instrument has been made for the *region* in which the *connection point* is located and the *AER* has established an opt-in register in relation to that instrument;

(2) the person is not eligible to register as a large opt-in customer for that *connection point*;

(3) the person is, in accordance with the AER Opt-In Guidelines, financially exposed to the cost of some or all of the ~~*load*~~ electricity *supplied* at the *connection point*;

(4) the person satisfies the prescribed opt-in customer thresholds in clause 4A.D.6 for that *connection point*;

(5) to the extent required by the AEMO Opt-In Procedures (if any), the person does not satisfy the creditworthiness requirements set out in those procedures and *AEMO* requires credit support (at its discretion), the person provides that credit support to *AEMO* in accordance with the requirements of the AEMO Opt-In Procedures; and

(6) the person satisfies any other requirements set out in the AEMO Opt-In Procedures (if any) and the AER Opt-In Guidelines.

(b) An application under paragraph (a) must comply with the AER Opt-In Guidelines.

(c) An applicant must provide evidence to the *AER* as part of the application that it has given notice of the application to the *financially responsible Market Participant* ~~*Market Customer*~~ and any existing prescribed opt-in customer for the *connection point*. The ~~*Market Customer's*~~ consent of the *financially responsible Market Participant* is not required to make an application. An existing prescribed opt-in customer's consent is not required unless approval of the application would require a change to the percentage of the *load* for which that prescribed opt-in customer is registered.

(d) The *AER* may only register a person as a prescribed opt-in customer for the entire forecast reliability gap period.

(e) The *AER* may register a person as a prescribed opt-in customer for the entire *load* or a percentage of the *load* at a *connection point*. A person may not be

registered for a percentage of the *load* at a *connection point* where that percentage of the *load* is less than the minimum opt-in threshold.

4A.D.8 AER approval of applications

(a) The *AER* must approve or reject an application submitted under clauses 4A.D.4 or 4A.D.5 in accordance with the AER Opt-In Guidelines.

(b) If the *AER* rejects an application for registration, it must give the applicant written reasons for its decision. The *AER* may inform the *financially responsible Market Participant* ~~*Market Customer*~~ for the relevant *connection point* of the rejection in accordance with the AER Opt-In Guidelines, or must inform the *financially responsible Market Participant* ~~*Market Customer*~~ on request.

(c) If a person is registered as a large opt-in customer for a *connection point* at the end of the contract position day, then the *financially responsible Market Participant* ~~*Market Customer*~~ for that *connection point* is not a liable entity for that *connection point*.

(d) If a person is registered as a prescribed opt-in customer for the entire *load* at a *connection point* at the end of the contract position day, then the *financially responsible Market Participant*~~*Market Customer*~~ for that *connection point* is not a liable entity for that *connection point*.

(e) If a person is registered as a prescribed opt-in customer for a percentage of the *load* at a *connection point* at the end of the contract position day, then:

(1) the prescribed opt-in customer is the liable entity for that percentage of the *load* at that *connection point*; and

(2) the *financially responsible Market Participant* ~~*Market Customer*~~ for that *connection point* will be the liable entity for any remaining percentage of the *load* at that *connection point* for which a prescribed opt-in customer is not the liable entity.

4A.D.10 Changes to register

(a) An opt-in customer may, before the opt-in cut-off day, apply to the *AER* for approval to be deregistered as an opt-in customer for a *connection point*.

(b) A prescribed opt-in customer may, before the opt-in cut-off day, apply to the *AER* for approval to change the percentage of the *load* at a *connection point* for which it is registered.

(c) An application under paragraph (a) or (b) must comply with the AER Opt-In Guidelines.

(d) The *AER* must not approve an application under paragraph (a) unless the *financially responsible Market Participant* ~~*Market Customer*~~ for that *connection point* consents to the application and/or the *AER* has approved an application for another person to be an opt-in customer for that *connection point*.

(e) The *AER* must not approve an application under paragraph (b) unless the *financially responsible Market Participant* ~~*Market Customer*~~ and/or any prescribed opt-in customer (where the change would affect the percentage of

the *load* for which that prescribed opt-in customer is registered) at that *connection point* consents to the application.

4A.D.13 AER Opt-In Guidelines

(a) The *AER* must make, *publish* and may amend the AER Opt-In Guidelines in accordance with the *Rules consultation procedures*.

(b) The AER Opt-In Guidelines must include:

(1) the process for establishing and maintaining the opt-in register;

(2) the information to be included in the opt-in register;

(3) the extent to which some or all of the information on the opt-in register is to be accessible to *Market Customers*, *Integrated Resource Providers* and the public;

(4) the process, manner and form of application for approval to register or deregister as, or change the registration of, an opt-in customer;

(5) the criteria to be applied by the *AER* in determining whether to approve an application to register or deregister as, or change the registration of, an opt-in customer;

(6) the information required by the *AER* to determine whether to approve an opt-in customer application and, if required, how that information will be verified (including with *AEMO* or the relevant *financially responsible Market Participant*~~*Market Customer*~~);

(7) when a site is considered to have more than one *connection point*;

(8) the circumstances in which, in an opt-in customer application, an applicant must apply to opt-in for all *connection points* at a site;

(9) how annual peak demand for the purposes of the opt-in customer threshold and minimum opt-in threshold are determined;

(10) any requirements for a prescribed opt-in customer to register in respect of a percentage of a *load*; and

(11) the requirements for notification to, and consent of, relevant persons at the *connection point* for registrations and changes to registrations.

(c) The *AER* may make minor or administrative amendments to the AER Opt-In Guidelines without complying with the *Rules consultation procedures*.

Part F Compliance with the Retailer Reliability Obligation

Division 2 Key concepts

4A.F.3 Share of one-in-two year peak demand forecast

(a) For the purposes of section 14R(2) of the *NEL*, a liable entity's share of the one-in-two year peak demand forecast for a compliance TI ("**liable share**") is calculated as follows:

$$LS = \left(\frac{LL}{HAPD}\right) x\ OITPDF$$

where:

LS	=	the liable entity's liable share (in MW);
LL	=	the liable entity's liable load as determined under paragraph (b) (in MW);
HAPD	=	the highest adjusted peak demand occurring in a compliance TI in the relevant *reliability gap period* where adjusted peak demand is determined under paragraph (d) (in MW);
OITPDF	=	the one-in-two year peak demand forecast (in MW),

except that if OITPDF/HAPD > one, then it is taken to be equal to one.

Note

Section 14R(2) of the *NEL* states –

The liable entity must comply with the obligation that the liable entity's net contract position for the *trading interval* is not less than the liable entity's share of the one-in-two year peak demand forecast for the *trading interval* determined in accordance with the *Rules*.

Section 14R(2) is a reliability obligation civil penalty.

(b) A liable entity's liable load for a compliance TI is calculated as follows:

(1) if the liable entity is a *Market Participant*~~*Market Customer*~~, the aggregate of the *adjusted gross energy* for each *connection point* for which it is *financially responsible* for the compliance TI (less any *adjusted gross energy* allocated to a prescribed opt-in customer at one of those *connection points* and excluding any *market connection point* for a *market generating unit* or *small generating unit*) based on the relevant *routine revised statements* for the *billing periods* relating to the *reliability gap period* given approximately 30 weeks after the relevant *billing period*;

(2) if the liable entity is not a *Market Participant*~~*Market Customer*~~, the aggregate of the *adjusted gross energy* for each *connection point* for which it is registered as an opt-in customer (or part thereof if it is a prescribed opt-in customer registered for a portion of the *load* at that *connection point*) based on the relevant *routine revised statements* provided to the relevant *Market Participant* ~~*Market Customer*~~ for the *connection points* for the *billing periods* relating to the *reliability gap period* given approximately 30 weeks after the relevant *billing period*;

(3) the quantity in subparagraph (1) or (2) (as applicable) is to be adjusted by adding:

(i) the liable entity's measured actual demand response (other than *wholesale demand response*) under a qualifying contract at each *connection point* for which it is *financially responsible* for the compliance TI, or registered if an opt-in customer, multiplied by the *distribution loss factor* for that *connection point*; and

(ii) the *wholesale demand response settlement quantity* for each *connection point* for which the liable entity is *financially responsible* for the compliance TI;

(4) the quantities in subparagraphs (1), (2) and (3) (as applicable) are to be adjusted for *intra-regional loss factors* at the *transmission network connection point* to which the *connection point* is assigned; and

(5) the final quantity is to be multiplied by the number of *trading intervals* in an hour,

in each case, as determined in accordance with the *PoLR cost procedures*. To avoid doubt, a liable entity's demand is not to be adjusted for what its demand would have been but for *unserved energy* during a compliance TI.

(c) For a liable entity that is a *Market Participant*~~*Market Customer*~~, a liable entity's liable load relates to the *connection points* for which that liable entity is *financially responsible* for a compliance TI and those *connection points* do not need to be the same *connection points* referred to in clause 4A.D.2.

(d) The adjusted peak demand for a compliance TI is the actual demand for the *region* in that compliance TI as determined under clause 4A.A.4(b) adjusted for:

(1) the measured actual demand response of all liable entities during that compliance TI (other than *wholesale demand response*) as determined in accordance with the *PoLR cost procedures*; and

(2) the *wholesale demand response settlement quantities* for that compliance TI for all *connection points* for which a liable entity is *financially responsible*.

Part G Market Liquidity Obligation

Division 1 Preliminary

4A.G.1 Overview of Part G

(a) The purpose of this Part G is to facilitate transparency and liquidity in the trading of electricity futures contracts relating to a forecast reliability gap period.

(b) For the duration of a liquidity period in a *region*, each MLO generator must offer to buy and sell MLO products on a MLO exchange as required under this Part G.

(c) Division 2 specifies how this Part applies to *Market Generators* and *Integrated Resource Providers* and how a *Market Generator's* and *Integrated Resource Provider's* trading right holder is identified.

(d) Division 3 provides for how a trading right holder is taken to be a member of one or more trading groups.

(e) Division 4 sets out how a *Market Generator's* and *Integrated Resource Provider's* production capacity ~~generator capacity~~ is allocated to a trading group, for the purposes of assessing each trading group's market share of *generation* in a *region*.

(f) Division 5 determines which *Market Generators* or *Integrated Resource Providers* are taken to be MLO generators and are required to comply with a liquidity obligation.

(g) Division 6 provides for the *AER* to maintain a MLO register of each MLO generator, each MLO group and the trading group capacity of each trading group.

(h) Division 7 specifies when a liquidity period starts and ends, and the notices the *AER* must give prior to, at the start, and at the end of a liquidity period.

(i) Division 8 imposes a liquidity obligation on a MLO generator, and sets out the manner in which it must be performed and the process for appointing MLO nominees to perform the liquidity obligation.

(j) Division 9 specifies the type of electricity futures contracts which constitute MLO products and the MLO exchange on which they must be offered.

(k) Division 10 deals with compliance and the making of the MLO Guidelines.

Division 2 Market Generators, Integrated Resource Providers and trading right holders

4A.G.3 Market Generators, Integrated Resource Providers and production capacity ~~generator capacity~~

(a) This Part applies to a *Market Generator* and *Integrated Resource Provider* in each *region*, in so far as its activities relate to any one or more *scheduled generating units* or *scheduled bidirectional units* that are:

(1) classified as a *market generating unit* or *market bidirectional unit* under Chapter 2; and

(2) located in that *region*.

(b) Subject to clause 4A.G.21(b), **production capacity** means:

(1) in respect of a *Market Generator* for a *region*, the registered capacity of each *scheduled generating unit* of that *Market Generator* that is classified as a *market generating unit* under Chapter 2 and located in that *region*; and

(2) in respect of an *Integrated Resource Provider* for a *region*, the registered capacity of each *scheduled bidirectional unit* of that *Integrated Resource Provider* that is classified as a *market bidirectional unit* under Chapter 2 and located in that *region*.

~~(b) Subject to clause 4A.G.21(b), generator capacity means,in respect of a *Market Generator* for a *region*, the registered capacity of each *scheduled generating unit* of that *Market Generator* that is:~~

~~(1) classified as a *market generating unit* under Chapter 2; and~~

~~(2) located in that *region*.~~

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

4A.G.4 Trading rights and trading right holders

(a) A person ("**trading right holder**") holds a trading right, in respect of a *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, if it has dispatch control over all or a portion of that ~~generator capacity~~production capacity.

(b) For the purposes of paragraph (a), dispatch control means the ability to control the making of ~~*dispatch offers*~~*dispatch bids* under Chapter 3 in relation to all or a portion of a *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, as determined in the MLO Guidelines.

(c) If two or more trading right holders hold trading rights in relation to the same *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, then the quantity of each trading right is determined:

(1) in proportion to the degree of dispatch control held by the relevant trading right holder;

(2) such that the aggregate trading rights held by each trading right holder must be equal to the ~~generator capacity~~production capacity of the relevant *Market Generator* or *Integrated Resource Provider*; and

(2) in accordance with the MLO Guidelines.

(d) If the *AER* is not satisfied that the information provided by a *Market Generator* or *Integrated Resource Provider* under clause 4A.G.13 relating to the identity of its trading right holders, or the trading rights held by each of its trading right holders, is consistent with the dispatch control arrangements applicable to that *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, then the *AER* may, in accordance with the MLO Guidelines, make its own determination of:

(1) the identity of each *Market Generator's* or *Integrated Resource Provider's* trading right holder; and

(2) the trading rights held by that trading right holder.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

Division 3 Trading groups

4A.G.5 Trading group

(a) Trading group means a group of one or more trading right holders:

(1) that hold trading rights in respect of *scheduled generating units* or *scheduled bidirectional units* located in the same *region*; and

(2) that are taken to belong to a common corporate group in accordance with paragraph (b).

(b) Two or more trading right holders belong to a common corporate group where:

(1) each trading right holder has an ultimate controlling entity in common; or

(2) a trading right holder is an ultimate controlling entity of another trading right holder.

(c) For the purposes of this Division, a trading right holder may belong to more than one trading group.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

Division 4 Traced capacity and trading group capacity

4A.G.7 Traced capacity

(a) Traced capacity means each parcel of a *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~ that is allocated to a trading group under clause 4A.G.8.

(b) Each reference in this Part G to an allocation of a *Market Generator's* or *Integrated Resource Provider's* traced capacity, is taken to be a reference to the allocation of that traced capacity under this Division 4.

(c) Each allocation of production capacity~~generation capacity~~ under clause 4A.G.8 comprises a separate parcel of traced capacity.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

4A.G.8 Tracing capacity to trading groups

(a) If a trading right holder belongs to only one trading group, then each trading right held by that trading right holder, is taken to be allocated to that trading group.

(b) If a trading right holder belongs to more than one trading group, then each trading right held by that trading right holder is taken to be allocated amongst those trading groups, taking into account:

(1) the extent to which each relevant controlling entity is able to influence or control (within the meaning given in Division 3) that trading right holder; and

(2) any other criteria specified in the MLO Guidelines.

(c) If the *AER* is not satisfied that the allocation of a *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, as notified under clause 4A.G.13, is consistent with the ownership and commercial arrangements applicable to the relevant trading right holder, then the *AER* may, in accordance with the MLO Guidelines, make its own determination of the allocation of that *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~.

(d) If paragraph (b) applies and a *Market Generator* or *Integrated Resource Provider* fails to notify the *AER* of the allocation of its ~~generator capacity~~production capacity as required under clause 4A.G.13, then the relevant parcel of that *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~, is allocated to each relevant trading group simultaneously.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

Division 5 MLO generators and MLO groups

4A.G.11 MLO generator

MLO generator means, for a *region* in a quarter, a *Market Generator* or *Integrated Resource Provider* where a parcel of its traced capacity is allocated to a MLO group.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

Division 6 Market Generator and Integrated Resource Provider information

4A.G.12 MLO register

(a) The *AER* must establish, maintain and *publish* a MLO register in accordance with the MLO Guidelines.

(b) In respect of each *region*, the MLO register must identify:

(1) each *Market Generator* and *Integrated Resource Provider*;

(2) the ~~generator capacity~~production capacity of each *Market Generator* and *Integrated Resource Provider*;

(3) each trading right holder of each *Market Generator* and *Integrated Resource Provider*;

(4) the trading rights held by each trading right holder;

(5) each trading group;

(6) the allocation of each parcel of a *Market Generator's* or *Integrated Resource Provider's* traced capacity to a trading group;

(7) the trading group capacity of each trading group;

(8) the proportion that the average trading group capacity of each trading group at the end of the two preceding quarters, bears to the aggregate of the average trading group capacity of all trading groups in that *region* at the end of the two preceding quarters;

(9) each MLO generator;

(10) each MLO group;

(11) each MLO nominee and its appointing MLO generator; and

(12) any other information that the *AER* is required to publish on the MLO register in accordance with the MLO Guidelines.

(c) The *AER* must update the MLO register within 5 *business days* of becoming aware that the MLO register is no longer correct.

(d) If, as a result of updating the MLO register under paragraph (c), a trading group is no longer a MLO group for a *region*, then the *AER* must notify each

MLO generator which has a parcel of traced capacity allocated to that trading group on the same day that it *publishes* the relevant update to the MLO register.

(e) If the *AER* issues a notice to a MLO generator under paragraph (d) ("**MLO exit notice**") during a liquidity period:

(1) the liquidity obligation ends for that *Market Generator* or *Integrated Resource Provider* in respect of the parcel of its traced capacity allocated to the relevant MLO group, at midnight on the date specified in that notice;

(2) the date specified in the MLO exit notice must be the later of:

(i) if immediately prior to the time the MLO exit notice is issued there are three or more MLO Groups in the relevant *region*, the day that is one *business day* after the date the exit notice is issued;

(ii) if immediately prior to the time the MLO exit notice is issued there are two MLO Groups in the relevant *region* and the *AER* is not issuing a notice under paragraph (f) in relation to that *region*, the day that is one *business day* after the date the notice is issued; or

(iii) if immediately prior to the time the MLO exit notice is issued there are two MLO Groups in the relevant *region* and the *AER* is issuing a notice under paragraph (f) in relation to that *region*, the day immediately before the day specified in the MLO entry notice under paragraph (g).

(f) If, as a result of updating the MLO register under paragraph (c), a trading group is taken to become a MLO group for a *region*, then the *AER* must notify each MLO generator which has a parcel of traced capacity allocated to that group on the same day that it *publishes* the relevant update to the MLO register.

(g) If the *AER* issues a notice to a MLO generator under paragraph (f) ("**MLO entry notice**") during a liquidity period, then that MLO generator must comply with the liquidity obligation in respect of the parcel of its traced capacity allocated to the relevant MLO group, on and from the date that is 10 *business days* after the date the notice is issued.

(h) The trading group referred to in paragraph (f) will be taken to be a MLO group for the relevant *region* from the date the *AER* issues the MLO entry notice, despite the liquidity obligation of each relevant *Market Generator* or *Integrated Resource Provider* commencing on the date specified in paragraph (g).

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

4A.G.13 Market Generator and Integrated Resource Provider information

(a) Each *Market Generator* and *Integrated Resource Provider* must:

(1) provide the *AER* with the following information in accordance with the MLO Guidelines:

(i) the *scheduled generating units* in relation to which it is a *Market Generator*;

(i1) the *scheduled bidirectional units* in relation to which it is an *Integrated Resource Provider*;

(ii) its production capacity;

~~(ii) its generator capacity;~~

(iii) the identity of each of its trading right holders;

(iv) the trading rights held by each of its trading right holders, as determined under clause 4A.G.4;

(v) the trading group to which each of its trading right holders belongs;

(vi) the identity of the ultimate controlling entity of each of its trading right holders;

(vii) the allocation of its traced capacity to one or more trading groups, as determined under clause 4A.G.8;

(viii) the trading group capacity of each trading group to which each of its trading right holders belong; and

(ix) any traced capacity for which it has appointed a MLO nominee to discharge, and the identity of that MLO nominee,

in accordance with the MLO Guidelines;

(2) provide the *AER* with all supporting information requested by the *AER* for the purposes of determining that the information provided by that *Market Generator* or *Integrated Resource Provider* under this clause is correct;

(3) if an event or series of related events occurs ("**change event**"), and as a result of that change event, any information previously provided under this clause is no longer correct, notify and update the *AER* with the correct information, within 10 *business days* of the change event; and

(4) provide any other information required to be provided in accordance with the MLO Guidelines.

(b) A *Market Generator* or *Integrated Resource Provider* may provide information to the *AER* under this clause on behalf of other *Market Generators* or *Integrated Resource Providers* whose trading right holder belongs to the same trading group, in which case, those other *Market Generators* or *Integrated Resource Providers* will be taken to have complied with this clause.

Note:

See Chapter 11, Part ZZZR, clause 11.116.11.

4A.G.14 Applications to the AER

(a) A *Market Generator* or *Integrated Resource Provider* may apply to the *AER* for a determination:

(1) that it is, or is not, a MLO generator;

(2) that its trading right holder is, or is not, a member of a trading group; and

(3) of how one or more parcels of its traced capacity should be allocated,

in accordance with the MLO Guidelines.

(b) The *AER* must promptly on receipt of an application under paragraph (a) *publish* a notice that it has received the application.

(c) If, as a result of an application under paragraph (a), the *AER* is satisfied that:

(1) a *Market Generator* or *Integrated Resource Provider* is no longer a MLO generator for a *region*;

(2) a trading group is no longer a MLO group for a *region*;

(3) a new trading group is taken to be a MLO group for a *region*; or

(4) the trading group capacity of a trading group has changed,

then the *AER* must update the MLO register in accordance with clause 4A.G.12(c).

(d) The *AER* must:

(1) notify the *Market Generator* or *Integrated Resource Provider* of its decision whether to approve or reject an application under paragraph (a); and

(2) *publish* a notice of that decision,

within the timeframes specified in the MLO Guidelines.

Note:

Any application or determination under this clause only applies in respect of the period after 1 July 2021. See Chapter 11, Part ZZZR, clause 11.116.11.

Division 8 Liquidity obligation

4A.G.21 Exemptions

(a) A MLO generator is not required to perform its liquidity obligation in the following circumstances:

(1) if doing so would constitute a breach of sections 588G or 588V of the *Corporations Act 2001* (Cth) by:

(i) that MLO generator;

(ii) an officer of that MLO generator;

(iii) a member of the MLO group to which a parcel of that MLO generator's traced capacity has been allocated; or

(iv) an officer of a company referred to in subparagraph (iii);

(2) while it or its MLO nominee is suspended or prohibited from makings bids and offers for MLO products on any MLO exchange in the relevant *region*, in accordance with the relevant rules of that MLO exchange or the *Corporations Act 2001* (Cth);

(3) while the trading of all MLO products is temporarily suspended on each MLO exchange in that *region*; or

(4) any other circumstances set out in the MLO Guidelines where a MLO generator is not required to perform its liquidity obligation.

(b) If a *scheduled generating unit* or *scheduled bidirectional unit* is the subject of a notice to *AEMO* under clause 2.10.1(a)(2) and the *closure date* specified in the notice is earlier than the start of a forecast reliability gap period, then in this Division, for the purposes of determining MLO generators and assessing compliance with the liquidity obligation in relation to that forecast reliability gap period, ~~generator capacity~~production capacity is taken not to include the registered capacity of the *scheduled generating unit* or *scheduled bidirectional unit* that is the subject of the notice, as determined (where relevant) in accordance with the MLO Guidelines.

(c) To avoid doubt, clause 4A.G.13(a)(3) still applies in respect of a notice referred to in paragraph (b).

Division 10 Miscellaneous

4A.G.25 MLO Guidelines

(a) The *AER* must make, *publish* and may amend the MLO Guidelines in accordance with the *Rules consultation procedures*.

(b) The MLO Guidelines must address the following matters:

(1) the methodology and process for determining what parcel of a *Market Generator's* or *Integrated Resource Provider's* production capacity ~~generator capacity~~ is held by a trading right holder;

(2) the methodology and process for allocating a *Market Generator's* or *Integrated Resource Provider's* production capacity~~generator capacity~~ to one or more trading groups under clause 4A.G.8, and any supporting material a *Market Generator* or *Integrated Resource Provider* must provide when notifying the *AER* of an allocation;

(3) the process by which the *AER* must establish, maintain and update the MLO register, and the information the *AER* must *publish* on the MLO register;

(4) the information that each *Market Generator* or *Integrated Resource Provider* is required to provide the *AER* under clause 4A.G.13;

(5) the form and content of, and process for, submitting an application under clause 4A.G.14, including any supporting material which must be submitted with the application;

(6) the information to be included in, and the form of, a notice of a potential liquidity period, or the commencement or conclusion of a liquidity period issued under clauses 4A.G.15 or 4A.G.16;

(7) the process for registering and appointing MLO nominees under clause 4A.G.20;

(8) any circumstances in which a MLO generator is not required to perform its liquidity obligation, as contemplated under clause 4A.G.21;

(9) the circumstances in which the *AER* may approve other products as MLO products under clause 4A.G.22 which do not otherwise satisfy the criteria set out at clause 4A.G.22(a); and

(10) the process and criteria for approving a MLO exchange.

CHAPTER 5

5. Network Connection Access, Planning and Expansion

Part A Introduction

5.1 Introduction to Chapter 5

5.1.2 Overview of Part B and connection and access under the Rules

(a) Rule 5.1A sets out the purpose, application and principles for Part B.

(b) Rule 5.2 sets out the obligations of *Registered Participants* under Part B and other relevant Parts of this Chapter 5.

(c) Rule 5.2A sets out obligations and principles relevant to *connection* and access to *transmission networks* and *designated network assets*. This includes the classification of certain services relating to assets relevant to *connection* as *prescribed transmission services*, *negotiated transmission services* and *non-regulated transmission services*. Rule 5.2A does not apply to the *declared transmission system* of an *adoptive jurisdiction*.

(d) Rules 5.3, 5.3A and 5.3AA and Chapter 5A set out processes by which *Connection Applicants* can negotiate for connection and access to the *national grid* from a *Network Service Provider*. The process applicable will depend on the nature of the application. For illustrative purposes only, the table below sets out an overview of the relevant processes:

	Connection Applicant	Process
1	A *Registered Participant* or a person intending to become a *Registered Participant* for a *generating system* or *integrated resource system* ~~*generating plant*~~ *connecting* to a *transmission network*	Rule 5.3 applies If the person is *connecting* to part of a *transmission network* which is a *designated network asset*, then rule 5.3 applies subject to the relevant *access policy* (see clause 5.2A.8)
2	A *Registered Participant* or a person intending to become a *Registered Participant* (or a person pursuant to clause 5.1A.1(c)) for a source of *load connecting* to a *transmission network*	Rule 5.3 applies If the person is *connecting* to part of a *transmission network* which is a *designated network asset*, then rule 5.3 applies subject to the relevant *access policy* (see clause 5.2A.8)

	Connection Applicant	Process
3	A source of *load connecting* to a *distribution network* where the *Connection Applicant* is a *Registered Participant* or a person intending to become a *Registered Participant* (and is not acting as the agent of a *retail customer*)	Rule 5.3 applies
4	A *distribution network* (including an *embedded network*) *connecting* to another *distribution network* or to a *transmission network* where the *Connection Applicant* is a *Registered Participant*, intending to become a *Registered Participant* or will obtain an exemption from registration	Rule 5.3 applies
5	A *Market Network Service Provider* or person intending to register as one seeking *connection* to a *distribution network* or a *transmission network*	Rule 5.3 applies
6	A~~n~~ *distribution connected unit*~~*embedded generating unit*~~ *connecting* to a *distribution network* where the *Connection Applicant* is: • a *Registered Participant* or a person intending to become a *Registered Participant* or a person seeking *connection* for a *large inverter based resource*; or • a *non-registered DER provider* ~~*non-registered embedded generator*~~ who makes an election for rule 5.3A to apply instead of Chapter 5A	Rules 5.3 and 5.3A apply (see clause 5.3.1A for the interaction between the two rules)
7	[**Deleted**]	[**Deleted**]
8	A *Generator* or *Integrated Resource Provider* wishing to alter a *generating system* or an *integrated resource system* ~~*connected generating plant*~~ in the circumstances set out in clause 5.3.9	Clause 5.3.9 applies
8A	A *Network User* wishing to alter *connected plant* in the circumstances set out in clause 5.3.12	Clause 5.3.12 applies
9	A *Connection Applicant* for *prescribed transmission services* or *negotiated transmission services* that do not require the establishment or modification of a *connection* or alteration of a *generating system* or *integrated resource system* ~~*connected generating plant*~~ in the circumstances set out in clause 5.3.9 or alteration of *connected plant* in the circumstances set out in clause 5.3.12	Rule 5.3 applies as modified by clause 5.2A.3(c)

	Connection Applicant	Process
10	A~~n *Embedded Generator*~~*Distribution Connected Resource Provider* or *non-registered DER provider* ~~*, non-registered embedded generator*~~ who makes an election for rule 5.3A to apply instead of Chapter 5A, or *Market Network Service Provider*, in each case who is applying for *distribution network user access*	Rule 5.3 or 5.3A (as applicable) and rule 5.3AA apply
11	A ~~*load,*~~ *generating system*, *integrated resource system* or source of *load* ~~*or generating plant*~~ *connecting* to a *declared shared network*	Rule 5.3 as modified by clause 5.1A.1(d) to (g) and rule 5.3B apply
12	A source of *load connecting* to a *distribution network* where the *Connection Applicant* is not a *Registered Participant* and is not intending to become a *Registered Participant* (unless it is acting as the agent of a *retail customer*) and is not *connecting* a *large inverter based resource* A *non-registered DER provider* ~~*non-registered embedded generator*~~ who does not make an election for Rule 5.3A to apply instead of Chapter 5A	Chapter 5A applies
13	A *retail customer* (or a *retailer* or ~~*Market Small Generation Aggregator*~~*Small Resource Aggregator* on behalf of that customer) seeking a *micro DER connection* ~~*connecting a micro embedded generator to a distribution network*~~	Chapter 5A applies

(e) In addition to the rules referred to in paragraph (d), in relation to *connection* and access to a *distribution network*:

(1) a *Distribution Network Service Provider* must comply with its *negotiating framework* and *Negotiated Distribution Service Criteria* when *negotiating the terms and conditions of access* to *negotiated distribution services*;

(2) disputes relating to the *terms and conditions of access* to a *direct control service* or to a *negotiated distribution service*, *access charges* or matters referred to in clause 5.3AA(f) ~~*(negotiated use of system charges)*~~ or 5.3AA(h) ~~*(avoided charges for the locational component of prescribed TUOS services)*~~ may be referred to the *AER* in accordance with Part L of Chapter 6;

(3) Part G of Chapter 5A provides for dispute resolution by the *AER* for certain disputes under Chapter 5A; and

(4) other disputes relating to *connection* and access may be subject to dispute resolution under rule 8.2.

(f) In addition to the rules referred to in paragraph (d), in relation to *connection* and access to a *transmission network*:

(1) schedule 5.11 sets out the negotiating principles which apply to negotiations between a *Transmission Network Service Provider* and a *Connection Applicant* for *negotiated transmission services*;

(2) rule 5.4 provides a framework for *Connection Applicants* and *Transmission Network Service Providers* to appoint an *Independent Engineer* to provide advice on certain technical matters; and

(3) rule 5.5 provides for commercial arbitration of disputes between a *Transmission Network Service Provider* and a *Connection Applicant* as to *terms and conditions of access* for the provision of *prescribed transmission services* or for the provision of *negotiated transmission services*.

(g) Part B also provides for an owner of a *designated network asset* to have an *access policy* for a *designated network asset* and for commercial arbitration under rule 5.5 to apply to a *DNA services access dispute*.

Part B Network Connection and Access

5.2 Obligations

5.2.3 Obligations of network service providers

(a) To be registered by *AEMO* as a *Network Service Provider*, a person must satisfy the relevant requirements specified in Chapter 2 and submit an application to *AEMO* in such form as *AEMO* may require.

(b) A *Network Service Provider* must comply with the *power system* performance and quality of *supply* standards:

(1) described in schedule 5.1;

(2) in accordance with any *connection agreement* with a *Registered Participant*,

and if there is an inconsistency between schedule 5.1 and such a *connection agreement*:

(3) if compliance with the relevant provision of the *connection agreement* would adversely affect the quality or security of *network service* to other *Network Users*, schedule 5.1 is to prevail;

(4) otherwise the *connection agreement* is to prevail.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) Where the provisions of the *connection agreement* vary the technical requirements set out in the schedules to this Chapter, the relevant *Network Service Provider* must report on such variations to *AEMO* on an annual basis. *AEMO* must allow access to such information to all other *Network Service*

Providers and the *Network Service Providers* must keep such information confidential.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) A *Network Service Provider* must:

(1) review and process *applications to connect* or modify a *connection* which are submitted to it and must enter into a *connection agreement* with each *Registered Participant* and any other person to which it has provided a *connection* in accordance with rules 5.3 or 5.3A (as is relevant) to the extent that the *connection point* relates to its part of the *national grid*;

(1A) co-operate with any other *Network Service Provider* who is processing a *connection* enquiry or *application to connect* to allow that *connection* enquiry or *application to connect* to be processed expeditiously and in accordance with rules 5.3 or 5.3A (as is relevant);

(2) ensure that, to the extent that a *connection point* relates to its part of the *national grid*, every arrangement for *connection* with a *Registered Participant* or any other arrangement involving a *connection agreement* with that *Network Service Provider* complies with all relevant provisions of the *Rules*;

(3) co-ordinate the design aspects of equipment proposed to be *connected* to its *networks* with those of other *Network Service Providers* in accordance with rule 5.6 in order to seek to achieve *power system* performance requirements in accordance with schedule 5.1;

(4) together with other *Network Service Providers*, arrange for and participate in planning and development of their *networks* and *connection points* on or with those *networks* in accordance with Part D of Chapter 5;

(5) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(6) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to its *network* in accordance with rule 5.8;

(7) advise a *Registered Participant* or other person with whom there is a *connection agreement* upon request of any expected interruption characteristics at a *connection point* on or with its *network* so that the *Registered Participant* or other person may make alternative arrangements for *supply* during such interruptions, including negotiating for an alternative or backup *connection*;

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(8) use its reasonable endeavours to ensure that modelling data used for planning, design and operational purposes is complete and accurate and order tests in accordance with rule 5.7 where there are reasonable grounds to question the validity of data;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(9) provide to *AEMO* and other *Network Service Providers* all data available to it and reasonably required for modelling the static and *dynamic performance* of the *power system*;

(10) forward to *AEMO* and other *Network Service Providers* subsequent updates of the data referred to in subparagraph (9) and, to the best of its ability and knowledge, ensure that all data used for the purposes referred to in rules 5.3 or 5.3A (as is relevant) is consistent with data used for such purposes by other *Network Service Providers*;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(11) provide to *AEMO* the information required from *Generators* or *Integrated Resource Providers* under schedule 5.2 and from *Customers* under schedule 5.3 and from *Market Network Service Providers* under schedule 5.3a in relation to a *connection agreement* and details of any *connection points* with other *Network Service Providers*; and

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(12) where *network augmentations*, setting changes or other technical issues arise which could impact across *regional* boundaries, provide *AEMO* with a written report on the impact and its effects.

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) A *Network Service Provider* must arrange for operation of that part of the *national grid* over which it has control in accordance with instructions given by *AEMO*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e1) A *Network Service Provider* must, except in so far as its *market network services* and parts of its *network* which are used solely for the provision of *market network services* are concerned, arrange for:

(1) management, maintenance and operation of its part of the *national grid* such that, in the *satisfactory operating state*, electricity may be transferred continuously at a *connection point* on or with its *network* up to the *agreed capability*;

(2) operation of its *network* such that the fault level at any *connection point* on or with that *network* does not breach the limits that have been specified in a *connection agreement*;

(3) management, maintenance and operation of its *network* to minimise the number of interruptions to *agreed capability* at a *connection point* on or with that *network* by using *good electricity industry practice*; and

(4) restoration of the *agreed capability* at a *connection point* on or with that *network* as soon as reasonably practicable following any interruption at that *connection point*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) A *Network Service Provider* must comply with *applicable regulatory instruments*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) Each *Network Service Provider* must in respect of new or altered equipment owned, operated or controlled by it for the purpose of providing a *market network service*:

(1) submit an *application to connect* and enter into a *connection agreement* with a *Network Service Provider* in accordance with rule 5.3 prior to that equipment being connected to the *network* of that *Network Service Provider* or altered (as the case may be);

(2) comply with the reasonable requirements of *AEMO* and the relevant *Network Service Provider* in respect of design requirements of equipment proposed to be *connected* to the *network* of that *Network Service Provider* in accordance with rule 5.6 and schedule 5.3a;

(3) provide forecast information to the relevant *Network Service Provider* in accordance with Part D of Chapter 5;

(4) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(5) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to a *network* for the first time in accordance with rule 5.8; and

(6) **[Deleted]**

(7) give notice of intended voluntary permanent *disconnection* in accordance with rule 5.9.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g1) A *Network Service Provider* must comply with any terms and conditions of a *connection agreement* for its *market network service facilities* that provide for the implementation, operation, maintenance or performance of a *system strength remediation scheme*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) **[Deleted]**

(h1) **[Deleted]**

(h2) **[Deleted]**

(h3) **[Deleted]**

(i) This Chapter is neither intended to require, nor is it to be read or construed as having the effect of requiring, a *Network Service Provider* to permit *connection* to or to *augment* any part of its *network* which is solely used for the provision of *market network services*.

(j) If in *AEMO*'s reasonable opinion, there is a risk a *Network Service Provider*'s *plant* or equipment will:

(1) adversely affect *network capability*, *power system security*, quality or reliability of *supply*, *inter-regional power transfer capability*;

(2) adversely affect the use of a *network* by a *Network User*; or

(3) have an *adverse system strength impact*,

AEMO may request the *Network Service Provider* to provide information of the type described in clause 4.3.4(o), and following such a request, the *Network Service Provider* must provide the information to *AEMO* and any other relevant *Network Service Provider*(s) in accordance with the requirements and circumstances specified in the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(k) If in *AEMO*'s reasonable opinion, information of the type described in clause 4.3.4(o) is required to enable a *Network Service Provider* to conduct the assessment required by clause 5.3.4B, *AEMO* may request any other relevant *Network Service Provider* to provide the information, and following such a request, that *Network Service Provider* must provide the information to *AEMO* and the other relevant *Network Service Provider*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(l) All information provided to *AEMO* and the relevant *Network Service Provider*(s) under paragraphs (j) and (k) must be treated as *confidential information* by those recipients.

5.2.5A Obligations of Integrated Resource Providers

(a) An *Integrated Resource Provider* must plan and design its *facilities* and ensure that they are operated to comply with:

(1) the *performance standards* applicable to those *facilities*;

(2) subject to subparagraph (1), its *connection agreement* applicable to those *facilities*; and

(3) subject to subparagraph (2), the *system standards*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.2.5A(a) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(b) An *Integrated Resource Provider* must:

(1) submit an *application to connect* in respect of new *generating plant* (including an *integrated resource system*) owned, operated or controlled by the *Integrated Resource Provider*, or to be owned, operated or controlled by the *Integrated Resource Provider*, and enter into a *connection agreement* with a *Network Service Provider* in accordance with rule 5.3 prior to that *generating plant* being *connected* to the *network* of that provider;

(2) comply with the reasonable requirements of the relevant *Network Service Provider* in respect of design requirements of *generating plant* proposed to be *connected* to the *network* of that provider in accordance with rule 5.6 and schedule 5.2;

(3) provide *generation* forecast information to the relevant *Network Service Provider* in accordance with Part D of Chapter 5;

(4) permit and participate in inspection and testing of *facilities* and equipment in accordance with rule 5.7;

(5) permit and participate in commissioning of *facilities* and equipment which are to be *connected* to a *network* for the first time in accordance with rule 5.8; and

(6) give notice of intended voluntary permanent *disconnection* in accordance with rule 5.9.

(c) An *Integrated Resource Provider* must comply with any terms and conditions of a *connection agreement* for its *generating system* or *integrated resource system* that provide for the implementation, operation, maintenance or performance of a *system strength remediation scheme*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.2.5A(c) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(d) If in *AEMO*'s reasonable opinion, there is a risk that an *Integrated Resource Provider's plant* will:

(1) adversely affect *network capability*, *power system security*, quality or reliability of *supply* or *inter-regional power transfer capability*;

(2) adversely affect the use of a *network* by a *Network User*; or

(3) have an *adverse system strength impact*,

AEMO may request the *Integrated Resource Provider* to provide information of the type described in clause S5.2.4, and following such a request, the *Integrated Resource Provider* must provide the information to *AEMO* and the relevant *Network Service Provider*(s) in accordance with the requirements and circumstances specified in the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.2.5A(d) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(e) If in *AEMO*'s reasonable opinion, information of the type described in clause S5.2.4 is required to enable a *Network Service Provider* to conduct the assessment required by clause 5.3.4B, *AEMO* may request the *Integrated Resource Provider* to provide the information, and following such a request, the *Integrated Resource Provider* must provide the information to *AEMO* and the relevant *Network Service Provider*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.2.5A(e) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(f) All information provided to *AEMO* and the relevant *Network Service Provider*(s) under paragraphs (d) and (e) must be treated as *confidential information* by those recipients.

5.2A Transmission network connection and access

5.2A.3 Connection and access to transmission services

(a) The following *transmission services* are relevant to *connection* and access to the *transmission network*:

	Service classification	TNSP obligations in respect of the services
1	*prescribed transmission services*	Subject to *connection* and access under Chapter 5 and economic regulation under Chapter 6A
2	*negotiated transmission services*	Subject to *connection* and access under Chapter 5
3	*non-regulated transmission services*	Not subject to *connection* and access under Chapter 5 or economic regulation under Chapter 6A (*DNA services* are subject to access under the *access policy* established by the owner of that *designated network asset*)

(b) A *Connection Applicant* may apply to a *Transmission Network Service Provider* for provision of a *prescribed transmission service* or a *negotiated transmission service* in accordance with rule 5.3 and the relevant *Transmission Network Service Provider* must comply with this Chapter 5 in negotiating a *connection agreement* or *network operating agreement* for the requested service.

(c) If the *prescribed transmission service* or *negotiated transmission service* sought under paragraph (b) does not require the *Connection Applicant* to establish or modify a *connection* or alter a *generating system* or *integrated resource system* ~~*generating plant*~~ in the circumstances set out in clause 5.3.9 or alter other *plant* in the circumstances set out in clause 5.3.12, the processes in rules 5.3, 5.4 and 5.5 will apply with such modifications as is appropriate to the nature of the service requested.

(d) A *Transmission Network Service Provider* must provide *prescribed transmission services* or *negotiated transmission services* on *terms and conditions of access* that are consistent with the requirements of Chapters 4, 5 and 6A of the *Rules* (as applicable).

(d1) A *Connection Applicant* may

(1) for *connection* to a *designated network asset*, apply to the *Primary Transmission Network Service Provider* in accordance with rule 5.3; and

(2) for access to *DNA services*, apply to an owner of a *designated network asset* in accordance with the relevant *access policy*.

(e) A *Transmission Network Service Provider* or a person who is provided *prescribed transmission services* or *negotiated transmission services* must not engage in conduct for the purpose of preventing or hindering access to those services.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) The *Connection Applicant* may terminate negotiations with the *Transmission Network Service Provider* at any time during the *connection* process provided under rules 5.3 and 5.3A with at least three *business days'* prior written notice.

(g) A *Transmission Network Service Provider* may terminate negotiations with the *Connection Applicant* with at least three *business days*' prior written notice if:

(1) the *Connection Applicant* becomes insolvent or an equivalent event occurs;

(2) the *Connection Applicant* has, in the *Transmission Network Service Provider's* reasonable opinion, provided false or misleading information;

(3) the *Transmission Network Service Provider* has reasonable grounds to believe that the *Connection Applicant* is not negotiating in good faith; or

(4) the *Transmission Network Service Provider* has formed the reasonable opinion that the *Connection Applicant* does not intend to obtain the service.

5.2A.6 Negotiating principles

(a) If a *Connection Applicant* seeks access to *negotiated transmission services*, including in relation to an *identified user shared asset*, the *Transmission Network Service Provider* and the *Connection Applicant* must, in negotiating pursuant to rule 5.3 and other relevant *Rules*, negotiate in accordance with the *negotiating principles*.

(b) A *Transmission Network Service Provider* must, in accordance with the *negotiating principles*:

(1) on request, identify and inform a *Connection Applicant* of the reasonable costs and/or the increase or decrease in costs (as appropriate) of providing a *negotiated transmission service*;

(2) on request, demonstrate to a *Connection Applicant* that the charges for providing a *negotiated transmission service* reflect those costs and/or the cost increment or decrement (as appropriate);

(2A) where a *Connection Applicant* seeks access to a *shared transmission service* and *jurisdictional electricity legislation* is, or may be, an impediment to the provision of the service as a *negotiated transmission service*, where requested by the *Connection Applicant*:

(i) provide information to the *Connection Applicant* about the nature of the issue and how it may be addressed; and

(ii) provide reasonable assistance to the *Connection Applicant* in connection with any governmental or regulatory approvals or

coordination with the *jurisdictional planning body* required to address the issue;

(3) determine the potential impact on other *Transmission Network Users* of the provision of a *negotiated transmission service*; and

(4) notify and consult with any affected *Transmission Network Users* and ensure that the provision of a *negotiated transmission service* does not result in non-compliance with obligations in relation to other *Transmission Network Users* under the *Rules*.

(c) If an applicant seeks *DNA services*, the owner of the *designated network asset* must comply with its *access policy* and the negotiating principles in schedule 5.12.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.2A.7 Third party owned network assets and network operating agreements

Definitions

(a0) This clause applies only to a *third party IUSA* and *designated network asset* that is not owned or leased by the *Primary Transmission Network Service Provider* (**third party owned network asset**).

(a) A person must not commission, or permit the commissioning of, a third party owned network asset unless there is a *network operating agreement* between the owner of that third party owned network asset and the *Primary Transmission Network Service Provider*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) The person who owns or is intending to own a third party owned network asset and the *Primary Transmission Network Service Provider* must:

(1) include terms and conditions in the *network operating agreement* which give effect to the requirements of paragraphs (c) and (d);

(2) include terms and conditions in the *network operating agreement* of the kind set out in Part B of schedule 5.6; and

(3) negotiate the *network operating agreement* in accordance with the *negotiating principles* and negotiating principles in schedule 5.12 (where applicable).

(c) The term of the *network operating agreement* must be for a period which is at least equal to the term of the longest *connection agreement* of a member of the initial *identified user group* for the third party owned network asset .

(d) The *network operating agreement* must provide for the *Primary Transmission Network Service Provider* to:

(1) have operation and control of the third party owned network asset (including the rights and obligations to maintain that asset) for an agreed charge or based on an agreed charging methodology;

(2) **[Deleted]**

(3) alter, replace or augment the third party owned network asset but in the case of a *designated network asset*, only to the extent that such activities are necessary for the operation and maintenance of the *designated network asset* or in connection with the provision of *prescribed transmission services*;

(4) have the right to connect other persons to the third party owned network asset in accordance with the *Rules*;

(5) have unrestricted use of, and access to, the third party owned network asset in accordance with the *Rules*; and

(6) treat the third party owned network asset as forming part of the *Primary Transmission Network Service Provider's transmission network* in all material respects and provide *transmission services* to a *Transmission Network User* in accordance with the *Rules*; and

(7) distribute to or recover from the owner of the *designated network asset* any *settlements residue* accrued on the *designated network asset* in accordance with the methodology set out in the *network operating agreement*.

(e) [**Deleted**]

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.3 Establishing or Modifying Connection

5.3.1 Process and procedures

(a) For the purposes of this rule 5.3:

(1) **establish a connection** includes:

(i) modify an existing *connection* or alter *plant* but does not include alterations to *plant* in the circumstances set out in clause 5.3.9 or clause 5.3.12; or

(ii) incorporating a *designated network asset* into a *transmission network*.

(2) **connect** includes the incorporation of a *designated network asset* into a *transmission network*.

(b) Subject to paragraph (b1), a *Registered Participant* or person intending, or required by the *Rules*, to become a *Registered Participant* who wishes to *establish a connection* to a *network* must follow the procedures in this rule 5.3.

(b1) If a *Registered Participant*, or person intending to become a *Registered Participant*, wishes to establish a *connection* to a part of a *network* that is a *designated network asset* either through a *dedicated connection asset* or by way of a new *designated network asset*, then:

(1) for *connection*, the process in rule 5.3 applies; and

(2) for access to *DNA services* from the existing *designated network asset*, the access is governed by the relevant *access policy* that applies.

(c) A *Generator* or *Integrated Resource Provider* wishing to alter any *connected generating system* or *integrated resource system* ~~*generating plant*~~ must comply with clause 5.3.9 and a *Network User* or *Market Network Service Provider* to whom clause 5.3.12 applies must comply with clause 5.3.12.

(d) *AEMO* must comply with clause 5.3.11 in relation to requests to change *normal voltage*.

(e) For *connection* to a *transmission network*, there may be more than one *Connection Applicant* in relation to a *connection* where there are different persons developing and owning *contestable IUSA components*, *dedicated connection assets*, *designated network assets* and *Transmission Network User facilities* in relation to that *connection*.

5.3.1A Application of rule to connection of ~~embedded generating units~~distribution connected systems

(a) **[Deleted]**

(b) If a *Connection Applicant* wishes to *connect* ~~*an embedded generating unit*~~ *a generating system* or an *integrated resource system* to a *distribution network*, then:

(1) unless otherwise provided, rule 5.3A applies to the proposed connection and clauses 5.3.2, 5.3.3, 5.3.4 and 5.3.5 do not apply to the proposed *connection*; and

(2) for the avoidance of doubt, the application of the balance of Chapter 5, Part B to the *Connection Applicant* is otherwise unaffected by this clause 5.3.1A.

(c) A reference to a *Connection Applicant* in paragraph (b) is to a:

(1) person who intends to be ~~an *Embedded Generator*~~a *Distribution Connected Resource Provider*;

(2) person who has applied or intends to apply to *AEMO* for an exemption from the requirement to register as a *Generator* or *Integrated Resource Provider* in respect of a *generating system* or an *integrated resource system* ~~*an embedded generating unit*~~ (and is not eligible for an automatic exemption under the *registration information resource and guidelines*);

(3) ~~*non-registered embedded generator*~~ *non-registered DER provider* who has made an election under clause 5A.A.2(c); or

(4) a person (including a *non-registered DER provider*~~*non-registered embedded generator*~~) who is seeking *connection* for a *large inverter based resource*,

and who makes a *connection* enquiry under clause 5.3A.5 or an *application to connect* under clause 5.3A.9 in relation to any *generating systems* or *integrated resource systems*, or any *network elements* used in the provision of a *network service*, as the case may be.

5.3.3 Response to connection enquiry

(a) In preparing a response to a *connection* enquiry, the *Network Service Provider* must liaise with other *Network Service Providers* with whom it has *connection agreements*, if the *Network Service Provider* believes, in its reasonable opinion, that compliance with the terms and conditions of those *connection agreements* will be affected. The *Network Service Provider* responding to the *connection* enquiry may include in that response the reasonable requirements of any such other *Network Service Providers* for information to be provided by the *Connection Applicant*.

(b) The *Network Service Provider* must:

(1) within:

(i) 40 *business days* after receipt of the *connection* enquiry which relates to a *designated network asset* and all such additional information (if any) advised under clause 5.3.2(b);

(ii) 30 *business days* after receipt of any other *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b); or

(2) within 30 *business days* after receipt of a request from the *Connection Applicant* to the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d),

provide the following information in writing to the *Connection Applicant*:

(3) the identity of other parties that the *Network Service Provider* considers:

(i) will need to be involved in planning to make the *connection*; and

(ii) must be paid for *transmission services* or *distribution services* in the appropriate jurisdiction;

(4) whether it will be necessary for any of the parties identified in subparagraph (3) to enter into an agreement with the *Connection Applicant* in respect of the provision of *connection* or other *transmission services* or *distribution services* or both, to the *Connection Applicant*;

(5) in relation to *Distribution Network Service Providers* and *Network Service Providers* for *declared transmission systems*, whether any service the *Network Service Provider* proposes to provide is *contestable* in the relevant *participating jurisdiction*;

(5A) whether any service a *Transmission Network Service Provider* proposes to provide in relation to the *connection* enquiry is a *prescribed transmission service*, a *negotiated transmission service* or a *non-regulated transmission service* including, if applicable:

(i) whether the capital cost of any *identified user shared asset* is reasonably expected to exceed $10 million; and

(ii) if so, the *contestable IUSA components* and *non-contestable IUSA components*;

(5B) whether the *connection* enquiry relates to *connection* to a part of a *network* that is a *designated network asset*;

(6) a *preliminary program* showing proposed milestones for *connection* and access activities which may be modified from time to time by agreement of the parties, where such agreement must not be unreasonably withheld;

(7) the specification of the interface required to provide the *connection*, including plant and equipment requirements for the *connection* of a *dedicated connection asset* or *designated network asset* (as applicable), to the *transmission network* and of the interface between the *transmission network* and any *contestable IUSA components* or *designated network asset*;;

(8) if applicable, the scope of work for any *non-contestable IUSA components*;

(9) if the response to the *connection enquiry* specifies the need for an *identified user shared asset* the capital cost of which is reasonably expected to exceed $10 million or includes a *designated network asset*, a functional specification:

(i) setting out the technical parameters for that asset as described in the table in clause 5.2A.4 with sufficient detail to enable the *Connection Applicant* to obtain binding tenders for the provision of detailed design, construction and ownership services for the *contestable IUSA components* or *designated network asset*; and

(ii) at the *Primary Transmission Network Service Provider's* option in respect of an *identified user shared asset*, that is above those minimum requirements in subparagraph (i) subject to the *Primary Transmission Network Service Provider* separately identifying the additional requirements and agreeing to fund the additional works related to those requirements;

(10) an indicative costing for operation and maintenance services for any *identified user shared asset* or *designated network asset*, based on the functional specification provided pursuant to subparagraph (9); and

(11) the amount of any enquiry fee under clause 5.3.2(g).

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) The *Network Service Provider* must:

(1) within 30 *business days* after receipt of the *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b); or

(2) within 30 *business days* after receipt of a request from the *Connection Applicant* to the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d),

provide the *Connection Applicant* with the following written details of each technical requirement relevant to the proposed *plant*:

(3) the *automatic access standards*;

(4) the *minimum access standards*;

(5) the applicable *plant standards*;

(6) the *negotiated access standards* that will require *AEMO's* involvement in accordance with clause 5.3.4A(c); and

(7) the *normal voltage* level, if that is to change from the *nominal voltage* level.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b2) A *Registered Participant*, *AEMO* or *interested party* may request the *Reliability Panel* to determine whether, in respect of one or more technical requirements for access, an existing Australian or international standard, or a part thereof, may be adopted as a *plant standard* for a particular class of *plant*.

(b3) Where, in respect of a technical requirement for access, the *Reliability Panel* determines a *plant standard* for a particular class of *plant* in accordance with clause 8.8.1(a)(8) as an acceptable alternative to a particular *minimum access standard* or *automatic access standard*, a *plant* which meets that *plant standard* is deemed to meet the applicable *automatic access standard* or *minimum access standard* for that technical requirement.

(b4) In making a determination in accordance with clause 5.3.3(b2) the *Reliability Panel* must consult *Registered Participants* and *AEMO* using the *Rules consultation procedures*.

(b5) For a *connection point* for a proposed new *connection* in relation to which clause 5.3.4B applies, within the time applicable under paragraph (b1), the *Network Service Provider* must provide the *Connection Applicant* with the following written details:

(1) the minimum *three phase fault level* at the *connection point*;

(2) the results of the *Network Service Provider's* preliminary assessment of the impact of the new *connection* undertaken in accordance with the *system strength impact assessment guidelines* and clause 5.3.4B; and

(3) except where, under clause 5.3.4B(a3), the *Network Service Provider* is not required to calculate the *system strength locational factor*:

(i) the indicative *system strength quantity* for the *connection point*;

(ii) the *system strength locational factor* for the *connection point*; and

(iii) the relevant *system strength node* and the indicative *system strength charge* using the then applicable *system strength unit price*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) Within 30 *business days* after receipt of the *connection* enquiry and all such additional information (if any) advised under clause 5.3.2(b) or, if the *Connection Applicant* has requested the *Local Network Service Provider* to process the *connection* enquiry under clause 5.3.2(d), within 20 *business days* after receipt of that request, the *Network Service Provider* must provide to the *Connection Applicant* written advice of all further information which the *Connection Applicant* must prepare and obtain in conjunction with the *Network Service Provider* to enable the *Network Service Provider* to assess an *application to connect* including:

(1) details of the *Connection Applicant's connection* requirements, and the *Connection Applicant's* specifications of the *facility* to be connected, consistent with the requirements advised in accordance with clause 5.3.3(b1);

(2) details of the *Connection Applicant's* reasonable expectations of the level and standard of service of *power transfer capability* that the *network* should provide;

(3) a list of the technical data to be included with the *application to connect*, which may vary depending on the *connection* requirements and the type, rating and location of the *facility* to be *connected* and will generally be in the nature of the information set out in schedule 5.5 but may be varied by the *Network Service Provider* as appropriate to suit the size and complexity of the proposed *facility* to be *connected*;

(4) commercial information to be supplied by the *Connection Applicant* to allow the *Network Service Provider* to make an assessment of the ability of the *Connection Applicant* to satisfy the prudential requirements set out in rules 6.21 and 6A.28;

(4a) the *DER generation information* that the *Network Service Provider* requires;

(5) the amount of the application fee which is payable on lodgement of an *application to connect*, such amount:

(i) not being more than necessary to cover the reasonable costs of all work anticipated to arise from investigating the *application to connect* and preparing the associated offer to *connect* and to meet the reasonable costs anticipated to be incurred by *AEMO* and other *Network Service Providers* whose participation in the assessment of the *application to connect* will be required; and

(ii) must not include any amount for, or in anticipation of, the costs of the person using an *Independent Engineer*; and

(6) any other information relevant to the submission of an *application to connect*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.3.4A Negotiated access standards

(a) *AEMO* must advise on *AEMO advisory matters*.

(b) A *negotiated access standard* must:

(1) subject to subparagraph (1A), be no less onerous than the corresponding *minimum access standard* provided by the *Network Service Provider* under clauses 5.3.3(b1)(4) or S5.4B(b)(2);

(1A) with respect to a submission by a *Generator* or *Integrated Resource Provider* under clause 5.3.9(b)(3), or a *Network User* or *Market Network Service Provider* under clause 5.3.12(b)(3), be no less onerous than the *performance standard* that corresponds to the technical requirement that is affected by the alteration to the *generating system* or *integrated resource system* or *plant* (as applicable);

(2) be set at a level that will not adversely affect *power system security*;

(3) be set at a level that will not adversely affect the quality of *supply* for other *Network Users*; and

(4) in respect of *generating plant*, meet the requirements applicable to a *negotiated access standard* in Schedule 5.2.

(b1) When submitting a proposal for a *negotiated access standard* under clauses 5.3.4(e), 5.3A.9(f), 5.3.9(b)(3), 5.3.12(b)(3) or subparagraph (h)(3), and where there is a corresponding *automatic access standard* for the relevant technical requirement, a *Connection Applicant* must propose a standard that is as close as practicable to the corresponding *automatic access standard*, having regard to:

(1) the need to protect the *plant* from damage;

(2) *power system* conditions at the location of the proposed *connection*; and

(3) the commercial and technical feasibility of complying with the *automatic access standard* with respect to the relevant technical requirement.

(b2) When proposing a *negotiated access standard* under paragraph (b1), the *Connection Applicant* must provide reasons and evidence to the *Network Service Provider* and *AEMO* as to why, in the reasonable opinion of the *Connection Applicant*, the proposed *negotiated access standard* is appropriate, including:

(1) how the *Connection Applicant* has taken into account the matters outlined in subparagraphs (b1)(1) to (3); and

(2) how the proposed *negotiated access standard* meets the requirements of paragraph (b).

(c) Following the receipt of a proposed *negotiated access standard* under clauses 5.3.4(e), 5.3A.9(f), 5.3.9(b)(3), 5.3.12(b)(3) or subparagraph (h)(3), the *Network Service Provider* must consult with *AEMO* as soon as practicable in relation to *AEMO advisory matters* for that proposed standard.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) Within 20 *business days* following the later of:

(1) receipt of a proposed *negotiated access standard* under clauses 5.3.4(e), 5.3A.9(f), 5.3.9(b)(3), 5.3.12(b)(3) or subparagraph (h)(3); and

(2) receipt of all information required to be provided by the *Connection Applicant* under clauses S5.2.4, S5.5.6, S5.3.1(a1) or S5.3a.1(a1),

AEMO must advise the *Network Service Provider* in writing, in respect of *AEMO advisory matters*, whether the proposed *negotiated access standard* should be accepted or rejected.

(d1) When advising the *Network Service Provider* under paragraph (d) to reject a proposed *negotiated access standard*, and subject to obligations in respect of *confidential information*, *AEMO* must:

(1) provide detailed reasons in writing for the rejection to the *Network Service Provider*, including:

(i) where the basis of *AEMO*'s advice is lack of evidence from the *Connection Applicant*, details of the additional evidence of the type referred to in paragraph (b2) *AEMO* requires to continue assessing the proposed *negotiated access standard*; and

(ii) the extent to which each of the matters identified at subparagraphs (b)(1), (b)(1A), (b)(2) and (b)(4) contributed to *AEMO*'s decision to reject the proposed *negotiated access standard*; and

(2) recommend a *negotiated access standard* that *AEMO* considers meets the requirements of subparagraphs (b)(1), (b)(1A), (b)(2) and (b)(4).

(e) Within 30 *business days* following the later of:

(1) receipt of a proposed *negotiated access standard* in accordance with clauses 5.3.4(e), 5.3A.9(f), 5.3.9(b)(3), 5.3.12(b)(3) or subparagraph (h)(3); and

(2) receipt of all information required to be provided by the *Connection Applicant* under clauses S5.2.4, S5.5.6, S5.3.1(a1) or S5.3a.1(a1),

the *Network Service Provider* must accept or reject a proposed *negotiated access standard*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) The *Network Service Provider* must reject the proposed *negotiated access standard* where:

(1) in the *Network Service Provider*'s reasonable opinion, one or more of the requirements at subparagraphs (b)(1), (b)(1A), (b)(3) and (b)(4) are not met; or

(2) *AEMO* has advised the *Network Service Provider* under paragraph (d) to reject the proposed *negotiated access standard*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) If a *Network Service Provider* rejects a proposed *negotiated access standard*, the *Network Service Provider* must, at the same time:

(1) subject to obligations in respect of *confidential information*, provide to the *Connection Applicant*:

(i) where the basis for the *Network Service Provider's* rejection is lack of evidence from the *Connection Applicant*, details of the additional evidence of the type referred to in paragraph (b2) the *Network Service Provider* requires to continue assessing the proposed *negotiated access standard*;

(ii) detailed reasons in writing for the rejection, including the extent to which each of the matters identified at subparagraphs (b)(1), (b)(1A), (b)(3) and (b)(4) contributed to the *Network Service Provider's* decision to reject the proposed *negotiated access standard*; and

(iii) the detailed reasons and recommendation (if any) provided by *AEMO* to the *Network Service Provider* in respect of an *AEMO advisory matter* under subparagraphs (d1)(1) and (2); and

(2) advise the *Connection Applicant* of a *negotiated access standard* that the *Network Service Provider* considers meets the requirements of subparagraphs (b)(1), (b)(1A), (b)(3) and (b)(4).

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) The *Connection Applicant* may in relation to a proposed *negotiated access standard* advised by a *Network Service Provider* in accordance with subparagraph (g)(2):

(1) accept the proposed *negotiated access standard*;

(2) reject the proposed *negotiated access standard*;

(3) propose an alternative *negotiated access standard* to be further evaluated in accordance with the criteria in paragraph (b); or

(4) elect to adopt the relevant *automatic access standard* or a corresponding *plant standard*.

(i) An *automatic access standard* or if the procedures in this clause 5.3.4A have been followed a *negotiated access standard*, that forms part of the terms and

conditions of a *connection agreement*, is taken to be the *performance standard* applicable to the *connected plant* for the relevant technical requirement.

5.3.4B System strength mitigation requirement

(a) This clause applies in relation to:

(1) a proposed new *connection* of a *generating system*, *integrated resource system* or *market network service facility* to which rule 5.3 or 5.3A applies;

(2) a proposed new *connection* for a *Network User* to whom schedule 5.3 applies where the *facility* to be *connected* includes an *inverter based resource*; and

(3) a proposed alteration to a *generating system* or *integrated resource system* where clause 5.3.9 applies or to other *connected plant* where clause 5.3.12 applies.

(a1) In this clause, a reference to a *Connection Applicant* includes a reference to a *Generator* or an *Integrated Resource Provider* to whom clause 5.3.9 applies and a *Network User* or *Market Network Service Provider* to whom clause 5.3.12 applies.

(a2) For each proposed new *connection* or proposed alteration to a *generating system*, *integrated resource system* or other *connected plant* to which this clause applies, a *Network Service Provider* must:

(1) undertake a preliminary *system strength impact assessment* in accordance with the *system strength impact assessment guidelines*;

(2) subject to paragraph (a3), calculate the *system strength locational factor* for the new *connection* or proposed alteration in accordance with the *system strength impact assessment guidelines*;

(3) undertake a full *system strength impact assessment* following the preliminary assessment, unless:

(i) the preliminary assessment indicates there will be no *general system strength impact* or the impact is below any threshold specified in the *system strength impact assessment guidelines* for the purposes of paragraph (f)(3); or

(ii) where applicable, the *Connection Applicant* has elected in accordance with paragraph (b1) to pay the *system strength charge* in relation to the *connection*; and

(4) where the *Connection Applicant* has elected in accordance with paragraph (b1) to pay the *system strength charge* in relation to the *connection* or proposed alteration, undertake modelling in accordance with the *system strength impact assessment guidelines* to verify the stability of the *plant.*

(a3) A *Network Service Provider* is not required to calculate the *system strength locational factor* where it determines in accordance with the *system strength impact assessment guidelines* that a *system strength locational factor* cannot reasonably be calculated or would be manifestly excessive.

(a4) A *Connection Applicant* in receipt of the *Network Service Provider's* calculation of the *system strength locational factor* may request the *Network Service Provider* to undertake a further preliminary *system strength impact assessment* in accordance with the *system strength impact assessment guidelines* and provide a revised *system strength locational factor* for a new *connection* or proposed alteration to a *generating system*, *integrated resource system* or other *connected plant*. The *Network Service Provider* may require payment of a fee to meet the reasonable costs anticipated to be incurred by the *Network Service Provider* in undertaking any further preliminary assessment.

(b) The *Network Service Provider* must give the results of the preliminary assessment and where applicable the full assessment to the *Connection Applicant* concerned following consultation with *AEMO*.

(b1) A *Connection Applicant* must elect in its *application to connect*, its submission under clause 5.3.9(b) or its submission under clause 5.3.12(b) (as applicable) whether the *system strength charge* will be payable in relation to the new *connection* or alteration to the *generating system*, *integrated resource system* or other *connected plant* (as applicable). The election cannot be revoked.

(c) A dispute referred to in paragraph (d) between any of:

(1) *AEMO*;

(2) a *Network Service Provider* required to conduct an assessment under paragraph (a);

(3) a *Connection Applicant* who has submitted an *application to connect* for which a full assessment is required under paragraph (a2)(3);

(4) a *Generator* or *Integrated Resource Provider* who proposes an alteration to a *generating system* or *integrated resource system* to which clause 5.3.9 applies and for which a full assessment is required under paragraph (a2)(3); and

(5) a *Network User* or *Market Network Service Provider* who proposes an alteration to *connected plant* to which clause 5.3.12 applies and for which a full assessment is required under paragraph (a2)(3),

may be determined under rule 8.2.

(d) Paragraph (c) applies to any dispute relating to the assessment of the *general system strength impact* as a result of conducting a *system strength impact assessment* including a dispute in relation to:

(1) whether the model specified by *AEMO* for the purposes of clause 4.6.6(b)(2) was reasonably appropriate for conducting the *system strength impact assessment*; and

(2) the application of the *system strength impact assessment guidelines* when undertaking a *system strength impact assessment*.

(e) Subject to paragraph (f), a *Network Service Provider* must undertake *system strength connection works* at the cost of the *Connection Applicant* if the full assessment undertaken in accordance with the *system strength impact assessment guidelines* indicates that the *Connection Applicant's* proposed

new *connection* or proposed alteration will have a *general system strength impact*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) Paragraph (e) does not require a *Network Service Provider* to undertake, nor permit a *Network Service Provider* to require, *system strength connection works* in the following circumstances:

(1) the proposed new *connection* or alteration does not proceed;

(2) to the extent that the *general system strength impact* referred to in paragraph (e) is or will be avoided or remedied by a *system strength remediation scheme* agreed or determined under this clause and implemented by the *Connection Applicant* in accordance with its *connection agreement*;

(3) to the extent that the impact is below any threshold specified in the *system strength impact assessment guidelines* for this purpose; or

(4) the *Connection Applicant* has elected for the *system strength charge* to be payable in relation to the new *connection* or proposed alteration.

(g) A *Connection Applicant* must include any proposal for a *system strength remediation scheme* in its *application to connect* or its proposal under clause 5.3.9(b)(4) or under clause 5.3.12(b)(4).

(h) A *Connection Applicant* proposing to install *plant* as part of a *system strength remediation scheme* must include a description of the *plant* and other information (including models) reasonably required by the *Network Service Provider* and *AEMO* to assess the *system strength remediation scheme*.

(i) A *Network Service Provider* must, following the receipt of a proposal for a *system strength remediation scheme*, consult with *AEMO* as soon as practical in relation to the proposal.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(j) Following the submission of a proposal for a *system strength remediation scheme*, *AEMO* must use reasonable endeavours to respond to the *Network Service Provider* in writing in respect of the proposal within 20 *business days*.

(k) A *Network Service Provider* must within 10 *business days* following the receipt of a response from *AEMO* under paragraph (h) to a proposal for a *system strength remediation scheme*, accept or reject the proposal.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(l) The *Network Service Provider* must reject a proposal for a *system strength remediation scheme* if the scheme is not reasonably likely to achieve its required outcome or would:

(1) in the reasonable opinion of the *Network Service Provider* adversely affect quality of *supply* for other *Network Users*; or

(2) on *AEMO's* reasonable advice, adversely affect *power system security*.

(m) If a *Network Service Provider* rejects a proposal for a *system strength remediation scheme*, the *Network Service Provider* must give its reasons but has no obligation to propose a *system strength remediation scheme* that it will accept.

(n) The *Connection Applicant* submitting a proposal for a *system strength remediation scheme* rejected by a *Network Service Provider* may:

(1) propose an alternative *system strength remediation scheme* to be further evaluated following the process initiated under paragraph (i); or

(2) request negotiations under paragraph (o).

(o) If a *Connection Applicant* requests negotiations under this paragraph, the *Connection Applicant*, the *Network Service Provider* and *AEMO* must negotiate in good faith to reach agreement in respect of the proposal for a *system strength remediation scheme*.

(p) If the matter is not resolved by negotiation under paragraph (o):

(1) in the case of a *connection* to a *transmission system* other than the *declared transmission system* of an *adoptive jurisdiction*, the matter may be dealt with as a dispute under rule 5.5 (but not rule 8.2); or

(2) otherwise, may be dealt with under rule 8.2 or as a *distribution service access dispute* as applicable.

(q) The parties to a *connection agreement* containing a *system strength remediation scheme* must not modify the scheme unless the modified scheme has been agreed or determined under this clause. A *Registered Participant* proposing to modify a *system strength remediation scheme* must submit its proposal for modification to the *Network Service Provider* for evaluation by the *Network Service Provider* and *AEMO* under this clause. Once agreed or determined, the modified scheme must be incorporated as an amendment to the *connection agreement* and notified to *AEMO* under clause 5.3.7(g).

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.3.6 Offer to connect

(a) Subject to paragraph (a3), a *Network Service Provider* processing an *application to connect* must make an offer to *connect* the *Connection Applicant's facilities* to the *network* within the following timeframes:

(1) where the *application to connect* was made under clause 5.3.4(a), the timeframe specified in the *preliminary program*, subject to clause 5.3.3(b)(6); and

(2) where the *application to connect* was made under clause 5.3A.9(b), a period of time no longer than 4 months from the date of receipt of the *application to connect* and any additional information requested under clause 5.3A.9(d), unless agreed otherwise.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) The *Network Service Provider* may amend the time period referred to in paragraph (a)(1) to allow for any additional time taken in excess of the period allowed in the *preliminary program* for the negotiation of *negotiated access standards* in accordance with clause 5.3.4A or a *system strength remediation scheme* in accordance with clause 5.3.4B or any time taken by *AEMO* to respond under clause 5.3.4B(j) in excess of 20 *business days*.

(a2) In relation to the timeframes fixed in paragraph (a)(2), for the purposes of calculating elapsed time, the following periods shall be disregarded:

(1) the period that commences on the day when a dispute is initiated under clause 8.2.4(a) and ends of the day on which the dispute is withdrawn or is resolved in accordance with clauses 8.2.6D or 8.2.9(a);

(2) any time taken to resolve a *distribution services access dispute*; and

(3) any time taken by *AEMO* to respond under clause 5.3.4B(j) in excess of 20 *business days*.

(a3) In relation to a *Connection Applicant's application to connect* made under clause 5.3.4(a) for *connection* to a part of a *network* that is a *designated network asset*, the *Network Service Provider* must not make an offer to *connect* under paragraph (a), unless the owner of the *designated network asset* has given notice to the *Network Service Provider*:

(1) confirming access to *DNA services* in respect of that the *designated network asset* has been agreed with the *Connection Applicant* in accordance with the relevant *access policy*; and

(2) providing any details on technical requirements or limitations agreed as part of the *DNA services* that are relevant to the offer to *connect*.

(b) In relation to an *application to connect* made under clause 5.3.4(a), the offer to *connect* must contain the proposed terms and conditions for *connection* to the *network* including:

(1) for each technical requirement identified by the *Network Service Provider* under clause 5.3.3(b1), the *automatic access standard* or the *negotiated access standard* as determined in accordance with clauses 5.3.4 and 5.3.4A; and

(2) the terms and conditions of the kind set out in Part A and (where applicable) Part B of schedule 5.6,

and must be capable of acceptance by the *Connection Applicant* so as to constitute a *connection agreement* and (where applicable) a *network operating agreement*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) The proposed terms and conditions detailed in the offer to *connect* must be no lower than the applicable *minimum access standards*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b2) An offer to *connect* made under paragraph (a)(2), must be accompanied by:

(1) so far as is relevant, and in relation to services the *Distribution Network Service Provider* intends to provide, an itemised statement of *connection* costs including:

(i) *connection service* charges;

(ii) costs associated with metering requirements contained in the offer to *connect*;

(iii) costs of *network extension*;

(iv) details of *augmentation* required to provide the *connection* and associated costs;

(v) details of the interface equipment required to provide the *connection* and associated costs;

(vi) details of any ongoing operation and maintenance costs and charges by the *Distribution Network Service Provider*; and

(vii) other incidental costs and their basis of calculation;

(2) if any item in the statement of costs in subparagraph (1) differs substantially from the estimate provided under clause S5.4B(h), an explanation of the differences;

(3) a *connection agreement* capable of execution by the *Connection Applicant*, which must contain the proposed terms and conditions for *connection* to the *distribution network* (of the kind set out in Part A of schedule 5.6) including, for each technical requirement identified by the *Distribution Network Service Provider* in the *detailed response* provided under clause 5.3A.8(c), the *automatic access standard* or the negotiated access standard as determined in accordance with clause 5.3.4A; and

(4) an explanation:

(i) of how the offer to *connect* can be accepted; and

(ii) that the offer to *connect* remains open for 20 *business days*, unless otherwise agreed.

(b3) An offer to *connect* made under paragraph (a)(2) must remain open for acceptance for 20 *business days* from the date it is made and, if not accepted within that period, lapses unless the *Connection Applicant* has sought an

extension of the period of time from the *Distribution Network Service Provider*. The *Distribution Network Service Provider* may not unreasonably withhold consent to the extension.

(b4) An offer to *connect* by a *Primary Transmission Network Service Provider* made under paragraph (a)(1) must include:

(1) the *Primary Transmission Network Service Provider's* requirements in relation to the matters proposed in clause 5.3.4(b)(3) and (b)(4); and

(2) the costs of the services proposed to be provided by the *Primary Transmission Network Service Provider* separated between *negotiated transmission services* and *non-regulated transmission services* (if applicable).

(b5) A *Connection Applicant* may seek amendments to the offer to *connect* provided that the *Connection Applicant* agrees to changes to the *preliminary program* to reflect the additional time required to agree the amendments.

(c) The offer to *connect* must be fair and reasonable and must be consistent with the safe and *reliable* operation of the *power system* in accordance with the *Rules*. Without limitation, unless the parties otherwise agree, to be fair and reasonable an offer to *connect* must offer *connection* and *network services* consistent with schedule 5.1 and (as applicable) schedules 5.2, 5.3 and 5.3a and must not impose conditions on the *Connection Applicant* which are more onerous than those contemplated in schedules 5.1, 5.2, 5.3 or 5.3a.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c1) **[Deleted]**

(d) The *Network Service Provider* must use its reasonable endeavours to provide the *Connection Applicant* with an offer to *connect* in accordance with the reasonable requirements of the *Connection Applicant*, including without limitation, the location of the proposed *connection point* and the level and standard of *power transfer capability* that the *network* will provide.

(e) An offer to *connect* may contain options for *connection* to a *network* at more than one point in a *network* and/or at different levels of service and with different terms and conditions applicable to each *connection point* according to the different characteristics of *supply* at each *connection point*.

(f) Both the *Network Service Provider* and the *Connection Applicant* are entitled to negotiate with each other in respect of the provision of *connection* and any other matters relevant to the provision of *connection* and, if negotiations occur, the *Network Service Provider* and the *Connection Applicant* must conduct such negotiations in good faith.

(g) An offer to *connect* must define the basis for determining *transmission service* charges in accordance with Chapter 6A, including the prudential requirements set out in that Chapter.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) An offer to *connect* must define the basis for determining *distribution service* charges in accordance with Chapter 6, including the prudential requirements set out in Part K of Chapter 6.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) [**Deleted**]

(j) An offer to *connect* in respect of a *distribution network* made to ~~an *Embedded Generator*~~ a *Distribution Connected Resource Provider* or a *Market Network Service Provider*, must conform with the relevant access arrangements set out in rule 5.3AA.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(k) [**Deleted**]

5.3.7 Finalisation of connection agreements and network operating agreements

(a) If a *Connection Applicant* wishes to accept an offer to *connect*, the *Connection Applicant* must negotiate and enter into:

(1) a *connection agreement* with each relevant *Network Service Provider* identified in accordance with clauses 5.3.3(b)(3) and (4) or clauses S5.4.A(d) and (e); and

(2) if applicable, a *network operating agreement* with the *Primary Transmission Network Service Provider*,

and in doing so must use its reasonable endeavours to negotiate in good faith with all parties with which the *Connection Applicant* must negotiate such a *connection agreement* and (if applicable) *network operating agreement*.

(b) The *connection agreement* must include proposed *performance standards* with respect to each of the technical requirements identified in schedules 5.2, 5.3 and 5.3a and each proposed *performance standard* must have been established in accordance with the relevant technical requirement.

(c) The proposed *performance standards* must be based on the *automatic access standard* or, if the procedures in clause 5.3.4A have been followed, the *negotiated access standard*.

(d) The provision of *connection* by any *Network Service Provider* may be made subject to gaining environmental and planning approvals for any necessary *augmentation* or *extension* works to a *network* or any *system strength connection works*.

(e) Where permitted by the applicable law in the relevant *participating jurisdiction*, the *connection agreement* may assign responsibility to the *Connection Applicant* for obtaining the approvals referred to in paragraph (d) as part of the project proposal and the *Network Service Provider* must provide all reasonable information and may provide reasonable assistance for a reasonable fee to enable preparation of applications for such approvals.

(f) Subject to paragraph (e), each *connection agreement* must be based on the offer to *connect* as varied by agreement between the parties.

(f1) The parties may agree to have one *connection agreement* between a *Primary Transmission Network Service Provider*, owner of a *dedicated connection asset* or *designated network asset* and a *Transmission Network User* for a *connection*.

(f2) A *network operating agreement* must be based on the offer to *connect* as varied by agreement between the parties.

(g) Within 20 *business days* of execution of the *connection agreement*, the *Network Service Provider* responsible for the *connection point* and the *Registered Participant* must jointly notify *AEMO* that a *connection agreement* has been entered into between them and forward to *AEMO* relevant technical details of the proposed *plant* and *connection*, including as applicable:

(1) details of all *performance standards* that form part of the terms and conditions of the *connection agreement*;

(2) if the *Registered Participant* is a *Generator* or *Integrated Resource Provider*, the arrangements for:

(i) updating the *releasable user guide* and other information required under clause S5.2.4(b); and

(ii) informing *AEMO* when the *connection agreement* expires or is terminated;

(3) the proposed *metering installation*;

(4) arrangements to obtain physical access to the *metering installation* for the *Metering Provider* and the *Metering Data Provider* for *metering installations* type 4A, 5 and 6;

(5) the terms upon which a *Registered Participant* is to supply any *ancillary services* under the *connection agreement*; and

(6) the details of any *system strength remediation scheme* agreed, determined or modified under clause 5.3.4B.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(h) *AEMO* must, within 20 *business days* of receipt of the notice under paragraph (g), advise the relevant *Network Service Provider* and the *Registered Participant* of whether the proposed *metering installation* is acceptable for those *metering installations* associated with those *connection points* which

are classified as *metering installation* types 1, 2, 3 and 4 as specified in schedule 7.4.

5.3.9 ~~Procedure to be followed by a Generator proposing to~~ Alteration of~~alter~~ a generating system or integrated resource system

(a) This clause 5.3.9 applies where:

(1) a *Generator* or *Integrated Resource Provider* proposes to alter a *connected generating system* or a *generating system* for which *performance standards* have been previously accepted by the *Network Service Provider* and *AEMO* (in relation to *AEMO advisory matters*) and that alteration:

(i)~~(1)~~ will affect the performance of the *generating system* relative to any of the technical requirements set out in clauses S5.2.5, S5.2.6, S5.2.7 and S5.2.8; or

(ii)~~(2)~~ will, in *AEMO's* reasonable opinion, have a *general system strength impact*; or

(iii)~~(3)~~ will, in *AEMO*'s reasonable opinion, adversely affect *network capability*, *power system security*, quality or reliability of *supply*, *inter-regional power transfer capability* or the use of a *network* by another *Network User*.

(2) an *Integrated Resource Provider* proposes to alter a *connected integrated resource system* or an *integrated resource system* for which *performance standards* have been previously accepted by the *Network Service Provider* and *AEMO* (in relation to *AEMO advisory matters*) and that alteration:

(i) will affect the performance of the *integrated resource system* relative to any of the technical requirements set out in clauses S5.2.5, S5.2.6, S5.2.7 and S5.2.8; or

(ii) will, in *AEMO's* reasonable opinion, have a *general system strength impact*; or

(iii) will, in *AEMO*'s reasonable opinion, adversely affect *network capability*, *power system security*, quality or reliability of *supply*, *inter-regional power transfer capability* or the use of a *network* by another *Network User*.

(b) A *Generator* or *Integrated Resource Provider* to which this clause applies, must submit to the *Network Service Provider* with a copy to *AEMO*:

(1) a description of the nature of the proposed alteration and the timetable for implementation;

(2) in respect of the proposed alteration to the *generating system*, details of the *generating unit* design data and *generating unit* setting data in accordance with the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Setting Data Sheet*;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2A) in respect of the proposed alteration to the *integrated resource system*, details of the *bidirectional unit* and where applicable *generating unit* design data and setting data in accordance with the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Setting Data Sheet*;

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.3.9(b)(2A) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(3) in relation to each relevant technical requirement for which the proposed alteration to the equipment will affect the performance of the *generating system* or *integrated resource system*, the proposed amendments to the *plant's* existing corresponding *performance standard* for that technical requirement; and

(4) where relevant, the *Generator's* or *Integrated Resource Provider's* proposed *system strength remediation scheme* or its election for the *system strength charge* to be payable in relation to the alteration.

(c) Clause 5.3.4A applies to a submission by a *Generator* or *Integrated Resource Provider* under subparagraph (b)(3).

(c1) Clause 5.3.4B applies to a submission by a *Generator* or *Integrated Resource Provider* under subparagraph (b)(4). A *Generator* or *Integrated Resource Provider* may request the *Network Service Provider* to undertake a preliminary assessment in accordance with the *system strength impact assessment guidelines* before making a submission under paragraph (b).

(d) Without limiting paragraph (a), a proposed alteration to the equipment specified in column 1 of the table set out below is deemed to affect the performance of the *generating system* or *integrated resource system* relative to technical requirements specified in column 2, thereby necessitating a submission under subparagraph (b)(3), unless *AEMO* and the *Network Service Provider* otherwise agree.

Column 1 (altered equipment)	Column 2 (clause)
machine windings	S5.2.5.1, S5.2.5.2, S5.2.8
power converter	S5.2.5.1, S5.2.5.2, S5.2.5.5, S5.2.5.12, S5.2.5.13, S5.2.8, S5.2.5.15
reactive compensation plant	S5.2.5.1, S5.2.5.2, S5.2.5.5, S5.2.5.12, S5.2.5.13

Column 1 (altered equipment)	Column 2 (clause)
excitation control system	S5.2.5.5, S5.2.5.7, S5.2.5.12, S5.2.5.13
voltage control system	S5.2.5.5, S5.2.5.7, S5.2.5.12, S5.2.5.13
governor *control system*	S5.2.5.7, S5.2.5.11, S5.2.5.14
power *control system*	S5.2.5.11, S5.2.5.14
protection system	S5.2.5.3, S5.2.5.4, S5.2.5.5, S5.2.5.7, S5.2.5.8, S5.2.5.9, S5.2.5.10, S5.2.5.16
auxiliary supplies	S5.2.5.1, S5.2.5.2, S5.2.7
remote control and monitoring system	S5.2.5.14, S5.2.6.1, S5.2.6.2

(e) The *Network Service Provider* may as a condition of considering a submission made under paragraph (b), require payment of a fee to meet the reasonable costs anticipated to be incurred by the *Network Service Provider*, other *Network Service Providers* and *AEMO*, in the assessment of the submission.

(f) The *Network Service Provider* must require payment of a fee under paragraph (e) if so requested by *AEMO*.

(g) On payment of the required fee referred to in paragraph (e), the *Network Service Provider* must pay such amounts as are on account of the costs anticipated to be incurred by the other *Network Service Providers* and *AEMO*, as appropriate.

(h) If the application of this clause 5.3.9 leads to a variation to an existing *connection agreement* the *Network Service Provider* and the *Generator* or *Integrated Resource Provider* must immediately jointly advise *AEMO*, including the details of any *performance standards* amended pursuant to this clause 5.3.9.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.3.10 Acceptance of performance standards for ~~generating~~ plant that is altered

(a) A *Generator* must not commission altered *generating plant* until the *Network Service Provider* has advised the *Generator* that the provider and *AEMO* are satisfied in accordance with paragraph (b).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) An *Integrated Resource Provider* must not commission altered *plant* comprised in an *integrated resource system* (including *generating plant*) until the *Network Service Provider* has advised the *Integrated Resource Provider* that the provider and *AEMO* are satisfied in accordance with paragraph (b).

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.3.10(a1) be classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(b) In relation to altered ~~*generating* plant~~, the *Network Service Provider* and *AEMO*, to the extent of *AEMO's* advisory role under clause 5.3.4A and clause 5.3.4B, must be satisfied that:

(1) the *Generator* or *Integrated Resource Provider* has complied with clause 5.3.9; and

(2) each amended *performance standard* submitted by the *Generator* or *Integrated Resource Provider* either meets:

(i) the *automatic access standard* applicable to the relevant technical requirement; or

(ii) the *negotiated access standard* under clause 5.3.4A as applied in accordance with clause 5.3.9(c); and

(3) any *system strength remediation scheme* satisfies clause 5.3.4B.

(c) For the purposes of paragraph (a), *AEMO* must advise the *Network Service Provider* as to whether it is satisfied with the matters referred to paragraph (b).

5.3A Establishing or modifying connection - ~~embedded generation~~distribution connected systems

5.3A.1 Application of rule 5.3A

(a) [**Deleted**]

(b) Where a *Connection Applicant* wishes to *connect* a *generating system* or an *integrated resource system* to a *distribution network*~~*connect* an *embedded generating unit*~~, this rule 5.3A applies.

(c) For the purposes of this rule 5.3A and Schedules 5.4A and 5.4B:

(1) a reference to a *Connection Applicant* is to a:

(i) person who intends to be ~~an *Embedded Generator*~~a *Distribution Connected Resource Provider*;

(ii) person who has applied or intends to apply to *AEMO* for an exemption from the requirement to register as a *Generator* or *Integrated Resource Provider* in respect of ~~an *embedded*~~

~~*generating unit*~~ a *generating system* or *integrated resource system* (and is not eligible for an automatic exemption under the *registration information resource and guidelines*);

(iii) *non-registered DER provider*~~*non-registered embedded generator*~~ who has made an election under clause 5A.A.2(c); or

(iv) a person (including a *non-registered DER provider*~~*non-registered embedded generator*~~) who is seeking *connection* for a *large inverter based resource*,

and who makes a *connection* enquiry under clause 5.3A.5 or an *application to connect* under clause 5.3A.9 in relation to any *generating systems* or *integrated resource systems*, or any *network elements* used in the provision of a *network service*, as the case may be.

(2) the *Distribution Network Service Provider* is the *Distribution Network Service Provider* required under clause 5.3A.5 to process and respond to a *connection* enquiry or required under clause 5.3A.10 to prepare an offer to *connect* for the establishment or modification of a *connection* to the *distribution network* owned, controlled or operated by that *Distribution Network Service Provider* or for the provision of a *network service*.

5.3A.3 Publication of Information

(a) A *Distribution Network Service Provider* must *publish* the following in the same location on its website:

(1) an enquiry form for *connection* of ~~*an embedded generating unit*~~ *a generating system* or an *integrated resource system* to a *distribution network*;

(2) a register of completed ~~embedded generation~~distribution connected resource projects under rule 5.18B; and

(3) an *information pack*.

(b) An *information pack* must include:

(1) a description of the process for lodging an *application to connect* ~~*for an embedded generating unit*,~~ under this rule, including:

(i) the purpose of each stage of the *connection* enquiry and application processes;

(ii) the steps a *Connection Applicant* will need to follow at each stage of the *connection* enquiry and application processes;

(iii) the information that is to be included by the *Connection Applicant* with a *connection* enquiry and the information that will be made available to the *Connection Applicant* by the *Distribution Network Service Provider* at each stage of the *connection* enquiry;

(iv) the information that is to be included with an *application to connect* and the type of information that will be made available to the *Connection Applicant* by the *Distribution Network Service Provider* after lodgement of the application;

(v) the factors taken into account by the *Distribution Network Service Provider*, at each stage of the *connection* enquiry and application, when assessing an *application to connect* under this rule ~~for an embedded generating unit~~;

(vi) the process for negotiating *negotiated access standards* under clause 5.3.4A and any *system strength remediation scheme* under clause 5.3.4B and a summary of the factors the *Distribution Network Service Provider* takes into account when considering proposed *negotiated access standards* and *system strength remediation schemes* and where applicable, in determining the *system strength locational factor*; and

(vii) a list of services, if any, relevant to the *connection* that are *contestable* in the relevant *participating jurisdiction*;

(2) single line diagrams of the *Distribution Network Service Provider's* preferred *connection* arrangements, and a range of other possible *connection* arrangements for integration of ~~an embedded generating unit~~a *generating system* or an *integrated resource system*, showing the *connection point*, the point of common coupling, the *distribution connected unit(s)*~~embedded generating unit(s)~~, other sources of *load*, ~~load(s),~~ *meter(s)*, circuit breaker(s) and isolator(s);

(3) a sample schematic diagram of the *protection system* and *control system* relevant to the *connection* ~~of an embedded generating unit~~ to the *distribution network*, showing the *protection system* and *control system*, including all relevant current circuits, relay potential circuits, alarm and monitoring circuits, back-up systems and parameters of protection and *control system* elements;

(4) worked examples of *connection service* charges, enquiry and application fees for the *connection* of a *generating system* or an *integrated resource system*~~embedded generating units~~, based on the preferred and possible *connection* arrangements set out in paragraph (b)(2);

(5) details of any *minimum access standards* or *plant standards* the *Distribution Network Service Provider* considers are applicable ~~to embedded generating units and generating plant~~;

(6) technical requirements relevant to the processing of a *connection* enquiry or an *application to connect*, including information of the type, but not limited to:

(i) *protection systems* and protection schemes;

(ii) fault level management principles;

(iii) *reactive power capability* and *power factor* correction;

(iv) power quality and how limits are allocated;

(v) responses to *frequency* and *voltage* disturbances;

(vi) *voltage* control and regulation;

(vii) *remote monitoring equipment*, control and communication requirements;

(viii) earthing requirements and other relevant safety requirements;

(ix) circumstances in which *augmentation* may be required to facilitate integration of a~~n~~ *generating system* or an *integrated resource system* ~~*embedded generating unit*~~ into the *network*;

(x) commissioning and testing requirements; and

(xi) circumstances in which a *system strength remediation scheme* or *system strength connection works* will be required as a condition of *connection*; and

(7) model *connection agreements* used by that *Distribution Network Service Provider*.

5.3A.10 Preparation of offer to connect

(a) The *Distribution Network Service Provider* to whom the *application to connect* is submitted under clause 5.3A.9(a):

(1) at the *automatic access standard*; or

(2) at a *negotiated access standard* that the provider has accepted under clause 5.3.4A(e),

must proceed to prepare an offer to *connect* in response.

(b) So as to maintain levels of service and quality of *supply* to existing *Registered Participants* in accordance with the *Rules*, the *Distribution Network Service Provider* in preparing the offer to *connect* must consult with *AEMO* and other *Registered Participants* with whom it has *connection agreements*, if the *Distribution Network Service Provider* believes in its reasonable opinion, that compliance with the terms and conditions of those *connection agreements* will be affected, in order to assess the *application to connect* and determine:

(1) the technical requirements for the equipment to be *connected*;

(2) the extent and cost of *augmentations* and changes to all affected *networks*;

(3) any consequent change in *network service* charges; and

(4) any possible material effect of this new *connection* on the *network power transfer capability* including that of other *networks*.

(c) If the *application to connect* involves the *connection* of *distribution connected units* ~~*embedded generating units*~~ having a *nameplate rating* ~~nameplate rating~~ of 10 MW or greater, the *Distribution Network Service Provider* must consult the relevant *Transmission Network Service Provider* regarding the impact of the *connection* contemplated by the *application to connect* on fault levels, line reclosure protocols, and stability aspects.

(d) The *Transmission Network Service Provider* consulted under paragraph (c) must determine the reasonable costs of addressing those matters for inclusion in the offer to *connect* and the *Distribution Network Service Provider* must

make it a condition of the offer to *connect* that the *Connection Applicant* pay these costs.

(e) The *Distribution Network Service Provider* preparing the offer to *connect* must include provision for payment of the reasonable costs associated with *remote control equipment* and *remote monitoring equipment* as required by *AEMO* and it may be a condition of the offer to *connect* that the *Connection Applicant* pay these costs.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) The *Distribution Network Service Provider* preparing the offer to *connect* must specify in reasonable detail any *system strength connection works* to be undertaken by the *Distribution Network Service Provider*.

5.3A.12 Network support payments and functions

(a) When negotiating the amount of a *network support payment* with ~~an *Embedded Generator*~~ a *Distribution Connected Resource Provider*, the *Transmission Network Service Provider* must take into account the:

(1) nature of the *network* support services being provided by the *Distribution Connected Resource Provider*~~*Embedded Generator*~~; and

(2) extent to which the *Distribution Connected Resource Provider* ~~*Embedded Generator*~~ is being, or will be, compensated for providing those *network* support services by receiving *avoided Customer TUOS charges*.

(b) Where the relevant *Transmission Network Service Provider* or *Distribution Network Service Provider* decides to implement a *generation* option as an alternative to *network augmentation*, the *Network Service Provider* must:

(1) register the *generating unit* or *bidirectional* with *AEMO* and specify that the *generating unit* or *bidirectional unit* may be periodically used to provide a *network* support function and will not be eligible to set *spot prices* when *constrained* on in accordance with clause 3.9.7; and

(2) include the cost of this *network* support service in the calculation of *transmission service* and *distribution service* prices determined in accordance with Chapter 6 or Chapter 6A, as the case may be.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.3AA Access arrangements relating to Distribution Networks

(a) In this rule 5.3AA:

(1) the *Distribution Network Service Provider* is the *Distribution Network Service Provider* required under clauses 5.3.3 or 5.3A.5 to process and respond to a *connection* enquiry or required under clauses 5.3.5 or 5.3A.10 to prepare an offer to *connect* for the establishment or

modification of a *connection* to the *distribution network* owned, controlled or operated by that *Distribution Network Service Provider* or for the provision of *network service*; ~~and~~

(2) the references to a *Connection Applicant* are to:

(i) a *Distribution Connected Resource Provider*~~an Embedded Generator~~;

(ii) a *Market Network Service Provider*; or

(iii) a *non-registered DER provider* ~~non-registered embedded generator~~ who makes an election for rule 5.3A to apply instead of Chapter 5A,

who makes a *connection* enquiry under clauses 5.3.2 or 5.3A.5 or an application to *connect* under clauses 5.3.4 or 5.3A.10 in relation to any *generating system* or *integrated resource system*~~generating units or group of generating units,~~ , or any *network elements* used in the provision of a *network service*, as the case may be~~.~~

(b) If requested by a *Connection Applicant*, whether as part of a *connection* enquiry, application to *connect* or the subsequent negotiation of a *connection agreement*, the *Distribution Network Service Provider* must negotiate in good faith with the *Connection Applicant* to reach agreement in respect of the *distribution network user access* arrangements sought by the *Connection Applicant*.

(c) As a basis for negotiations under paragraph (b):

(1) the *Connection Applicant* must provide to the *Distribution Network Service Provider* such information as is reasonably requested relating to the expected operation of:

(i) its ~~generating units~~*distribution connected units* (in the case of ~~an~~ a *Distribution Connected Resource Provider*~~Embedded Generator~~); ~~or~~

(ii) its *network elements* used in the provision of *network service* (in the case of a *Market Network Service Provider*); and

(2) the *Distribution Network Service Provider* must provide to the *Connection Applicant* such information as is reasonably requested to allow the *Connection Applicant* to fully assess the commercial significance of the *distribution network user access* arrangements sought by the *Connection Applicant* and offered by the *Distribution Network Service Provider*.

(d) A *Connection Applicant* may seek *distribution network user access* arrangements at any level of *power transfer capability* between zero and:

(1) in the case of ~~an~~ a *Distribution Connected Resource Provider*~~Embedded Generator~~, the greater of the maximum output or *maximum demand* of the relevant *distribution connected units*~~generating units~~ or group of *distribution connected units*~~generating units~~; and

(2) in the case of a *Market Network Service Provider*, the *power transfer capability* of the relevant *network elements*.

(e) The *Distribution Network Service Provider* must use reasonable endeavours to provide the *distribution network user access* arrangements being sought by the *Connection Applicant* subject to those arrangements being consistent with *good electricity industry practice* considering:

(1) the *distribution connection assets* to be provided by the *Distribution Network Service Provider* or otherwise at the *connection point*; and

(2) the potential *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* or *distribution networks* to provide that level of *power transfer capability* over the period of the *connection agreement* taking into account the amount of *power transfer capability* provided to other *Registered Participants* under *distribution network user access* arrangements in respect of all affected *distribution networks*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) The *Distribution Network Service Provider* and the *Connection Applicant* must negotiate in good faith to reach agreement as appropriate on:

(1) the *connection service* charge to be paid by the *Connection Applicant* in relation to *distribution connection assets* to be provided by the *Distribution Network Service Provider*;

(2) in the case of a *Market Network Service Provider*, the service level standards to which the *Market Network Service Provider* requires the *Distribution Network Service Provider* to adhere in providing its services;

(3) the ~~*use of system services*~~ charge to be paid:

(i) by the *Connection Applicant* in relation to any *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* and *distribution networks*; and

(ii) where the *Connection Applicant* is a *Market Network Service Provider*, to the *Market Network Service Provider* in respect of any reduction in the long run marginal cost of *augmenting* the *distribution network* as a result of it being *connected* to the *distribution network*,

(*negotiated augmentation and extension charges*~~*negotiated use of system charges*~~); and

(4) the following amounts:

(i) the amount to be paid by the *Connection Applicant* to the *Distribution Network Service Provider* in relation to the costs reasonably incurred by the *Distribution Network Service Provider* in providing *distribution network user access*;

(ii) where the *Connection Applicant* is a *Distribution Connected Resource Provider*~~an *Embedded Generator*~~:

(A) the compensation to be provided by the *Distribution Network Service Provider* to the *Distribution Connected Resource Provider*~~*Embedded Generator*~~ in the event that the *distribution connected units*~~*generating units*~~ or group of *distribution connected units*~~*generating units*~~ of the *Distribution Connected Resource Provider*~~*Embedded Generator*~~ are *constrained off* or *constrained on* during a *trading interval*; and

(B) the compensation to be provided by the *Distribution Connected Resource Provider*~~*Embedded Generator*~~ to the *Distribution Network Service Provider* in the event that dispatch of the *Distribution Connected Resource Provider's distribution connected units*~~*Embedded Generator's generating units*~~ or group of *distribution connected units*~~*generating units*~~ causes another *Generator's* or *Integrated Resource Provider*'s *production units* ~~*generating units*~~ or group of *production units*~~*generating units*~~ to be *constrained off* or *constrained on* during a *trading interval*; and

(iii) where the *Connection Applicant* is a *Market Network Service Provider*:

(A) the compensation to be provided by the *Distribution Network Service Provider* to the *Market Network Service Provider* in the event that the *distribution network user access* is not provided; and

(B) the compensation to be provided by the *Market Network Service Provider* to the *Distribution Network Service Provider* in the event that dispatch of the relevant *market network service* causes a *Generator's* or *Integrated Resource Provider's production units* ~~*generating units*~~ or group of *production units* ~~*generating units*~~ to be *constrained off* or *constrained on* during a *trading interval* or causes the *dispatch* of another *market network service* to be *constrained.*

(g) The maximum *negotiated augmentation and extension charges* ~~*negotiated use of system charges*~~ applied by a *Distribution Network Service Provider* must be in accordance with the applicable requirements of Chapter 6 and the *Negotiated Distribution Service Criteria* applicable to the *Distribution Network Service Provider*.

(h) A *Distribution Network Service Provider* must pass through to a *Connection Applicant* the amount calculated in accordance with paragraph (i) for the locational component of *prescribed TUOS services* that would have been payable by the *Distribution Network Service Provider* to a *Transmission Network Service Provider* had the *Connection Applicant* not been *connected* to its *distribution network*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(i) To calculate the amount to be passed through to a *Connection Applicant* in accordance with paragraph (h), a *Distribution Network Service Provider* must, if prices for the locational component of *prescribed TUOS services* were in force at the relevant *transmission network connection point* throughout the relevant *financial year*:

(1) determine the charges for the locational component of *prescribed TUOS services* that would have been payable by the *Distribution Network Service Provider* for the relevant *financial year*:

(i) where the *Connection Applicant* is ~~an~~ a *Distribution Connected Resource Provider*~~*Embedded Generator*~~, if that *Distribution Connected Resource Provider*~~*Embedded Generator*~~ had not injected any *energy* at its *connection point* during that *financial year*;

(ii) where the *Connection Applicant* is a *Market Network Service Provider*, if the *Market Network Service Provider* had not been *connected* to the *Distribution Network Service Provider's distribution network* during that *financial year*; and

(2) determine the amount by which the charges calculated in subparagraph (1) exceed the amount for the locational component of *prescribed TUOS services* actually payable by the *Distribution Network Service Provider*, which amount will be the relevant amount for the purposes of paragraph (h).

(j) Where prices for the locational component of *prescribed TUOS services* were not in force at the relevant *distribution network connection point* throughout the relevant *financial year*, as referred to in paragraph (i), the *Distribution Network Service Provider* must apply an equivalent procedure to that referred to in paragraph (i) in relation to that component of its *TUOS service* charges which is deemed by the relevant *Transmission Network Service Provider* to represent the marginal cost of *transmission*, less an allowance for locational signals present in the *spot market*, to determine the relevant amount for the purposes of paragraph (h).

Part C Post-Connection Agreement matters

5.6 Design of Connected Equipment

5.6.2 Advice of inconsistencies

(a) At any stage prior to commissioning the *facility* in respect of a *connection* if there is an inconsistency between the proposed equipment and the *connection agreement* including the *performance standards*, the *Registered Participant* or the person intending to be registered as a *Generator* or *Integrated Resource Provider* must:

(1) advise the relevant *Network Service Provider* and, if the inconsistency relates to *performance standards*, *AEMO*, in writing of the inconsistency; and

(2) if necessary, negotiate in good faith with the *Network Service Provider* any necessary changes to the *connection agreement*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) If an inconsistency in a *connection agreement* including a *performance standard* is identified under paragraph (a), the *Registered Participant* or the person intending to be registered as a *Generator* or *Integrated Resource Provider* and the *Network Service Provider* must not commission the *facility* in respect of a *connection* unless the *facility* or the *connection agreement* or *performance standard* has been varied to remove the inconsistency.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) [**Deleted**]

5.7 Inspection and Testing

5.7.3 Tests to demonstrate compliance with connection requirements for ~~generators~~ Generators and Integrated Resource Providers

(a) Each *Generator* must, in accordance with the time frames specified in rule 4.15, provide evidence to any relevant *Network Service Provider* with which that *Generator* has a *connection agreement* and to *AEMO*, that its *generating system* complies with:

(1) the applicable technical requirements of clause S5.2.5; and

(2) the relevant *connection agreement* including the *performance standards*.

Note

This paragraph is classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) Each *Integrated Resource Provider* must, in accordance with the time frames specified in rule 4.15, provide evidence to any relevant *Network Service Provider* with which that *Integrated Resource Provider* has a *connection agreement* and to *AEMO*, that its *generating system* or *integrated resource system* (as applicable) complies with:

(1) the applicable technical requirements of clause S5.2.5; and

(2) the relevant *connection agreement* including the *performance standards*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.7.3(a1) be classified as a tier 3 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(b) **[Deleted]**

(c) If a test required by paragraph (a) or (a1) ~~clause 5.7.3(a)~~ demonstrates that a *generating system* or *integrated resource system* is not complying with one or more technical requirements of clause S5.2.5 or the relevant *connection agreement* or one or more of the *performance standards* then the *Generator* or *Integrated Resource Provider* must:

(1) promptly notify the relevant *Network Service Provider* and *AEMO* of that fact; and

(2) promptly notify the *Network Service Provider* and *AEMO* of the remedial steps it proposes to take and the timetable for such remedial work; and

(3) diligently undertake such remedial work and report at monthly intervals to the *Network Service Provider* on progress in implementing the remedial action; and

(4) conduct further tests or monitoring on completion of the remedial work to confirm compliance with the relevant technical requirements or *performance standards* (as the case may be).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(d) If *AEMO* reasonably believes that a *generating system* or *integrated resource system* is not complying with one or more applicable *performance standards* or one or more applicable technical requirements of clause S5.2.5 or the relevant *connection agreement*, *AEMO* may instruct the *Generator* or *Integrated Resource Provider* to conduct tests within 25 *business days* to demonstrate that the relevant *generating system* or *integrated resource system* complies with those *performance standards* or technical requirements.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) If the tests undertaken in accordance with paragraph (d) provide evidence that the *generating system* or *integrated resource system* continues to comply with those requirements *AEMO* must reimburse the *Generator* or *Integrated Resource Provider* for the reasonable expenses incurred as a direct result of conducting the tests.

(f) If *AEMO*:

(1) is satisfied that:

(i) a *generating system* or *integrated resource system* is not complying with the relevant *performance standards* for that system in respect of one or more of the technical requirements contained in S5.2.5, S5.2.6, S5.2.7 or S5.2.8 and the relevant *connection agreement*; or

(ii) a *generating system's* or *integrated resource system's* performance is not adequately represented by the applicable analytical model provided under clause 5.7.6(h) or clause S5.2.4; and

(2) holds the reasonable opinion that the performance of the *generating system* or *integrated resource system*, or inadequacy of the applicable analytical model of the *generating system* or *integrated resource system* is or will impede *AEMO's* ability to carry out its role in relation to *power system security*,

AEMO may:

(3) (in the case of a *generating system*) direct the relevant *Generator* or *Integrated Resource Provider* to operate the *generating system* at a particular *generated* output or in a particular mode; or

(4) (in the case of an *integrated resource system*) direct the relevant *Integrated Resource Provider* to operate the *integrated resource system* at a particular level of *active power*, or a particular pattern or profile of *active power*, or in a particular mode,

until the relevant *Generator* or *Integrated Resource Provider* submits evidence reasonably satisfactory to *AEMO* that the *generating system* or *integrated resource system* is complying with the relevant *performance standard* and performing substantially in accordance with the applicable analytical model.

(g) Each *Generator* and *Integrated Resource Provider* must maintain records for 7 years for each of its *generating systems*, *integrated resource systems* and *power stations* setting out details of the results of all technical performance and monitoring conducted under this clause 5.7.3 and make these records available to *AEMO* on request.

5.7.6 Tests of production units ~~generating units~~ requiring changes to normal operation

(a) A *Network Service Provider* may, at intervals of not less than 12 months per *generating system* or *integrated resource system*, require the testing by a *Generator* or *Integrated Resource Provider* of any *generating unit* or *bidirectional unit* *connected* to the *network* of that provider in order to determine analytic parameters for modelling purposes or to assess the performance of the relevant *generating unit*, *generating system*, *bidirectional unit* or *integrated resource system* ~~*generating unit* or *generating system*~~ for the purposes of a *connection agreement*, and that provider is entitled to witness such tests.

(b) If *AEMO* reasonably considers that:

(1) the analytic parameters for modelling of a *generating unit*, *generating system*, *bidirectional unit* or *integrated resource system* ~~*generating unit or generating system*~~ are inadequate; or

(2) available information, including results from a previous test of a *generating unit*, *generating system*, *bidirectional unit* or *integrated resource system*~~*generating unit or generating system*~~, are inadequate to determine parameters for an applicable model developed in accordance with the *Power System Model Guidelines*, or otherwise agreed with *AEMO* under clause S5.2.4(c)(2),

AEMO may direct a *Network Service Provider* to require a *Generator* or *Integrated Resource Provider* to conduct a test under paragraph (a), and *AEMO* may witness such a test.

(c) Adequate notice of not less than 15 *business days* must be given by the *Network Service Provider* to the *Generator* or *Integrated Resource Provider* before the proposed date of a test under paragraph (a).

(d) The *Network Service Provider* must use its best endeavours to ensure that tests permitted under this clause 5.7.6 are conducted at a time which will minimise the departure from the *commitment* and *dispatch* that are due to take place at that time.

(e) If not possible beforehand, a *Generator* or *Integrated Resource Provider* must conduct a test under this clause 5.7.6 at the next scheduled *outage* of the relevant *generating unit* or *bidirectional unit* and in any event within 9 months of the request.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(f) A *Generator* or *Integrated Resource Provider* must provide any reasonable assistance requested by the *Network Service Provider* in relation to the conduct of tests.

(f1) If requested by a *Network Service Provider* who required the test under clause 5.7.6(a), a *Generator* or *Integrated Resource Provider* must provide to the *Network Service Provider* any relevant information relating to the *plant* which is the subject of a test carried out under this clause 5.7.6, including model source code provided to *AEMO* under clause S5.2.4(b)(6).

(g) Tests conducted under this clause 5.7.6 must be conducted in accordance with test procedures agreed between the *Network Service Provider* and the relevant *Generator* or *Integrated Resource Provider* and a *Generator* or *Integrated Resource Provider* must not unreasonably withhold its agreement to test procedures proposed for this purpose by the *Network Service Provider*.

(h) A *Generator* or *Integrated Resource Provider* must provide the test records obtained from a test under paragraph (a) to the *Network Service Provider*, who must derive the analytical parameters for the applicable model developed in accordance with the *Power System Model Guidelines*, or otherwise agreed with *AEMO* under clause S5.2.4(c)(2) and provide them and any new or

revised model source code to the relevant *Generator* or *Integrated Resource Provider*.

(i) The *Generator* or *Integrated Resource Provider*, the *Network Service Provider* and *AEMO* must each bear its own costs associated with tests conducted under this clause 5.7.6 and no compensation is to be payable for financial losses incurred as a result of these tests or associated activities.

5.7.7 Inter-network power system tests

(a) For each kind of development or activity described in the first column of chart 1 below, the *Proponent* is as set out in the second column and the *Relevant Transmission Network Service Provider* (*Relevant TNSP*) is as set out in the third column, respectively, opposite the description of the development or activity.

Chart 1

No.	Kind of development or activity	*Proponent*	*Relevant TNSP*
	column 1	column 2	column 3
1.	A new *transmission line* between two *networks*, or within a *transmission network*, that is anticipated to have a *material inter-network impact* is commissioned.	*Network Service Provider* in respect of the new *transmission line*.	*Proponent* and the *Transmission Network Service Provider* in respect of any *network* to which the *transmission line* is *connected*.
2.	An existing *transmission line* between two *networks*, or within a *transmission network*, that is anticipated to have a *material inter-network impact* is *augmented* or substantially modified.	*Network Service Provider* in respect of the *augmentation* or modification of the *transmission line*.	*Proponent* and the *Transmission Network Service Provider* in respect of any *network* to which the *transmission line* is *connected*.
3.	A new *generating unit* or *bidirectional unit* or *facility* of a *Customer* or a *network* development is commissioned that is anticipated to have a *material inter-network impact*.	*Generator* or *Integrated Resource Provider* in respect of the *generating unit* or *bidirectional unit* and associated *connection assets*. *Customer* in respect of the *facility* and associated *connection assets*. *Network Service Provider* in respect of the relevant *network*.	*Transmission Network Service Provider* in respect of any *network* to which the *generating unit*, *bidirectional unit*, *facility* or *network* development is *connected* and, if a *network* development, then also the *Proponent*.

No.	Kind of development or activity	*Proponent*	*Relevant TNSP*
	column 1	column 2	column 3
4.	Setting changes are made to any *power system* stabilisers as a result of a *generating unit*, *bidirectional unit*, *facility* of a *Customer* or *network* development being commissioned, modified or replaced.	*Generator* or *Integrated Resource Provider* in respect of the *generating unit*. *Integrated Resource Provider* in respect of the *bidirectional unit* *Customer* in respect of the *facility*. *Network Service Provider* in respect of the relevant *network*.	*Transmission Network Service Provider* in respect of any *transmission network* to which the *generating unit*, *bidirectional unit*, *facility* or *network* development is *connected*.
5.	Setting changes are made to any *power system* stabilisers as a result of a decision by *AEMO*, which are not covered by item 4 in this chart.	*AEMO*.	None.
6.	*AEMO* determines that a test is required to verify the performance of the *power system* in light of the results of planning studies or simulations or one or more system incidents.	*AEMO*.	None.

(b) A *Registered Participant*, not being a *Transmission Network Service Provider*, determined in accordance with clause 5.7.7(a) to be a *Proponent* for a development or activity detailed in chart 1, may require the *Relevant TNSP* corresponding to that development or activity to undertake on their behalf their obligations as the *Proponent* and, where the *Relevant TNSP* receives a written request to undertake those obligations, the *Relevant TNSP* must do so.

(c) Where, in this clause 5.7.7, there is a reference to a *Proponent* that reference includes a *Relevant TNSP* required in accordance with clause 5.7.7(b) to undertake the obligations of another *Registered Participant*.

(d) If a *Relevant TNSP* is required by a *Registered Participant* in respect of a ~~*scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled load* or a *market network service*~~*scheduled resource* (other than a *wholesale demand response unit*), any of which have a *nameplate rating* in excess of 30 MW, to act as a *Proponent* in accordance with clause 5.7.7(b), that *Relevant*

TNSP is entitled to recover all reasonable costs incurred from the *Registered Participant* that required the *Relevant TNSP* to act as the *Proponent*.

(e) A *Registered Participant* wishing to undertake a development or conduct an activity listed in item 1, 2, 3 or 4 of chart 1 must notify *AEMO* not less than 80 *business days* before the *transmission line*, *generating unit*, *bidirectional unit*, *facility* or *network* development is planned to be commissioned, modified or replaced, giving details of the development or activity.

(f) If *AEMO* receives a notice under clause 5.7.7(e), then it must provide a copy of the notice to each *jurisdictional planning representative* and consult with each *jurisdictional planning representative* about the potential impact of the development or activity.

(g) *AEMO* or the *Relevant TNSP* for a development or activity may notify the *Proponent* of the development or activity that *AEMO* or the *Relevant TNSP* believes an *inter-network test* is required for that development or activity.

(h) *AEMO* or the *Relevant TNSP* may only give a notice under clause 5.7.7(g) if:

(1) *AEMO* or the *Relevant TNSP* considers that the development or activity may have a material impact on the magnitude of the *power transfer capability* of more than one *transmission network* and, in the circumstances, an *inter-network test* is required; or

(2) an *inter-network test* is required having regard to guidelines *published* under clause 5.7.7(k) and the surrounding circumstances.

(i) If the *Relevant TNSP* gives a notice under clause 5.7.7(g), then it must also promptly give a copy of the notice to *AEMO*.

(j) A *Registered Participant* undertaking a development or activity listed in chart 1 must provide information reasonably requested by *AEMO* or the *Relevant TNSP* for making an assessment under this clause.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(k) *AEMO* may develop, *publish* and amend from time to time, in accordance with the *Rules consultation procedures*, a set of guidelines to assist *Registered Participants* to determine when an *inter-network test* may be required.

(l) *AEMO* and the *Relevant TNSP* must consider any relevant guidelines in determining whether an *inter-network test* is required.

(m) If *AEMO* or the *Relevant TNSP* gives notice under clause 5.7.7(g), then the *Proponent* must, in consultation with *AEMO*, prepare a draft *test program* for the *inter-network test* and provide it to *AEMO*, each *jurisdictional planning representative* and the *Relevant TNSP* (if the *Relevant TNSP* gave the notice).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(n) However, if *AEMO* determines that an *inter-network test* is required for a reason contemplated in item 5 or 6 of chart 1, then it must prepare a draft *test*

program for the *inter-network test* in consultation with the *jurisdictional planning representatives* and provide that draft *test program* to each *jurisdictional planning representative*.

(o) If a *jurisdictional planning representative* considers that any changes should be made to a draft *test program*, the *jurisdictional planning representative* must, within 10 *business days* after being provided with the draft *test program*, make a recommendation to *AEMO* that identifies the changes it proposes should be made to the draft *test program*.

(p) *AEMO* must:

(1) *publish* a copy of the draft *test program* and any relevant changes recommended by any *jurisdictional planning representative* and invite interested *Registered Participants* to make written submissions; and

(2) only accept as valid submissions received not later than the closing date for submissions specified in the notice *publishing* the copy of the draft *test program* (not to be less than 14 days after the date of *publication*); and

(3) provide the *jurisdictional planning representatives* with copies of all valid submissions and seek any further recommendations they may have.

(q) *AEMO* must determine and *publish* in accordance with clause 3.13.13 the *test program* for an *inter-network test* after taking into account the recommendations of the *jurisdictional planning representatives* and any valid submissions received from *Registered Participants*.

(r) In determining the *test program*, *AEMO* must so far as practicable have regard to the following principles:

(1) *power system security* must be maintained in accordance with Chapter 4; and

(2) the variation from the *central dispatch* outcomes that would otherwise occur if there were no *inter-network test* should be minimised; and

(3) the duration of the tests should be as short as possible consistently with test requirements and *power system security*; and

(4) the test facilitation costs to be borne by the *Proponent* under paragraph (aa) should be kept to the minimum consistent with this paragraph.

(s) **[Deleted]**

(t) An *inter-regional* test must not be conducted within 20 *business days* after *AEMO publishes* the *test program* for the *inter-network test* determined by *AEMO* under clause 5.7.7(r).

(u) The *Proponent* in respect of an *inter-network test* must seek to enter into agreements with other *Registered Participants* to provide the test facilitation services identified in the *test program* in order to ensure that the *power system* conditions required by the *test program* are achieved.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(v) If the *Proponent* approaches another *Registered Participant* seeking to enter into an agreement under clause 5.7.7(u) then the *Proponent* and the *Registered Participant* must negotiate in good faith concerning the provision of the relevant test facilitation service.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(w) If:

(1) a *Proponent* approaches another *Registered Participant* as described in clause 5.7.7(v); and

(2) the *Proponent* and the other *Registered Participant* have not agreed the terms and conditions to be included in the agreement under which the *Registered Participant* will provide the test facilitation service requested within 15 *business days* of the approach,

then those terms and conditions must be determined in accordance with rule 8.2 and a dispute of this type is deemed to fall within clause 8.2.5(c)(2).

(x) If the dispute concerns the price which the *Proponent* is to pay for a test facilitation service, then it must be resolved applying the following principles:

(1) the other *Registered Participant* is entitled to recover the costs it incurs, and a reasonable rate of return on the capital it employs, in providing the test facilitation service, determined taking into account the additional costs associated with:

(i) maintaining the equipment necessary to provide the test facilitation service;

(ii) any labour required to operate and maintain the equipment used to provide the test facilitation service; and

(iii) any materials consumed when the test facilitation service is utilised; and

(2) the other *Registered Participant* is entitled to be compensated for any commercial opportunities foregone by providing the test facilitation service.

(y) When the terms and conditions are determined in accordance with rule 8.2 under this clause 5.7.7, then the *Proponent* and the other *Registered Participant* must enter into an agreement setting out those terms and conditions.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(z) If *AEMO* is not the *Proponent* in respect of an *inter-network test*, the *Proponent* must:

(1) prior to the scheduled date of the *inter-network test*, confirm to *AEMO* that the test facilitation services identified in the *test program* will be available to be utilised, who will be providing them and the operational arrangements for utilising them;

(2) provide sufficient information to enable *AEMO* to utilise the test facilitation services in conducting the *inter-network test*; and

(3) respond promptly to any queries *AEMO* raises with the *Proponent* concerning the availability of the test facilitation services and *AEMO's* ability to utilise those services in conducting the *inter-network tests*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(aa) The *Proponent* in respect of an *inter-network test* must bear all of the following costs associated with that *inter-network test*:

(1) any amounts payable under an agreement under which test facilitation services are provided;

(2) the *Proponent's* own costs associated with the *inter-network test* and in negotiating and administering the agreements referred to in clause 5.7.7(u); and

(3) if the *Proponent* is not *AEMO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then the *Proponent* must enter into an agreement with *AEMO* to pay that amount to *AEMO*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(ab) If the *Proponent* is *AEMO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then *AEMO* must adjust that residue to be zero and must recover the amount as provided for in clause 2.11.3(b)(2A).

(ac) *AEMO* must establish operational conditions to achieve the particular *power transfer* levels for each stage of the *inter-network test* as contemplated by the *test program*:

(1) utilizing where practicable and economic to do so the test facilitation services identified in the *test program*; and

(2) otherwise, by applying to the minimum extent necessary to fulfil the test requirements, *inter-network testing constraints*.

(ad) An *inter-network test* must be coordinated by an officer nominated by *AEMO* who has authority to stop the test or any part of it or vary the procedure within

pre-approved guidelines determined by *AEMO* if that officer considers any of these actions to be reasonably necessary.

(ae) Each *Registered Participant* must:

(1) cooperate with *AEMO* in planning, preparing for and conducting *inter-regional* tests;

(2) act in good faith in respect of, and not unreasonably delay, an *inter-network test*; and

(3) comply with any instructions given to it by *AEMO* under clause 5.7.7(af).

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(af) *AEMO* may utilise test facilitation services under agreements entered into by the *Proponent* under this clause 5.7.7 during an *inter-network test* in order to achieve operational conditions on the *power system* which are reasonably required to achieve valid test results.

5.9 Disconnection and Reconnection

5.9.3 Involuntary disconnection

(a) *AEMO* may direct a *Network Service Provider* to, or a *Network Service Provider* may (either on its own initiative or in accordance with a direction from *AEMO*), *disconnect* a *Registered Participant's facilities* from a *network*, or a *Registered Participant's* *market connection points* ~~*market* loads~~, in the following circumstances:

(1) pursuant to a direction for a disconnection made by a court under:

(a) section 62 or 63 of the *NEL*;

(b) section 44AAG of the *Competition and Consumer Act 2010* (Cth); or

(c) section 44AAGA of the *Competition and Consumer Act 2010* (Cth).

(2) during an emergency in accordance with clause 5.9.5;

(3) in accordance with the *NEL*; or

(4) in accordance with the provisions of the *Registered Participant's connection agreement*.

(b) In all cases of *disconnection* by a *Network Service Provider* at *AEMO's* direction during an emergency in accordance with clause 5.9.5, *AEMO* must undertake a review under clause 4.8.15 and *AEMO* must then provide a report to the *Registered Participant*, the *AEMC* and the *AER* advising of the circumstances requiring such action.

(c) A *Network Service Provider* that has received a direction from *AEMO* under this clause 5.9.3 must comply with that direction promptly.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

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

5.9.4A Notification of disconnection

If the *AER* applies to a court for a direction, under section 62 or 63 of the *NEL* or pursuant to regulations made under section 44AAG of the *Competition and Consumer Act 2010* (Cth), that a *Registered Participant's* *market connection points* ~~*market loads*~~ be *disconnected*, the *AER* must promptly notify *AEMO* and the *participating jurisdictions* which the *AER* considers may be affected.

Part D Network Planning and Expansion

5.10 Network development generally

5.10.1 Content of Part D

(a) Clause 5.10.2 sets out local definitions used in Part D.

(b) Clause 5.11.1 sets out obligations regarding forecasts for connection points to the *transmission network*.

(c) Clause 5.11.2 sets out the obligations of *Network Service Providers* relating to the identification of network limitations.

(d) Rule 5.12 sets out planning and reporting obligations for *Transmission Network Service Providers*.

(e) Rule 5.13 sets out planning and reporting obligations for *Distribution Network Service Providers*.

(e1) Rule 5.13A sets out the obligations to provide distribution *zone substation* information.

(f) Rule 5.14 sets out joint planning obligations of *Network Service Providers*.

(f1) Rule 5.14B relates to guidelines for *Transmission Annual Planning Reports*.

(g) Rule 5.15 relates to regulatory investment tests generally.

(g1) Rule 5.15A relates to the *regulatory investment test for transmission*.

(h) Rule 5.16 relates to the application of the *regulatory investment test for transmission* to *RIT-T projects* that are not *actionable ISP projects*.

(h1) Rule 5.16A relates to the application of the *regulatory investment test for transmission* to *actionable ISP projects*.

(h2) Rule 5.16B relates to disputes about the application of the *regulatory investment test for transmission*.

(i) Rule 5.17 relates the *regulatory investment test for distribution*.

(j) Rule 5.18 relates to the construction of *funded augmentations*.

(j1) Rule 5.18A sets out the obligations of *Transmission Network Service Providers* in relation to a register of large generator and bidirectional connections.

(j2) Rule 5.18B sets out obligations of *Distribution Network Service Providers* in relation to completed ~~embedded generation~~distribution connected resource projects.

Note:

Rule 5.18B commences operation on 1 July 2018 when clause 5.4.5 is renumbered as rule 5.18B under the National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2017 No. 4

(k) Rule 5.19 relates to Scale Efficient Network Extensions.

(l) Rule 5.20 relates to the *NSCAS Report*, *Inertia Report* and *System Strength Report* and associated methodologies.

(m) Rule 5.20A relates to general *power system* risk management planning.

(m1) Rule 5.20B sets out the process for identifying and providing the *inertia requirements* for *inertia sub-networks*.

(m2) Rule 5.20C sets out the process for identifying and providing the *system strength requirements* for each *region*.

(n) Rule 5.21 sets out *AEMO's* obligations to *publish* information and guidelines and provide advice regarding network development.

(o) Rule 5.22 relates to the *Integrated System Plan*.

(p) Rule 5.23 sets out dispute resolution procedures relating to the *Integrated System Plan*.

(q) Rule 5.24 relates to *REZ design reports* and joint REZ planning.

5.11 Forecasts of connection to transmission network and identification of system limitations

5.11.1 Forecasts for connection to transmission network

(a) The relevant *Network Service Provider* must give at least 40 *business days* written notice to each relevant *Registered Participant* of the annual date by which the *Registered Participant* must provide the relevant *Network Service Provider* with the short and long term electricity *generation*, *market network service* and *load* forecast information listed in schedule 5.7 in relation to each *connection point* which *connects* the *Registered Participant* to a *transmission network* of that *Network Service Provider* and any other relevant information as reasonably required by the *Network Service Provider*.

(b) Details of planned future sources of *generation*, *load* or *market network services* ~~*generating units*, *market network services* and *loads*~~, being details regarding the proposed commencing date, *active power capability* and *reactive power capability*, *power transfer capability*, operating times/seasons and special operating requirements, must be given by each relevant *Registered Participant* to the relevant *Network Service Provider* on reasonable request.

(c) Each relevant *Registered Participant* must use reasonable endeavours to provide accurate information under paragraph (a) which must include details of any factors which may impact on *load* forecasts or proposed *facilities* for *generation* or *market network services*.

(d) If the *Network Service Provider* reasonably believes any forecast information to be inaccurate, the *Network Service Provider* may modify that forecast information and must advise the relevant *Registered Participant* and *AEMO* in writing of this action and the reason for the modification. The *Network Service Provider* is not responsible for any adverse consequences of this action or for failing to modify forecast information under this paragraph (d).

5.13 Distribution annual planning process

5.13.1 Distribution annual planning review

Scope

(a) A *Distribution Network Service Provider* must:

(1) subject to paragraph (b), determine an appropriate *forward planning period* for its *distribution assets*; and

(2) analyse the expected future operation of its *network* over the *forward planning period* in accordance with this clause 5.13.1.

Note

This subparagraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) The minimum *forward planning period* for the purposes of the *distribution* annual planning review is 5 years.

(c) The *distribution* annual planning review must include all assets that would be expected to have a material impact on the *Distribution Network Service Provider's network* over the *forward planning period*.

Requirements

(d) Each *Distribution Network Service Provider* must, in respect of its *network*:

(1) prepare forecasts covering the *forward planning period* of *maximum demands* for:

(i) *sub-transmission lines*;

(ii) *zone substations*; and

(iii) to the extent practicable, *primary distribution feeders*,

having regard to:

(iv) the number of customer *connections*;

(v) *energy* consumption; and

(vi) estimated total output of known ~~*embedded generating units*~~ *distribution connected units*;

(2) identify, based on the outcomes of the forecasts in subparagraph (1) and paragraph (d1), limitations on its *network*, including limitations caused by one or more of the following factors:

(i) forecast *load* or forecast use of *distribution services* by *distribution connected units*~~*embedded generating units*~~ exceeding total capacity;

(ii) the requirement for asset refurbishment or replacement;

(iii) the requirement for *power system security* or *reliability* improvement;

(iv) design fault levels being exceeded;

(v) the requirement for *voltage* regulation and other aspects of quality of supply to other *Network Users*; and

(vi) the requirement to meet any *regulatory obligation or requirement*;

(3) identify whether corrective action is required to address any system limitations identified in subparagraph (2) and, if so, identify whether the *Distribution Network Service Provider* is required to:

(i) carry out the requirements of the *regulatory investment test for distribution*; and

(ii) carry out demand side engagement obligations as required under paragraph (f); and

(4) take into account any *jurisdictional electricity legislation*;

(5) take into account the most recent *general power system risk review*; and

(6) consider the operation of, and any known or potential interactions between:

(i) any *emergency frequency control schemes*, or emergency controls in place under clause S5.1.8, on its *network*; and

(ii) protection systems or control systems of *plant connected* to its *network* (including consideration of whether the settings of those systems are fit for purpose for the future operation of its network).

where the *Distribution Network Service Provider* expects that such operation or interactions would be likely to lead to cascading outages or major supply disruptions.

(d1) Each *Distribution Network Service Provider* must, in respect of its *network*, prepare forecasts covering the *forward planning period* of demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ at:

(1) *sub-transmission lines*;

(2) *zone substations*; and

(3) to the extent practicable, *primary distribution feeders*, having regard to:

(i) the number of customer *connections*;

(ii) *energy* consumption; and

(iii) estimated total output of known *distribution connected units*~~*embedded generating units*~~.

Demand side engagement obligations

(e) Each *Distribution Network Service Provider* must develop a strategy for:

(1) engaging with *non-network providers*; and

(2) considering *non-network options*.

(f) A *Distribution Network Service Provider* must engage with *non-network providers* and consider *non-network options* for addressing system limitations in accordance with its *demand side engagement strategy*.

(g) A *Distribution Network Service Provider* must document its *demand side engagement strategy* in a *demand side engagement document* which must be *published* by no later than 31 August 2013.

(h) A *Distribution Network Service Provider* must include the information specified in schedule 5.9 in its *demand side engagement document*.

(i) A *Distribution Network Service Provider* must review and *publish* a revised *demand side engagement document* at least once every three years.

(j) A *Distribution Network Service Provider* must establish and maintain a facility by which parties can register their interest in being notified of developments relating to *distribution network* planning and expansion. A *Distribution Network Service Provider* must have in place a facility under this paragraph (j) no later than the date of publication of the *Distribution Network Service Provider's demand side engagement document* under paragraph (g).

5.15A Regulatory investment test for transmission

5.15A.2 Principles for RIT-T projects which are not actionable ISP projects

(a) This clause 5.15A.2 only applies in respect of the application of the *regulatory investment test for transmission* to *RIT-T projects* that are not *actionable ISP projects*.

(b) The *regulatory investment test for transmission* must:

(1) be based on a cost-benefit analysis that is to include an assessment of reasonable scenarios of future supply and demand if each *credible option* were implemented compared to the situation where no option is implemented;

(2) not require a level of analysis that is disproportionate to the scale and likely impact of each of the *credible options* being considered;

(3) be capable of being applied in a predictable, transparent and consistent manner;

(4) require the *RIT-T proponent* to consider the following classes of market benefits that could be delivered by the *credible option*:

(i) changes in fuel consumption arising through different patterns of *generation dispatch*;

(ii) changes in voluntary *load* curtailment;

(iii) changes in involuntary *load shedding*, with the market benefit to be considered using a reasonable forecast of the value of electricity to consumers;

(iv) changes in costs for parties, other than the *RIT-T proponent*, due to:

(A) differences in the timing of new *plant*;

(B) differences in capital costs; and

(C) differences in the operating and maintenance costs;

(v) differences in the timing of expenditure;

(vi) changes in *network* losses;

(vii) changes in *ancillary services* costs;

(viii) competition benefits;

(ix) any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing that *credible option* with respect to the likely future investment needs of the *market*; and

(x) other classes of market benefits that are:

(A) determined to be relevant by the *RIT-T proponent* and agreed to by the *AER* in writing before the date the relevant *project specification consultation report* is made available to other parties under clause 5.16.4; or

(B) specified as a class of market benefit in the *regulatory investment test for transmission*;

(5) require a *RIT-T proponent* to include a quantification of all classes of market benefits which are determined to be material in the *RIT-T proponent's* reasonable opinion;

(6) require a *RIT-T proponent* to consider all classes of market benefits as material unless it can, in the *project assessment draft report*, or in respect of a proposed *preferred option* which is subject to the exemption contained in clause 5.16.4(z1), in the *project specification consultation report*, provide reasons why:

(i) a particular class of market benefit is likely not to affect materially the outcome of the assessment of the *credible options* under the *regulatory investment test for transmission*; or

(ii) the estimated cost of undertaking the analysis to quantify the market benefit is likely to be disproportionate to the scale, size and potential benefits of each *credible option* being considered in the report;

(7) with respect to the classes of market benefits set out in subparagraphs (4)(ii) and (iii), ensure that, if the *credible option* is for *reliability corrective action*, the quantification assessment required by paragraph

(5) will only apply insofar as the market benefit delivered by the *credible option* exceeds the minimum standard required for *reliability corrective action*;

(8) require the RIT-T proponent to quantify the following classes of costs:

(i) costs incurred in constructing or providing the *credible option*;

(ii) operating and maintenance costs in respect of the *credible option*;

(iii) the cost of complying with laws, regulations and applicable administrative requirements in relation to the construction and operation of the *credible option*; and

(iv) any other class of costs that are:

(A) determined to be relevant by the *RIT-T proponent* and agreed to by the *AER* in writing before the date the relevant *project specification consultation report* is made available to other parties under clause 5.16.4; or

(B) specified as a class of cost in the *regulatory investment test for transmission*;

(9) provide that any cost or market benefit which cannot be measured as a cost or market benefit to *Generators*, *Integrated Resource Providers*, *Distribution Network Service Providers*, *Transmission Network Service Providers* or consumers of electricity may not be included in any analysis under the *regulatory investment test for transmission*;

(10) specify:

(i) the method or methods permitted for estimating the magnitude of the different classes of market benefits;

(ii) the method or methods permitted for estimating the magnitude of the different classes of costs;

(iii) the method or methods permitted for estimating market benefits which may occur outside the region in which the *networks* affected by the *RIT-T project* are located; and

(iv) the appropriate method and value for specific inputs, where relevant, for determining the discount rate or rates to be applied;

(11) specify that a sensitivity analysis is required of any modelling relating to the cost-benefit analysis; and

(12) reflect that the *credible option* that maximises the present value of net economic benefit to all those who produce, consume or transport electricity in the market may, in some circumstances, have a negative net economic benefit (that is, a net economic cost) where the *identified need* is for *reliability corrective action*.

5.17 Regulatory investment test for distribution

5.17.1 Principles

(a) The *AER* must develop and *publish* the *regulatory investment test for distribution* in accordance with the *distribution consultation procedures* and this clause 5.17.1.

(b) The purpose of the *regulatory investment test for distribution* is to identify the *credible option* that maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the *NEM* (the *preferred option*). For the avoidance of doubt, a *preferred option* may, in the relevant circumstances, have a negative net economic benefit (that is, a net economic cost) where the *identified need* is for *reliability corrective action*.

(c) The *regulatory investment test for distribution* must:

(1) be based on a cost-benefit analysis that must include an assessment of reasonable scenarios of future supply and demand;

(2) not require a level of analysis that is disproportionate to the scale and likely impact of each of the *credible options* being considered;

(3) be capable of being applied in a predictable, transparent and consistent manner;

(4) require the *RIT-D proponent* to consider whether each *credible option* could deliver the following classes of market benefits:

(i) changes in voluntary *load* curtailment;

(ii) changes in involuntary *load shedding* and *customer* interruptions caused by *network* outages, using a reasonable forecast of the value of electricity to *customers*;

(iii) changes in costs for parties, other than the *RIT-D proponent*, due to differences in:

(A) the timing of new *plant*;

(B) capital costs; and

(C) the operating and maintenance costs;

(iv) differences in the timing of expenditure;

(v) changes in *load transfer capacity* and the capacity of *distribution connected units*~~*embedded generating units*~~ to take up *load*;

(vi) any additional option value (where this value has not already been included in the other classes of market benefits) gained or foregone from implementing the *credible option* with respect to the likely future investment needs of the *NEM*;

(vii) changes in *electrical energy losses*; and

(viii) any other class of market benefit determined to be relevant by the *AER*.

(5) with respect to the classes of market benefits set out in subparagraphs (4)(i) and (ii), ensure that, if a *credible option* is for *reliability corrective action*, the consideration and any quantification assessment of these classes of market benefits will only apply insofar as the market benefit delivered by that *credible option* exceeds the minimum standard required for *reliability corrective action*;

(6) require the *RIT-D proponent* to consider whether the following classes of costs would be associated with each *credible option* and, if so, quantify the:

(i) financial costs incurred in constructing or providing the *credible option*;

(ii) operating and maintenance costs over the operating life of the *credible option*;

(iii) cost of complying with laws, regulations and applicable administrative requirements in relation to the construction and operation of the *credible option*; and

(iv) any other financial costs determined to be relevant by the *AER*.

(7) require a *RIT-D proponent*, in exercising judgement as to whether a particular class of market benefit or cost applies to each *credible option*, to have regard to any submissions received on the *non-network options report* and/or *draft project assessment report* where relevant;

(8) provide that any market benefit or cost which cannot be measured as a market benefit or cost to persons in their capacity as *Generators*, *Integrated Resource Providers*, *Distribution Network Service Providers*, *Transmission Network Service Providers* or consumers of electricity must not be included in any analysis under the *regulatory investment test for distribution*; and

(9) specify:

(i) the method or methods permitted for estimating the magnitude of the different classes of market benefits;

(ii) the method or methods permitted for estimating the magnitude of the different classes of costs;

(iii) the appropriate method and value for specific inputs, where relevant, for determining the discount rate or rates to be applied;

(iv) that a sensitivity analysis is required for modelling the cost-benefit analysis; and

(v) that the *credible option* that maximises the present value of net economic benefit to all those who produce, consume or transport electricity in the *NEM* may, in some circumstances, be a negative net economic benefit (that is, a net economic cost) where the *identified need* is for *reliability corrective action*.

(d) A *RIT-D proponent* may, under the *regulatory investment test for distribution*, quantify each class of market benefits under paragraph (c)(4) where the *RIT-D proponent* considers that:

(1) any applicable market benefits may be material; or

(2) the quantification of market benefits may alter the selection of the *preferred option*.

(e) The *regulatory investment test for distribution* permits a single assessment of an integrated set of related and similar investments.

5.18A Large generator and large bidirectional connections

5.18A.1 Definitions

(a) In this rule 5.18A:

assessment date means, in respect of a new large connections~~large generator connection~~, the first TAPR date that falls no earlier than 18 months after the commissioning date for that ~~large generator connection~~large connection.

commissioning date means, in respect of a new ~~large generator connection~~large connection, the date of commencement of commissioning of the *connection* and *connected facilities* of that ~~large generator connection~~large connection.

connections register has the meaning given in clause 5.18A.2.

impact assessment has the meaning given in clause 5.18A.3.

large bidirectional connection means *bidirectional units* that:

(1) have a *nameplate rating* of 5 MW or greater; or

(2) are part of a group of *bidirectional units connected* at a common *connection point* with a combined *nameplate rating* of 5 MW or greater,

which are owned, operated or controlled by an *Integrated Resource Provider* and are *connected* to the *Transmission Network Service Provider's network*.

large connection means a large generator connection or a large bidirectional connection, or a *generating system* or *integrated resource system* that include one or more large generator connections or large bidirectional connections.

large generator connection means *generating units* that:

(1) have a *nameplate rating* of 30 MW or greater; or

(2) are part of a group of *generating units* connected at a common *connection point* with a combined *nameplate rating* of 30 MW or greater,

which are owned, operated or controlled by a *Generator* or *Integrated Resource Provider* and are *connected* to the *Transmission Network Service Provider's network*.

TAPR date means the date under clause 5.12.2 by which a *Transmission Network Service Provider* must *publish* its *Transmission Annual Planning Report*.

5.18A.2 Register of large generator and bidirectional connections

(a) A *Transmission Network Service Provider* must establish, maintain and publish, on its website, a register of information regarding large connections

~~large generator connections~~ (**connections register**), including but not limited to the following information in respect of each large connection~~large generator connection~~:

(1) location of the *connection point* for the large connection~~large generator connection~~;

(2) person who is registered by *AEMO* as a *Generator* or *Integrated Resource Provider* in respect of the large connection ~~large generator connection~~ at that *connection point*;

(3) technology of the *production units* ~~*generating units*~~ (e.g. hydro, open cycle gas turbine, steam sub-critical etc);

(4) aggregate *nameplate rating* capacity of all *production units* ~~*generating units*~~ comprised in the large connection~~large generator connection~~;

(5) date of cessation of a person's registration with *AEMO* as *Generator* or *Integrated Resource Provider* in respect of the large connection~~large generator connection~~, where relevant; and

(6) impact assessment of that large connection~~large generator connection~~, prepared in accordance with clause 5.18A.3 (if any).

(b) Subject to satisfying any relevant exemptions contained in clause 8.6.2, the *Transmission Network Service Provider* must not publish *confidential information* as part of, or in connection with, the connections register.

(c) The *Transmission Network Service Provider* must:

(1) include in the first connections register the details contained in subparagraphs (a)(1)-(5), for all large connections ~~large generator connections~~ on its *network* with a commissioning date after 13 December 1998; and

(2) by the TAPR date each year, update the connections register to include:

(i) the details contained in subparagraphs (a)(1)-(6) for all new large connections ~~large generator connections~~ on its *network*; and

(ii) updated information for all large connections ~~large generator connections~~ contained in the connections register where the information listed in subparagraphs (a)(1)-(5) has changed.

5.18A.3 Impact assessment of large connections~~large generator connections~~

(a) Following the commissioning date of a new ~~large generator connection~~large connection on a *Transmission Network Service Provider's network*, the *Transmission Network Service Provider* must prepare an assessment of the impact of that ~~large generator connection~~large connection on its *network* by the assessment date (**impact assessment**).

(b) An impact assessment prepared in accordance with this clause 5.18A.3 is not required to be updated by the *Transmission Network Service Provider* at any future point in time.

(c) The purpose of the impact assessment is to identify any material effects of the ~~large generator connection~~large connection on the *Transmission Network*

Service Provider's network, as compared with the absence of that ~~large generator connection~~large connection on its *network*.

(d) Subject to paragraph (e), when preparing an impact assessment, a *Transmission Network Service Provider* must consider whether the new ~~large generator connection~~large connection has resulted in changes to:

(1) *ancillary service* requirements to the extent such changes relate specifically to the *Transmission Network Service Provider's network*;

(2) the level, and pattern, of *network* congestion on its *network*;

(3) the timing of expenditure for the *Transmission Network Service Provider* on its *network*; and

(4) the level of *interconnector power transfer capability* on its *network*,

and if such changes have occurred, include details of the changes in the impact assessment to the extent they have had a material impact on the *Transmission Network Services Provider's network*.

(e) If the *Transmission Network Service Provider* considers any of the changes referred to in paragraph (d) to have an immaterial impact on its *network*, outline the reasons why it has determined such impacts to be immaterial.

(f) The impact assessment must:

(1) be based on historical data;

(2) consider the impacts referred to in paragraph (d) for the 12 months immediately preceding the commissioning date as compared to the 12 months following the commissioning date; and

(3) include a detailed description of the methodologies or data used in quantifying each impact referred to in paragraph (d).

5.18B Completed ~~embedded generation~~distribution connected resource projects

5.18B.1 Definitions

(a) For the purposes of this rule 5.18B:

completed distribution connected resource projects ~~**completed embedded generation projects**~~ means ~~all~~ a *generating system* or *integrated resource system connected* to a *distribution network* and ~~*embedded generating units*~~ owned, operated or controlled by:

(1) a ~~*Generator*~~ *Distribution Connected Resource Provider*; or

(2) a person who was required to apply to *AEMO* for an exemption from the requirement to register as a *Generator* or *Integrated Resource Provider* in respect of the system~~an embedded generating unit~~,

and are connected to the *Distributor Network Service Provider's network*.

DAPR date has the same meaning as in clause 5.13.2.

5.18B.2 Register of completed ~~embedded generation~~distribution connected resource projects

(a) In relation to completed distribution connected resource projects~~embedded generation projects~~, a *Distribution Network Service Provider* must establish and *publish*, on its website, a register of the *plant*, including but not limited to:

(1) technology of ~~*generating unit*~~ each *distribution connected unit* comprised in the project (e.g. *synchronous generating unit*, induction generator, photovoltaic array, etc) and its make and model;

(2) maximum power *generation* capacity of all *distribution connected units*~~*embedded generating units*~~ comprised in the system~~relevant *generating system*~~;

(3) contribution to fault levels;

(4) the size and rating of the relevant *transformer*;

(5) a single line diagram of the *connection* arrangement;

(6) *protection systems* and communication systems;

(7) *voltage* control and *reactive power capability*; and

(8) details specific to the location of a *facility connected* to the *network* that are relevant to any of the details in subparagraphs (1)-(7).

(b) Subject to satisfying any relevant exemptions contained in clause 8.6.2, the *Distribution Network Service Provider* must not *publish confidential information* as part of, or in connection with, the register.

(c) The *Distribution Network Service Provider* must:

(1) include in the register the details contained in paragraph (b) for all completed distribution connected resource projects~~embedded generation projects~~ within the 5 year period preceding the establishment of the register; and

(2) update the register by the *DAPR date* each year thereafter with details of all completed distribution connected resource projects ~~embedded generation projects~~ in the 5 year period preceding the *DAPR date*.

5.19 SENE Design and Costing Study

5.19.1 Definitions

In this rule 5.19:

forecast generation scenarios means different assumptions made by the *Transmission Network Service Provider* conducting a SENE Design and Costing Study about the likely timing and capacity of future *connections* of *generating systems* and *integrated resource systems* in the geographic area relevant to the study and the probability of that capacity materialising.

Scale Efficient Network Extension means an *augmentation* to a *transmission network* which is capable of facilitating the future *connection* to the *transmission*

network of two or more *generating systems* or *integrated resource systems* in the same geographic area that have different owners, operators or controllers.

SENE Design and Costing Study means a study undertaken by a *Transmission Network Service Provider* in accordance with this rule 5.19 which compares the cost of forecast *connections* of *generating systems* and *integrated resource systems* to a *transmission network augmented* by a Scale Efficient Network Extension and the cost of those forecast *connections connecting* to the *national grid* in the same geographic area in the absence of the Scale Efficient Network Extension.

SENE Study Proponent means a person that makes a request under clause 5.19.2(a).

SENE study information means:

(a) any data or information provided to a *Transmission Network Service Provider* by a *Network Service Provider* under clause 5.19.5 for the purposes of a SENE Design and Costing Study;

(b) any data or information provided to a *Transmission Network Service Provider* by a person for the purposes of a SENE Design and Costing Study, provided that the person has registered its interest in response to an invitation under clause 5.19.3(e)(3); and

(c) any data or information contained in a SENE Design and Costing Study published under clause 5.19.6.

5.19.4 Content of SENE Design and Costing Study

In negotiating the scope of the SENE Design and Costing Study with the SENE Study Proponent under clause 5.19.3(c), the *Transmission Network Service Provider* must consider the following matters:

(a) the construction of future *generating systems* and *integrated resource systems* and the capacity of those *generating systems* and *integrated resource systems* in the relevant geographic area that are considered likely to require *connection* to the *national grid*, based on forecast generation scenarios;

(b) having regard to each forecast generation scenario:

(1) the most appropriate location of the point of *connection* of the Scale Efficient Network Extension to the present *transmission network*;

(2) the configuration of the Scale Efficient Network Extension including the point at which *generating systems* or *integrated resource systems* may connect to the Scale Efficient Network Extension;

(3) the capacity and technical specifications of the Scale Efficient Network Extension;

(4) indicative development, operating and other costs for the Scale Efficient Network Extension, based on an indicative timetable for development of the Scale Efficient Network Extension;

(5) opportunities for developing the Scale Efficient Network Extension incrementally;

(6) the likely impact of the Scale Efficient Network Extension on its *transmission network*, including the type and estimated cost of any

other *augmentation* that would be required to ensure that the Scale Efficient Network Extension did not increase congestion on its *transmission network*;

(7) a comparison between:

(i) the estimated total project expenditure (excluding any revenue impact) of forecast *connections* of *generating systems* and *integrated resource systems* to the *Transmission Network Service Provider's network* as *augmented* by a Scale Efficient Network Extension; and

(ii) the estimated total project expenditure (excluding any revenue impact) of forecast *connections* of *generating systems* and *integrated resource systems* to the *Transmission Network Service Provider's network*, or, if different, the *Local Network Service Provider's network*, in the same geographic area in the absence of the Scale Efficient Network Extension; and

(c) the most recent *Integrated System Plan* and the *Transmission Network Service Provider's* most recent *Transmission Annual Planning Report* (to the extent relevant).

5.20 System security reports

5.20.6 Publication of system strength requirements methodologies

(a) *AEMO* must develop and publish the *system strength requirements methodology* in accordance with the *Rules consultation procedures*.

(b) *AEMO* may amend the *system strength requirements methodology*.

(c) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *system strength requirements methodology*.

(d) *AEMO* may make minor and administrative amendments to the *system strength requirements methodology* without complying with the *Rules consultation procedures*.

(e) The *system strength requirements methodology* determined by *AEMO* must provide for *AEMO* to take the following matters into account in determining the *system strength requirements* and the minimum *three phase fault level*:

(1) the combination of *three phase fault levels* at each *system strength node* in the *region* that could reasonably be considered to be sufficient for the *power system* to be in a *secure operating state*;

(2) the maximum *load shedding* or *generation shedding* expected to occur on the occurrence of any *credible contingency event* or *protected event* affecting the *region*;

(3) the stability of the *region* following any *credible contingency event* or *protected event*;

(4) the risk of *cascading outages* as a result of any *load shedding* or *generating system*, *integrated resource system* or *market network service facility* tripping as a result of a *credible contingency event* or *protected event* in the *region*;

(5) additional contribution to the *three phase fault level* needed to account for the possibility of a reduction in the *three phase fault level* at a *system strength node* if the *contingency event* that occurs is the loss or unavailability of a *synchronous production unit* ~~*synchronous generating unit*~~ or any other *facility* or service that is material in determining the *three phase fault level* at the *system strength node*;

(6) the stability of any equipment that is materially contributing to the *three phase fault level* or *inertia* within the *region*; and

(7) any other matters *AEMO* considers appropriate.

(f) The *system strength requirements methodology* determined by *AEMO* must:

(1) provide an overview of *system strength nodes* and the process to declare them;

(2) describe:

(i) how *AEMO* forecasts new *connections* and the information it takes into account;

(ii) how *AEMO* will determine the assumptions it will use about the size, type and operational profile of *facilities* or classes of *facilities* to be *connected* and their contribution to the matters taken into account in determining the *system strength requirements*; and

(iii) the modelling and analysis methodologies *AEMO* will use to determine *system strength nodes* and minimum *three phase fault levels* at the *system strength nodes* and the matters it will take into account;

(3) provide for *AEMO* to take the following matters into account in determining the *system strength requirements*:

(i) the *Integrated System Plan* and the *Electricity Statement of Opportunities*;

(ii) the matters in paragraphs (e)(1) to (7) for each year of the forecast period; and

(iii) any other matters *AEMO* considers appropriate; and

(4) provide a description of what is meant by stable *voltage* waveforms for the purposes of clause S5.1.14(b)(2) (in addition to that provided in clause S5.1.14(c)) including the matters that may be taken into account by *System Strength Service Providers* to assess, for the level and type of *inverter based resources* projected by *AEMO* at *system strength nodes,* what may be required to achieve stable operation.

5.20B Inertia sub-networks and requirements

5.20B.4 Inertia Service Provider to make available inertia services

(a) The *Inertia Service Provider* for an *inertia sub-network* is:

(1) the *Transmission Network Service Provider* for the *inertia sub-network*; or

(2) if there is more than one *Transmission Network Service Provider* for the *inertia sub-network*, the *jurisdictional planning body* for the *participating jurisdiction* in which the *inertia sub-network* is located.

(b) If *AEMO* gives a notice under clause 5.20B.3(c) that *AEMO* has assessed that there is or is likely to be an *inertia shortfall* in an *inertia sub-network*, the *Inertia Service Provider* for the *inertia sub-network* must make *inertia network services* available in accordance with paragraph (c) that when *enabled* will provide *inertia* to:

(1) the *secure operating level of inertia*; or

(2) the *secure operating level of inertia* as adjusted for *inertia support activities*, but not less than the *minimum threshold level of inertia* as adjusted for *inertia support activities*.

Note

This paragraph is classified as a tier 1 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) For the purposes of paragraph (b), an *Inertia Service Provider* for an *inertia sub-network* must:

(1) use reasonable endeavours to make the *inertia network services* available by the date specified by *AEMO* in the notice under clause 5.20B.3(c);

(2) make a range and level of *inertia network services* available such that it is reasonably likely that *inertia network services* that provide the required level of *inertia* when *enabled* are continuously available, taking into account planned *outages* and the risk of unplanned *outages*;

(3) ensure that the *inertia network services* that when *enabled* provide *inertia* up to the *minimum threshold level of inertia* (as adjusted for *inertia support activities* if applicable) are qualifying *inertia network services* as specified in paragraph (d);

(4) ensure that the *inertia network services* that when enabled provide *inertia* beyond the *minimum threshold level of inertia* up to the *secure operating level of inertia* (as adjusted for *inertia support activities* if applicable), are qualifying *inertia network services* as specified in paragraph (e); and

(5) maintain the availability of those *inertia network services* until the date the *Inertia Service Provider's* obligation ceases, as specified by *AEMO* under clause 5.20B.3(d).

(d) The *inertia network services* that qualify to provide *inertia* up to the *minimum threshold level of inertia* are:

(1) *inertia network services* made available by the *Inertia Service Provider* investing in its *network* through the installation, commissioning and operation of a *synchronous condenser*; and

(2) *inertia network services* made available to the *Inertia Service Provider* by a *Registered Participant* and provided by means of a *synchronous*

production unit ~~*synchronous generating unit*~~ or a *synchronous condenser* under an *inertia services agreement*.

(e) The *inertia network services* that qualify to provide *inertia* beyond the *minimum threshold level* of *inertia* up to the *secure operating level of inertia* are:

(1) the *inertia network services* referred to in paragraph (d);

(2) *inertia network services* made available by the *Inertia Service Provider* investing in its *network* other than those referred to in paragraph (d); and

(3) *inertia network services* made available to the *Inertia Service Provider* by a *Registered Participant* under an *inertia services agreement* other than those referred to in paragraph (d).

(f) An *Inertia Service Provider* required to make *inertia network services* available under paragraph (b) must make available the least cost option or combination of options that will satisfy its obligation within the time referred to in subparagraph (c)(1) and for so long as the obligation to make the *inertia network services* available continues.

(g) An *Inertia Service Provider* required to make *inertia network services* available under paragraph (b) must prepare and *publish* information to enable potential providers of *inertia network services* to develop *non-network options* for consideration by the *Inertia Service Provider* including:

(1) a description of the requirement for *inertia network services* including timing;

(2) the technical characteristics that a *non-network option* would be required to deliver, such as the level of *inertia*, location, availability, response time and operating profile;

(3) a summary of potential options to make the *inertia network services* available identified by the *Inertia Service Provider*, including *network options* and *non-network options*; and

(4) information to assist providers of *non-network options* wishing to present proposals to the *Inertia Service Provider* including details of how to submit a proposal for consideration.

(h) An *Inertia Service Provider* must provide information in its *Transmission Annual Planning Report* about:

(1) the activities undertaken to satisfy its obligation to make *inertia network services* available under paragraph (b); and

(2) *inertia support activities* undertaken to reduce the *minimum threshold level of inertia* or the *secure operating level of inertia*.

(i) If the *Inertia Service Provider* proposes *network* investment for either of the purposes specified in paragraph (h), the *Inertia Service Provider* must provide the following information in its next *Transmission Annual Planning Report*:

(1) the date when the proposed relevant *network* investment became or will become operational;

(2) the purpose of the proposed relevant *network* investment;

(3) the total cost of the proposed relevant *network* investment; and

(4) the indicative total cost of any *non-network options* considered.

(j) An *Inertia Service Provider* may include the cost of *inertia service payments* in the calculation of *network support payments* in accordance with Chapter 6A.

5.20B.5 Inertia support activities

(a) *AEMO* may at the request of an *Inertia Service Provider* approve activities (*inertia support activities*) under this clause and agree corresponding adjustments to the *minimum threshold level of inertia* or the *secure operating level of inertia* for the purposes of clause 5.20B.4(b) where the activities:

(1) are to be undertaken by the *Inertia Service Provider* or provided as a service to the *Inertia Service Provider*;

(2) are not *inertia network services*; and

(3) *AEMO* is satisfied the activities will contribute to the operation of the *inertia sub-network* in a *satisfactory operating state* or *secure operating state* in the circumstances described in clause 4.4.4(a) or (b) as applicable.

Note

If approved by *AEMO* under paragraph (a), inertia support activities may include installing or contracting for the provision of *frequency* control services, installing emergency protection schemes or contracting with *Generators* or *Integrated Resource Providers* in relation to the operation of their *production units* ~~*generating units*~~ in specified conditions.

(b) An adjustment to the *minimum threshold level of inertia* or the *secure operating level of inertia* for *inertia support activities* will apply to the level determined by *AEMO* and only where and to the extent that the approved activity is *enabled* and performing in accordance with the conditions of any approval determined by *AEMO*.

(c) An *Inertia Service Provider* making a request under paragraph (a) must give *AEMO*:

(1) details of the proposed *inertia support activity* and the other information about the *inertia support activity* consistent with the requirements of clause 5.20B.6(c);

(2) the proposed technical specification and performance standards and the information about arrangements to *enable* the *inertia support activity* consistent with the requirements of clause 5.20B.6(d);

(3) information about how the *inertia support activity* will contribute to operation of the *inertia sub-network* in a *satisfactory operating state* or *secure operating state* in the circumstances described in clause 4.4.4(a) or (b) as applicable;

(4) the *Inertia Service Provider's* proposal for calculating adjustments to be made and the times they will apply; and

(5) any other information requested by *AEMO* in connection with the request.

(d) *AEMO* may give or withhold its approval under this clause in its discretion and subject to any conditions determined by *AEMO*.

(e) The technical specification, performance standards and information referred to in paragraph (c)(2) and any change to them must be approved by *AEMO*.

(f) An *Inertia Service Provider* must obtain *AEMO's* approval under paragraph (e) before any change to the technical specification, performance standards or arrangements to give instructions that apply to an *inertia support activity* comes into effect.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

5.20B.6 Inertia network services information and approvals

(a) An *Inertia Service Provider* required to make *inertia network services* available under clause 5.20B.4(b) must prepare and give to *AEMO* and keep up to date, a schedule setting out:

(1) the *inertia network services* made available by the *Inertia Service Provider* for the *inertia sub-network*; and

(2) the *Inertia Service Provider's* proposed order of priority for the *inertia network services* to be *enabled*.

(b) Where the *Inertia Service Provider* procures *inertia network services* from a *Generator* or *Integrated Resource Provider* provided by means of a *synchronous generating unit* under an *inertia services agreement*, the *Inertia Service Provider* must register the *generating unit* with *AEMO* as an ~~*inertia generating unit*~~*inertia unit* and specify that the *generating unit* may be periodically used to provide *inertia network services* and will not be eligible to set *spot prices* when *constrained on* to provide *inertia* in accordance with clause 3.9.7(c).

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) Where the *Inertia Service Provider* procures *inertia network services* from an *Integrated Resource Provider* provided by means of a *bidirectional unit* under an *inertia services agreement*, the *Inertia Service Provider* must register the *bidirectional unit* with *AEMO* as an *inertia unit* and specify that the *bidirectional unit* may be periodically used to provide *inertia network services* and will not be eligible to set *spot prices* when *constrained on* to provide *inertia* in accordance with clause 3.9.7(c).

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.20B.6(b1) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is

for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(c) An *Inertia Service Provider* required to make *inertia network services* available under clause 5.20B.4(b) must give to *AEMO* and keep up to date the following details for each *inertia network service*:

(1) a description of the *inertia network service*, including:

(i) the nature of the *inertia network service*;

(ii) the *inertia unit* ~~*generating unit*~~ or other *facilities* used to provide the *inertia network service*;

(iii) the purpose for which the *inertia network service* is being provided;

(iv) the location in the *transmission network* or *distribution network* of the *facilities* used to provide the *inertia network service*;

(v) the quantity of *inertia* to be provided when the *inertia network service* is *enabled* and;

(vi) any other information requested by *AEMO* in connection with the *inertia network service*;

(2) information about the availability of the *inertia network service*, including:

(i) the times when, and the period over which, the *inertia network service* will be available to provide *inertia*; and

(ii) any possible restrictions on the availability of the *inertia network service*

(d) An *Inertia Service Provider* required to make *inertia network services* available under clause 5.20B.4(b) must prepare and submit to *AEMO* for approval under paragraph (e) the following details for each *inertia network service*:

(1) the technical specification and performance standards for the *inertia network service*; and

(2) the arrangements necessary for *AEMO* to give instructions to *enable* or cease the provision of the *inertia network service* including:

(i) the period of any notice that has to be given to the provider of the *inertia network service* for it to be *enabled*;

(ii) the response time to any instruction for the *inertia network service* to be *enabled* or to cease being provided; and

(iii) communication protocols between it, *AEMO* and the *Registered Participants* that provide *inertia network services*.

(e) The technical specification. performance standards and arrangements necessary for *AEMO* to give the instructions referred to in paragraph (d) and any change to them must be consistent with the *Rules* and approved by *AEMO*.

(f) An *Inertia Service Provider* must ensure that *AEMO's* approval is obtained under paragraph (e) before the *inertia network service* is first made available and in the case of a change, before the change comes into effect.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) *AEMO* must use reasonable endeavours to respond to the *Inertia Service Provider* within 20 *business days* following the receipt of a request for approval under paragraph (e) stating whether it gives its approval.

(h) If *AEMO* does not approve the matters in a request for approval under paragraph (e):

(1) *AEMO* must tell the *Inertia Service Provider* its reasons for withholding approval and may advise the *Inertia Service Provider* of the changes *AEMO* requires to be made; and

(2) the *Inertia Service Provider* must amend its request to address the matters identified by *AEMO* and submit to *AEMO* a new request for approval.

5.20C System strength requirements

5.20C.4 System strength services information and approvals

(a) A *System Strength Service Provider* who makes *system strength services* available for the purposes of clause S5.1.14 must prepare and give to *AEMO* and keep up to date, a schedule setting out:

(1) the *system strength services* available to contribute to the *three phase fault level* at each *system strength node*; and

(2) the *System Strength Service Provider's* proposed order of priority for the *system strength services* to be *enabled*.

(b) Where the *System Strength Service Provider* procures *system strength services* from a *Generator* or *Integrated Resource Provider* provided by means of a *generating unit* under a *system strength services agreement*, the *System Strength Service Provider* must register the *generating unit* with *AEMO* as a ~~*system strength generating unit*~~*system strength production unit* ~~*unit*~~ and specify that the *generating unit* may be periodically used to provide *system strength services* and will not be eligible to set *spot prices* when *constrained on* to provide *system strength services* in accordance with clause 3.9.7(c).

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) Where the *System Strength Service Provider* procures *system strength services* from an *Integrated Resource Provider* provided by means of a *bidirectional unit* under a *system strength services agreement*, the *System Strength Service Provider* must register the *bidirectional unit* with *AEMO* as

a *system strength production unit* and specify that the *bidirectional unit* may be periodically used to provide *system strength services* and will not be eligible to set *spot prices* when *constrained on* to provide *system strength services* in accordance with clause 3.9.7(c).

[For information purposes only - Note

The AEMC proposes to recommend that clause 5.20C.4(b1) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(c) A *System Strength Service Provider* must give to *AEMO* and keep up to date the following details for each *system strength service* it makes available to *AEMO* under the *Rules*:

(1) a description of the *system strength service*, including:

(i) the nature of the *system strength service*;

(ii) the ~~*generating unit*~~*system strength production unit* or other *facilities* used to provide the *system strength service*;

(iii) the purpose for which the *system strength service* is being provided;

(iv) the location in the *transmission network* or *distribution network* of the *facilities* used to provide the *system strength service*;

(v) the contribution to the *three phase fault level* at each relevant *system strength node* and the *facility's connection point* when the *system strength service* is *enabled*; and

(vi) any other information (including models) requested by *AEMO* to assess the contribution of the *system strength service* referred to in subparagraph (v).

(2) information about the availability of the *system strength service*, including:

(i) the times when, and the period over which, the *system strength service* will be available to contribute to the *three phase fault level* at each relevant *system strength node*; and

(ii) any possible restrictions on the availability of the *system strength service*.

(d) A *System Strength Service Provider* must prepare and submit to *AEMO* the following details for each *system strength service* it makes available to *AEMO* under the *Rules*:

(1) the technical specification and performance standards for the *system strength service*; and

(2) the arrangements necessary for *AEMO* to give instructions to *enable* or cease the provision of the *system strength service* including:

(i) the period of any notice that has to be given to the provider of the *system strength service* for it to be *enabled*;

(ii) the response time to any instruction for the *system strength service* to be *enabled* or to cease being provided; and

(iii) communication protocols between it, *AEMO* and the *Registered Participants* or other persons that provide *system strength services*.

(e) The arrangements necessary for *AEMO* to give the instructions referred to in paragraph (d) and any change to them must be consistent with the *Rules* and approved by *AEMO*.

(f) A *System Strength Service Provider* must ensure that *AEMO*'s approval is obtained under paragraph (e) before the *system strength service* is first made available and in the case of a change, before the change comes into effect.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(g) *AEMO* must use reasonable endeavours to respond to the *System Strength Service Provider* within 20 *business days* following the receipt of a request for approval under paragraph (e) stating whether it gives its approval.

(h) If *AEMO* does not approve the matters in a request for approval under paragraph (e):

(1) *AEMO* must tell the *System Strength Service Provider* its reasons for withholding approval and may advise the *System Strength Service Provider* of the changes *AEMO* requires to be made; and

(2) the *System Strength Service Provider* must amend its request to address the matters identified by *AEMO* and submit to *AEMO* a new request for approval.

Schedule 5.1 Network Performance Requirements to be Provided or Co-ordinated by Network Service Providers

S5.1.2 Network reliability

S5.1.2.1 Credible contingency events

Network Service Providers must plan, design, maintain and operate their *transmission networks* and *distribution networks* to allow the transfer of power from ~~*generating units*~~ *production units* to *Customers* with all *facilities* or equipment associated with the *power system* in service and may be required by a *Registered Participant* under a *connection agreement* to continue to allow the transfer of power with certain facilities or *plant* associated with the *power system* out of service, whether or not accompanied by the occurrence of certain faults (called ***credible contingency events***).

The following *credible contingency events* and practices must be used by *Network Service Providers* for planning and operation of *transmission networks* and *distribution networks* unless otherwise agreed by each *Registered Participant* who would be affected by the selection of *credible contingency events*:

(a) The *credible contingency events* must include the *disconnection* of any single ~~*generating unit*~~ *production unit* or *transmission line*, with or without the application of a single circuit two-phase-to-ground solid fault on lines operating at or above 220 kV, and a single circuit three-phase solid fault on lines operating below 220 kV. The *Network Service Provider* must assume that the fault will be cleared in primary protection time by the faster of the duplicate protections with installed intertrips available. For existing *transmission lines* operating below 220 kV but above 66 kV a two-phase to earth fault criterion may be used if the modes of operation are such as to minimise the probability of three-phase faults occurring and operational experience shows this to be adequate, and provided that the *Network Service Provider* upgrades performance when the opportunity arises.

(b) For lines at any *voltage* above 66 kV which are not protected by an overhead earth wire and/or lines with tower footing resistances in excess of 10 ohms, the *Network Service Provider* may extend the criterion to include a single circuit three-phase solid fault to cover the increased risk of such a fault occurring. Such lines must be examined individually on their merits by the relevant *Network Service Provider*.

(c) For lines at any *voltage* above 66 kV a *Network Service Provider* must adopt operational practices to minimise the risk of slow fault clearance in case of inadvertent closing on to earths applied to equipment for maintenance purposes. These practices must include but not be limited to:

(1) Not leaving lines equipped with intertrips alive from one end during maintenance; and

(2) *Off-loading* a three terminal (tee connected) line prior to restoration, to ensure switch on to fault *facilities* are operative.

(d) The *Network Service Provider* must ensure that all *protection systems* for lines at a *voltage* above 66 kV, including associated intertripping, are well maintained so as to be available at all times other than for short periods (not greater than eight hours) while the maintenance of a *protection system* is being carried out.

S5.1.2.2 Network service within a region

The following paragraphs of this section set out minimum standards for certain *network services* to be provided to *Registered Participants* by *Network Service Providers* within a *region*. The amount of *network* redundancy provided must be determined by the process set out in rules 5.12 and 5.13 of the *Rules* and is expected to reflect the grouping of *production units*~~*generating units*~~, their expected capacity factors and availability and the size and importance of *Customer* groups.

The standard of service to be provided at each *connection point* must be included in the relevant *connection agreement*, and must include a *power transfer capability* such as that which follows:

(a) In the *satisfactory operating state*, the *power system* must be capable of providing the highest reasonably expected requirement for *power transfer* (with appropriate recognition of diversity between individual peak requirements and the necessity to withstand *credible contingency events*) at any time.

(b) During the most critical single element *outage* the *power transfer* available through the *power system* may be:

(1) zero (single element *supply*);

(2) the defined capacity of a backup *supply*, which, in some cases, may be provided by another *Network Service Provider*;

(3) a nominated proportion of the normal *power transfer capability* (eg 70 percent); or

(4) the normal *power transfer capability* of the *power system* (when required by a *Registered Participant*).

In the case of clauses S5.1.2.2(b)(2) and (3) the available capacity would be exceeded sufficiently infrequently to allow maintenance to be carried out on each *network element* by the *Network Service Provider*. A *connection agreement* may state the expected proportion of time that the normal capability will not be available, and the capability at those times, taking account of specific design, locational and seasonal influences which may affect performance, and the random nature of element *outages*.

A *connection agreement* may also state a conditional *power transfer capability* that allows for both circuits of a double circuit line or two closely parallel circuits to be out of service.

S5.1.7 Voltage unbalance

(a) A *Transmission Network Service Provider* must balance the effective impedance of the phases of its *network*, and a *Distribution Network Service Provider* must balance the current drawn in each phase at each of its *connection points*, so as to achieve average levels of negative sequence *voltage* at all *connection points* that are equal to or less than the values set out in Table S5.1a.1 as determined in accordance with the accompanying provisions of clause S5.1a.7 of the *system standards*.

(b) A *Network Service Provider* must include conditions in *connection agreements* to ensure that a *Connection Applicant* will balance the current drawn in each phase at each of its *connection points* so as to achieve:

(1) for those *Network Users* listed in clause S5.3(a): the levels permitted in accordance with clause S5.3.6 of schedule 5.3;

(2) for *Market Network Service Providers*: the levels permitted in accordance with clause S5.3a.9 of schedule 5.3a;

(3) otherwise: the average levels of negative sequence *voltage* at each of its *connection points* that are equal to or less than the values set out in Table S5.1a.1 and the accompanying provisions of clause S5.1a.7 of the *system standards*.

The responsibility of the *Network Service Provider* for *voltage* unbalance outside the ranges defined above is limited to *voltage* unbalance caused by the *network* and the pursuit of all measures available under the *Rules* and its *connection agreements*.

(c) A *Network Service Provider* must include conditions in *connection agreements* to ensure that each *Generator* and *Integrated Resource Provider* will balance:

(1) the *voltage generated* in each phase of its *generating system* or *integrated resource system*; and

(2) when not generating, the current drawn in each phase,

in order to achieve average levels of negative sequence *voltage* at each of the *generating system* or *integrated resource system connection points* due to phase imbalances within the *generating plant* that are not more than the values determined by the *Network Service Provider* to achieve average levels of negative sequence *voltage* at the *connection points* of other *Network Users* in accordance with clause S5.1a.7.

(d) When including conditions under paragraph (c), the *Network Service Provider* must have regard to the capabilities of the relevant *generating plant* technology.

S5.1.10 Load, generation and network control facilities

S5.1.10.1a Emergency frequency control schemes

(a) A *Network Service Provider* must:

(1) [**Deleted**]

(2) provide to *AEMO* all information and assistance reasonably requested by *AEMO* for the development and review of *EFCS settings schedules*.

(b) Where a *protected event EFCS standard* has been determined for an *emergency frequency control scheme* applicable in respect of a *Network Service Provider's transmission system* or *distribution system*, the *Network Service Provider* must:

(1) design, procure, commission, maintain, monitor, test, modify and report to *AEMO* in respect of, the *emergency frequency control scheme*;

(2) perform its obligations under subparagraph (1) so as to achieve the availability and operation of the scheme in accordance with the *protected event EFCS standard;* and

(3) coordinate with *AEMO* in relation to the monitoring and testing of the scheme once it is in operation.

(c) A *Network Service Provider* must use reasonable endeavours to achieve commissioning of a new or upgraded *emergency frequency control scheme* within the time contemplated by the relevant *general power system risk review* or, where applicable, *AEMO's* request to the *Reliability Panel* for declaration of a *non-credible contingency event* as a *protected event* and the decision of the *Reliability Panel* with respect to that request.

(d) For an *over-frequency scheme*:

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

(2) Where those opportunities are identified, the *Network Service Provider* must notify the *Generator* or *Integrated Resource Provider* concerned of the opportunity and must request the person ~~*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* or *Integrated Resource Provider* declines the request, or if the *Generator* or *Integrated Resource Provider* 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), the *Network Service Provider* may make other arrangements to implement the relevant elements of the scheme.

(4) If the *Generator* or *Integrated Resource Provider* accepts the request, the *Generator* or *Integrated Resource Provider* and the *Network Service Provider* must each negotiate in good faith with respect to the matters referred to above.

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

(f) Nothing in paragraph (d) 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 (d), the *Network Service Provider* cannot charge a fee under clause 5.3.9(e) for assessment of a submission in respect of those alterations.

Schedule 5.2 Conditions for Connection of Generators and Integrated Resource Providers

S5.2.1 Outline of requirements

(a) This schedule sets out details of additional requirements and conditions that *Generators* and *Integrated Resource Providers* must satisfy as a condition of *connection* of a *generating system* or *integrated resource system* to the *power system*.

(b) This schedule does not apply to a person, in respect of a *generating system* or *integrated resource system* that is or will be owned, operated or controlled by that person, if:

(1) that person has received an exemption from the requirement to register as a *Generator* or *Integrated Resource Provider* under clause ~~2.2.1(c)~~2.1A.2, or is eligible for an automatic exemption under the *registration information resource and guidelines*, subject to any terms and conditions imposed by *AEMO* as part of that exemption; and

(2) that *generating system* or *integrated resource system* is *connected*, or the person intends to *connect* it; and

(3) that *generating system* or *integrated resource system* is intended for use in a manner the *Network Service Provider* considers is unlikely to cause a material degradation in the quality of *supply* to other *Network Users*.

(c) This schedule also sets out the requirements and conditions which subject to clause 5.2.5 or clause 5.2.5A of the *Rules* (as applicable), are obligations on *Generators* and *Integrated Resource Providers*:

(1) to co-operate with the relevant *Network Service Provider* on technical matters when making a new *connection*; and

(2) to provide information to the *Network Service Provider* or *AEMO*.

(d) The equipment associated with each *generating system* or *integrated resource system* must be designed to withstand without damage the range of operating conditions which may arise consistent with the *system standards*.

(e) *Generators* and *Integrated Resource Providers* must comply with the *performance standards* and any attached terms or conditions of agreement agreed with the *Network Service Provider* or *AEMO* in accordance with a relevant provision of schedules 5.1a or 5.1.

(f) This schedule does not set out arrangements by which a *Generator* or *Integrated Resource Provider* may enter into an agreement or contract with *AEMO* to:

(1) provide additional services that are necessary to maintain *power system security*; or

(2) provide additional services to facilitate management of the *market*.

(g) This schedule provides for *automatic access standards* and the determination of *negotiated access standards* which once determined, must be recorded together with the *automatic access standards* in a *connection agreement* and registered with *AEMO* as *performance standards*.

S5.2.2 Application of Settings

A *Generator* or *Integrated Resource Provider* must only apply settings to a *control system* or a *protection system* that are necessary to comply with performance requirements of this schedule 5.2 if the settings have been approved in writing by the relevant *Network Service Provider* and, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, also by *AEMO*. A *Generator* or *Integrated Resource Provider* must not allow its *production unit* ~~*generating unit*~~ to supply electricity to, or take electricity from, the *power system* without such prior approval.

If a *Generator* or *Integrated Resource Provider* seeks approval from the *Network Service Provider* to apply or change a setting, then (except in the case of settings to be applied or changed by the *Generator* or *Integrated Resource Provider* in connection with an *emergency frequency control scheme*) approval must not be withheld unless the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that the changed setting would cause the *production unit* ~~*generating unit*~~ to not comply with the relevant *performance standard* or cause an *inter-regional* or *intra-regional power transfer capability* to be reduced.

If the *Network Service Provider* or, if the requirement is one that would involve *AEMO* under clause 5.3.4A(c) of the *Rules*, *AEMO*, reasonably determines that a setting of a ~~generating unit's~~ *production unit's control system* or *protection system* needs to change to comply with the relevant *performance standard* or to maintain or restore an *inter-regional* or *intra-regional power transfer capability*, the *Network Service Provider* or *AEMO* (as applicable) must consult with the relevant *Generator* or *Integrated Resource Provider*, and the *Network Service Provider* may request in writing that a setting be applied in accordance with the determination.

The *Network Service Provider* may also request a test to verify the performance of the relevant *plant* with the new setting. The *Network Service Provider* must provide *AEMO* with a copy of its request to a *Generator* or *Integrated Resource Provider* to apply a setting or to conduct a test.

A *Generator* or *Integrated Resource Provider* who receives such a request must arrange for the notified setting to be applied as requested and for a test to be conducted as requested. After the test, the *Generator* or *Integrated Resource Provider* must, on request, provide both *AEMO* and the *Network Service Provider* with a report of a requested test, including evidence of its success or failure. Such a report of a test is *confidential information*.

A *Generator* or *Integrated Resource Provider* must not change a setting requested by the *Network Service Provider* without its prior written agreement. If the *Network Service Provider* requires a *Generator* or *Integrated Resource Provider* to change a setting within 18 months of a previous request, the *Network Service Provider* must pay the *Generator* or *Integrated Resource Provider* its reasonable costs of changing the setting and conducting the tests as requested.

S5.2.3 Technical matters to be coordinated

(a) A *Generator* or *Integrated Resource Provider* and the relevant *Network Service Provider* must use all reasonable endeavours to agree upon relevant technical matters in respect of each new or altered *connection* of a *generating system* or *integrated resource system* to a *network* including:

(1) design at the *connection point*;

(2) physical layout adjacent to the *connection point*;

(3) primary protection and backup protection (clause S5.2.5);

(4) control characteristics (clause S5.2.5);

(5) communications *facilities* (clause S5.2.6);

(6) insulation co-ordination and lightning protection (paragraph (b));

(7) fault levels and fault clearance (clause S5.2.8);

(8) switching and *isolation* facilities (clause S5.2.8);

(9) interlocking and *synchronising* arrangements; and

(10) *metering installations*.

(b) A *Generator* or *Integrated Resource Provider* must ensure that in designing a *generating system's* or *integrated resource system's* electrical *plant*, including any *substation* for the *connection* of the *generating system* or

integrated resource system to the *network*, to operate at the same *nominal voltage* as at the *connection point*:

(1) the *plant* complies with the relevant *Australian Standards* unless a provision of the *Rules* allows or requires otherwise;

(2) the earthing of the *plant* complies with the ENA EG1-2006: Substation Earthing Guide to reduce step and touch potentials to safe levels;

(3) the *plant* is capable of withstanding, without damage the *voltage* impulse levels specified in the *connection agreement*;

(4) the insulation levels of the *plant* are co-ordinated with the insulation levels of the *network* to which the *generating system* or *integrated resource system* is *connected* as specified in the *connection agreement*; and

(5) safety provisions in respect of the *plant* comply with requirements applicable to the *participating jurisdiction* in which the *generating system* or *integrated resource system* is located, as notified by the *Network Service Provider*.

(c) If no relevant *Australian Standard* exists for the purposes of paragraph (b)(1), the *Generator* or *Integrated Resource Provider* must agree with the *Network Service Provider* for the *Generator* or *Integrated Resource Provider* to comply with another relevant standard.

S5.2.4 Provision of information

(a) A *Generator*, *Integrated Resource Provider* or person who is negotiating a *connection agreement* with a *Network Service Provider* must promptly on request by *AEMO* or the *Network Service Provider* provide all data in relation to that *generating system* or *integrated resource system* specified in schedule 5.5.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) A *Generator*, *Integrated Resource Provider* or person required under the *Rules* to register as the *Generator* or *Integrated Resource Provider* in respect of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, or an *integrated resource system* that (to the extent it comprises *bidirectional units*) is comprised of *bidirectional units* with a combined *nameplate rating* of 5 MW or more or (to the extent it comprises *generating units*) is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, by the earlier of:

(1) the day on which an *application to connect* is made under clause 5.3.4(a);

(2) the day on which amendments to *performance standards* are submitted under rule 4.14(p) or clause 5.3.9(b);

(3) three months before commissioning of a *generating system* or *integrated resource system* or planned alteration to a *generating system* or *integrated resource system*; or

(4) 5 *business days* before commissioning of a *generating system* or *integrated resource system* alteration that is repairing *plant* after a *plant* failure, if *plant* performance after the alteration will differ from performance prior to the *plant* failure,

must provide:

(5) to *AEMO* and the relevant *Network Service Provider*(s) (including the relevant *Transmission Network Service Provider* in respect of a~~n~~ ~~*embedded generating unit*~~ *distribution connected unit*):

(i) information about the *protections systems* of the *generating system* or *integrated resource system*;

(ii) information about the *control systems* of the *generating system* or *integrated resource system* including:

(A) a set of functional block diagrams, including all functions between feedback signals and *generating system* output or *integrated resource system* output or consumption~~generating system output~~;

(B) the parameters of each functional block, including all settings, gains, time constants, delays, deadbands and limits;

(C) the characteristics of non-linear elements;

(D) encrypted models in a form suitable for the software simulation products nominated by *AEMO* in the *Power System Model Guidelines*;

(6) to *AEMO*, the model source code (in the circumstances required by the *Power System Model Guidelines*) associated with the *power system* simulation model in subparagraph (ii)(D) in an unencrypted form suitable for at least one of the software simulation products nominated by *AEMO* in the *Power System Model Guidelines*, and in a form that would allow conversion for use with other software products nominated by *AEMO* in the *Power System Model Guidelines*;

(7) **[Deleted]**

(7A) to *AEMO* and the relevant *Network Service Provider*(s), any other information specified in the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Setting Data Sheet*; and

(8) to *AEMO* and the relevant *Network Service Providers* (including the relevant *Transmission Network Service Provider* in respect of a~~n~~ ~~*embedded generating unit*~~ *distribution connected unit*) a *releasable user guide*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b1) The information provided under paragraph (b) must contain sufficient detail for *AEMO* and the relevant *Network Service Provider*(s) to perform *power system* simulation studies in accordance with the requirements and circumstances specified in the *Power System Model Guidelines*.

(c) The information provided under paragraph (b) must:

(1) encompass all *control systems* that respond to *voltage* or *frequency* disturbances on the *power system*, and which are either integral to the *production units* ~~*generating units*~~ or otherwise part of the *generating system* or *integrated resource system*, including those applying to *reactive power* equipment that forms part of the *generating system* or *integrated resource system*; and

(2) conform with the applicable models developed in accordance with the *Power System Model Guidelines*, or an alternative model agreed with *AEMO* to be necessary to adequately represent the relevant *plant* ~~*generating plant*~~ to carry out load flow and dynamic simulations and (where applicable) specialised *power system* studies.

(d) The *Generator* or *Integrated Resource Provider* must provide to *AEMO* information that updates the information provided under paragraph (b) ~~clause S5.2.4(b)~~ and must provide to the relevant *Network Service Providers* information that updates the information provided under subparagraph (b)(5) ~~clause S5.2.4(b)(5)~~:

(1) within 3 months after commissioning tests or other tests undertaken in accordance with clause 5.7.3 are completed;

(2) when the *Generator* or *Integrated Resource Provider* becomes aware that the information is incomplete, inaccurate or out of date; or

(3) on request by *AEMO* or the relevant *Network Service Provider*, where *AEMO* or the relevant *Network Service Provider* considers that the information in incomplete, inaccurate or out of date.

(d1) A *Generator* or *Integrated Resource Provider* is only required to provide new information under clause S5.2.4(d) to the extent that it is different to the information previously provided under clause S5.2.4(b).

(e) For the purposes of clause S5.2.4(e1), a *Connection Applicant* must be registered as an *Intending Participant* in accordance with rule 2.7.

(e1) For the purposes of clause 5.3.2(f), the technical information that a *Network Service Provider* must, if requested, provide to a *Connection Applicant* in respect of a proposed *connection* for a *generating system* or *integrated resource system* includes:

(1) the highest expected single phase and three phase fault levels at the *connection point* with the *generating system* or *integrated resource system* not *connected*;

(2) the clearing times of the existing *protection systems* that would clear a fault at the location at which the new *connection* would be *connected* into the existing *transmission system* or *distribution system*;

(3) the expected limits of *voltage* fluctuation, harmonic *voltage* distortion and *voltage* unbalance at the *connection point* with the *generating system* or *integrated resource system* not *connected*;

(4) technical information relevant to the *connection point* with the *generating system* or *integrated resource system* not *synchronised* including equivalent source impedance information, sufficient to estimate fault levels, *voltage* fluctuations, harmonic *voltage* distortion (for harmonics relevant to the *generating system* or *integrated resource system*) and *voltage* unbalance;

(5) information relating to the performance of the *national grid* that is reasonably necessary for the *Connection Applicant* to prepare an *application to connect*, including:

(i) a model of the *power system*, including relevant *considered projects* and the range of expected operating conditions, sufficient to carry out load flow and dynamic simulations; and

(ii) information on *inter-regional* and *intra-regional power transfer capabilities* and relevant *plant* ratings; and

(6) the *Network Service Provider's* expected *three phase fault level* at the *connection point* for the *generating system* or *integrated resource system* following the *connection* of the *generating system* or *integrated resource system*.

(f) All information provided under this clause S5.2.4 must be treated as *confidential information*.

S5.2.5 Technical requirements

S5.2.5.1 Reactive power capability

Automatic access standard

(a) The *automatic access standard* is a *generating system* or *integrated resource system* operating at:

(1) any level of *active power* ~~output~~; and

(2) any *voltage* at the *connection point* within the limits established under clause S5.1a.4 without a *contingency event*,

must be capable of supplying and absorbing continuously at its *connection point* an amount of *reactive power* of at least the amount equal to the product of the *rated active power* of the *generating system* or *integrated resource system* and 0.395.

Minimum access standard

(b) The *minimum access standard* is no capability is required to supply or absorb *reactive power* at the *connection point*.

Negotiated access standard

(c) When negotiating a *negotiated access standard*, the *Generator* or *Integrated Resource Provider*, the *Network Service Provider* and *AEMO*:

(1) must, subject to any agreement under subparagraph (d)(4), ensure that the *reactive power capability* of the *generating system* or *integrated resource system* is consistent with maintaining *power system security* and sufficient to ensure that all relevant *system standards* are met before and after *credible contingency events* under normal and planned *outage* operating conditions of the *power system*, taking into account existing *power system* conditions, *considered projects* and any other project for the *connection* of a *Network User* for which:

(i) there is an existing *connection agreement*; or

(ii) the *Network Service Provider* and *AEMO* reasonably consider the *Network User* will *connect* to the *power system*;

(2) may negotiate either a range of *reactive power* absorption and supply, or a range of *power factor*, at the *connection point*, within which the *plant* must be operated; and

(3) may negotiate a limit that describes how the *reactive power capability* varies as a function of *active power* level ~~output~~ due to a design characteristic of the *plant*.

(d) If the *generating system* or *integrated resource system* is not capable of the level of performance established under paragraph (c)(1) the *Generator* or *Integrated Resource Provider*, depending on what is reasonable in the circumstances, must:

(1) pay compensation to the *Network Service Provider* for the provision of the deficit of *reactive power* (supply and absorption) from within the *network*;

(2) install additional equipment *connecting* at the *generating system's* or *integrated resource system's connection point* or another location, to provide the deficit of *reactive power* (supply and absorption), and such equipment is deemed to be part of the *generating system* or *integrated resource system*;

(3) reach a commercial arrangement with a *Registered Participant* to provide the deficit of *reactive power* (supply and absorption); or

(4) if the inability to meet the performance level only occurs for particular operating conditions, agree to and document as part of the proposed *negotiated access standard*, operational arrangements by which the *plant* can achieve an agreed level of performance for those operating conditions.

(e) The *Generator* or *Integrated Resource Provider* may select one or more options referred to in paragraph (d).

General requirements

(f) A *performance standard* must record the agreed value for *rated active power* and (for an *integrated resource system*) *rated maximum demand* and where relevant the method of determining the value.

(g) A *performance standard* for consumption of *energy* by a *generating system* or *integrated resource system* in respect of *auxiliary load* when not supplying or absorbing *reactive power* under an *ancillary services agreement* is to be established under clause S5.3.5 as if the *Generator* or *Integrated Resource Provider* were a *Market Customer*.

S5.2.5.2 Quality of electricity generated

(a) For the purpose of this clause S5.2.5.2 in respect of a *synchronous production unit*~~*synchronous generating unit*~~, AS 1359.101 and IEC 60034-1 are *plant standards* for harmonic *voltage* distortion.

Automatic access standard

(b) The *automatic access standard* is a *generating system* or *integrated resource system* at all times when *connected* ~~when generating and when not generating~~ must not produce at any of its *connection points* ~~for *generation*~~:

(1) *voltage* fluctuation greater than the limits allocated by the *Network Service Provider* under clause S5.1.5(a);

(2) harmonic *voltage* distortion greater than the emission limits specified by a *plant standard* under paragraph (a) or allocated by the *Network Service Provider* under clause S5.1.6(a); and

(3) *voltage* unbalance greater than the limits allocated by the *Network Service Provider* in accordance with clause S5.1.7(c).

Minimum access standard

(c) The *minimum access standard* is a *generating system* or *integrated resource system* at all times when *connected* ~~when generating and when not generating~~ must not produce at any of its *connection points* ~~for *generation*~~:

(1) *voltage* fluctuations greater than limits determined under clause S5.1.5(b);

(2) harmonic *voltage* distortion more than the lesser of the emission limits determined by the relevant *Network Service Provider* under clause S5.1.6(b) and specified by a *plant standard* under paragraph (a); and

(3) *voltage* unbalance more than limits determined under clause S5.1.7(c).

Negotiated access standard

(d) A *negotiated access standard* negotiated under this clause S5.2.5.2 must not prevent the *Network Service Provider* meeting the *system standards* or contractual obligations to existing *Network Users*.

S5.2.5.3 ~~Generating system r~~Response to frequency disturbances

(a) For the purposes of this clause S5.2.5.3:

normal operating frequency band, **operational frequency tolerance band**, or **extreme frequency excursion tolerance limits** are references to the widest range specified for those terms for any condition (including an "island" condition) in the *frequency operating standards* that apply to the *region* in which the *production unit* ~~*generating unit*~~ is located.

stabilisation time and **recovery time** mean the longest times allowable for the *frequency* of the *power system* to remain outside the operational frequency tolerance band and the normal operating frequency band, respectively, for any condition (including an "island" condition) in the *frequency operating standards* that apply to the *region* in which the *production unit* ~~*generating unit*~~ is located.

transient frequency limit and **transient frequency time** mean the values of 47.5 Hz and 9 seconds respectively, or such other values determined by the *Reliability Panel*.

Automatic access standard

(b) The *automatic access standard* is a *generating system* or *integrated resource system* and each of its *production units*~~*generating units*~~ must be capable of *continuous uninterrupted operation* for *frequencies* in the following ranges:

(1) the lower bound of the extreme frequency excursion tolerance limits to the lower bound of the operational frequency tolerance band for at least the stabilisation time;

(2) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band, for at least the recovery time including any time spent in the range under subparagraph (1);

(3) the normal operating frequency band for an indefinite period;

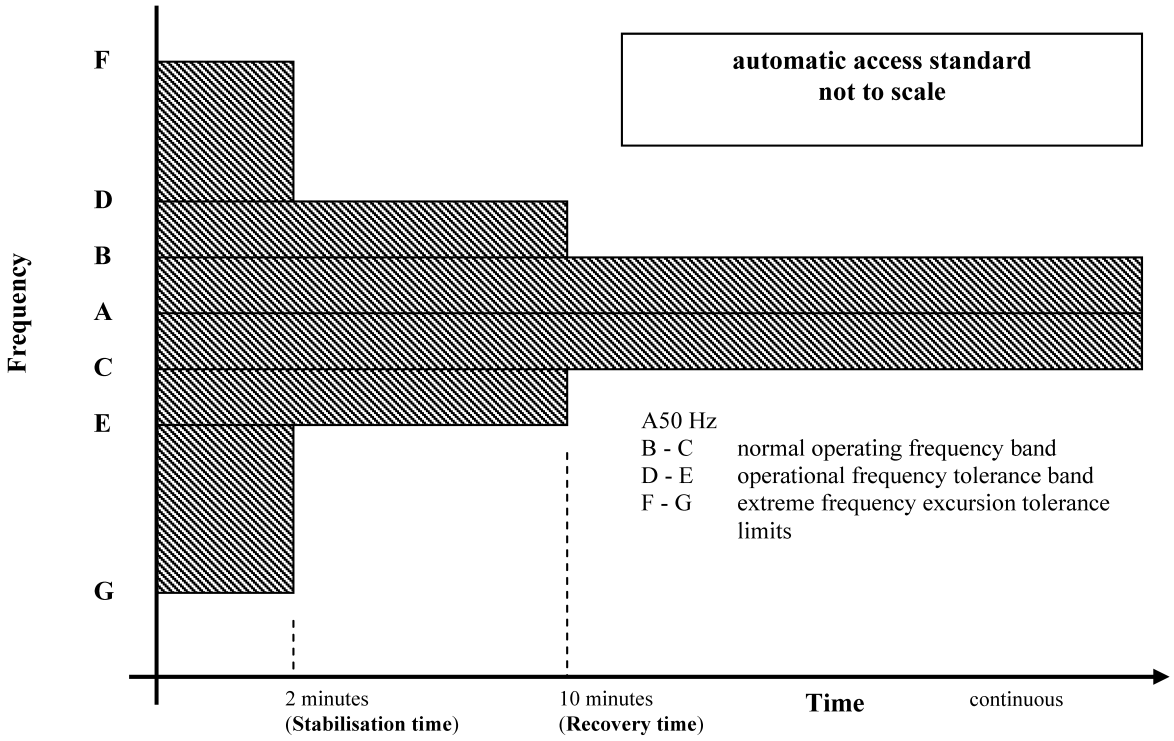
(4) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band, for at least the recovery time including any time spent in the range under subparagraph (5); and

(5) the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits for at least the stabilisation time,

unless the rate of change of *frequency* is outside the range of –4 Hz to 4 Hz per second for more than 0.25 seconds, -3 Hz to 3 Hz per second for more than one second, or such other range as determined by the *Reliability Panel* from time to time.

Note:

The *automatic access standard* is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (b), paragraph (b) prevails.



Minimum access standard

(c) The *minimum access standard* is a *generating system* or *integrated resource system* and each of its *production units* ~~*generating units*~~ must be capable of *continuous uninterrupted operation* for *frequencies* in the following ranges:

(1) the lower bound of the extreme frequency excursion tolerance limits to the transient frequency limit for at least the transient frequency time;

(2) the transient frequency limit to the lower bound of the operational frequency tolerance band for at least the stabilisation time;

(3) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band for at least the recovery time including any time spent in the ranges under subparagraphs (1) and (2) unless (for an *integrated resource system*) it has a *protection system* to trip consumption by a *bidirectional unit* if the *frequency* falls below a level agreed with *AEMO*;

(4) the normal operating frequency band for an indefinite period;

(5) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band for at least the recovery time including any time spent in the ranges under subparagraph (6) unless (for a ~~the~~ *generating system*) it has a *protection system* to trip a *generating unit* if the *frequency* exceeds a level agreed with *AEMO* or (for an *integrated resource system*) it has a *protection system* to trip *generation* from a *bidirectional unit* if the *frequency* exceeds a level agreed with *AEMO*; and

(6) in respect of a *generating system* or *integrated resource system*:

(i) (in each case) having *generating units* with a combined *nameplate rating* of 30 MW or more;

(ia) (in the case of an *integrated resource system*) not satisfying subparagraph (6)(i), but having *bidirectional units* with a combined *nameplate rating* of 5 MW or more; and

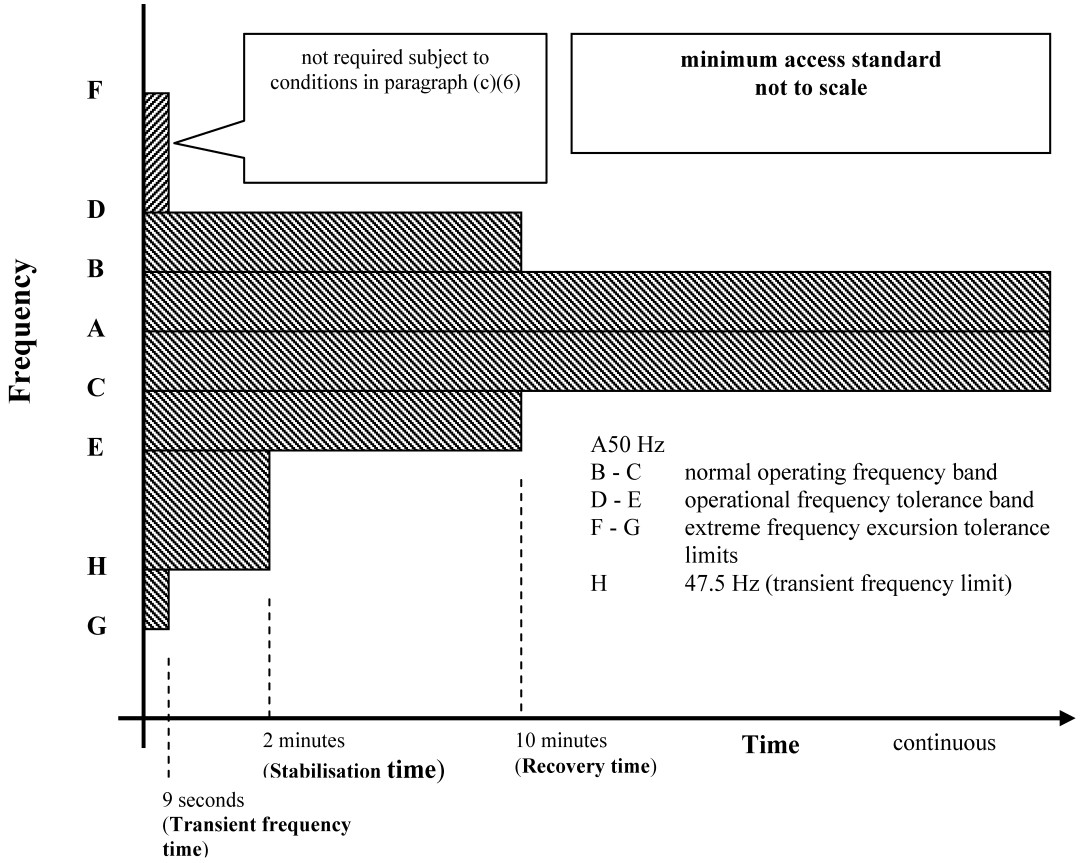
(ii) (in each case) that does not have a *protection system* to trip the *production unit* ~~the *generating unit*~~ if the *frequency* exceeds a level agreed with *AEMO* under subparagraph (5),

the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits (including an "island" condition) for at least the transient frequency time,

unless the rate of change of *frequency* is outside the range of -2 Hz to 2 Hz per second for more than 0.25 seconds, -1 Hz to 1 Hz per second for more than one second or such other range as determined by the *Reliability Panel* from time to time.

Note:

The *minimum access standard* is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (c), paragraph (c) prevails.



Negotiated access standard

(d) A *negotiated access standard* can be accepted by the *Network Service Provider* provided that *AEMO* and the *Network Service Provider* agree that

the *frequency* would be unlikely to fall below the lower bound of the operational frequency ~~*frequency*~~ tolerance band as a result of over-frequency tripping of *production units* ~~*generating units*~~ or rise above the upper bound of the operational frequency tolerance band as a result of under-frequency tripping of *bidirectional units*.

S5.2.5.4 ~~Generating system~~ rResponse to voltage disturbances

Automatic access standard

(a) The *automatic access standard* is a *generating system* or *integrated resource system* and each of its *production units* ~~*generating units*~~ must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary within the following ranges:

(1) over 130% of *normal voltage* for a period of at least 0.02 seconds after T(ov);

(2) 125% to 130% of *normal voltage* for a period of at least 0.2 seconds after T(ov);

(3) 120% to 125% of *normal voltage* for a period of at least 2.0 seconds after T(ov);

(4) 115% to 120% of *normal voltage* for a period of at least 20.0 seconds after T(ov);

(5) 110% to 115% of *normal voltage* for a period of at least 20 minutes after T(ov);

(6) 90% to 110% of *normal voltage* continuously;

(7) 80% to 90% of *normal voltage* for a period of at least 10 seconds after T(uv); and

(8) 70% to 80% of *normal voltage* for a period of at least 2 seconds after T(uv),

where T(ov) means a point in time when the *voltage* at the *connection point* first varied above 110% of *normal voltage* before returning to between 90% and 110% of *normal voltage*, and T(uv) means a point in time when the *voltage* at the *connection point* first varied below 90% of *normal voltage* before returning to between 90% and 110% of *normal voltage*.

Minimum access standard

(b) The *minimum access standard* is a *generating system* or *integrated resource system* including all operating *production units* ~~*generating units*~~ must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary within the following ranges:

(1) 115% to 120% of *normal voltage* for a period of at least 0.1 seconds after T(ov);

(2) 110% to 115% of *normal voltage* for a period of at least 0.9 seconds after T(ov);

(3) 90% to 110% of *normal voltage* continuously, provided that the ratio of *voltage* to *frequency* (as measured at the *connection point* and expressed as a percentage of *normal voltage* and a percentage of 50 Hz) does not exceed:

(i) a value of 1.15 for more than 2 minutes; or

(ii) a value of 1.10 for more than 10 minutes;

(4) 80% to 90% of *normal voltage* for a period of at least 5 seconds after T(uv); and

(5) 70% to 80% of *normal voltage* for a period of at least 2 seconds after T(uv),

where T(ov) means a point in time when the *voltage* at the *connection point* first varied above 110% of *normal voltage* before returning to between 90% and 110% of *normal voltage*, and T(uv) means a point in time when the *voltage* at the *connection point* first varied below 90% of *normal voltage* before returning to between 90% and 110% of *normal voltage*.

Negotiated access standard

(c) In negotiating a *negotiated access standard*, a *generating system* or *integrated resource system* and each of its operating *production units* ~~*generating units*~~ must be capable of *continuous uninterrupted operation* for the range of *voltages* specified in the *automatic access standard*, except where *AEMO* and the *Network Service Provider* agree that the total change in the level of *active power* ~~reduction of *generation*~~ in the *power system* as a result of any *voltage* excursion within levels specified by the *automatic access standard* would not exceed 100 MW, or a greater limit based on what *AEMO* and the *Network Service Provider* both consider to be reasonable in the circumstances.

(d) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.4, *AEMO* and the *Network Service Provider* must at a minimum, in addition to the requirements of clauses 5.3.4A(d1) and 5.3.4A(g) respectively, take into account:

(1) the expected performance of existing *networks* and *considered projects*; and

(2) the expected performance of existing *generating plant* and other relevant projects.

(e) [**Deleted**]

General requirement

(f) The *access standard* must include any operational arrangements necessary to ensure the *generating system* or *integrated resource system* and each of its *production units* ~~*generating units*~~ will meet its agreed performance levels under abnormal *network*, ~~or~~ *generating system* or *integrated resource system* conditions.

S5.2.5.5 ~~Generating system~~ ~~r~~Response to disturbances following contingency events

(a) In this clause S5.2.5.5 a **fault** includes a fault of the relevant type having a metallic conducting path.

Automatic access standard

(b) The *automatic access standard* is:

(1) for a *generating system* or *integrated resource system* and each of its *production units* ~~*generating units*~~, the requirements of paragraphs (c) and (d);

(2) for a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *synchronous production* ~~*generating*~~ *units*, the requirements of paragraph (e);

(3) for a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *asynchronous* ~~*generating*~~ *production units*, the requirements of paragraphs (f) to (i); ~~and~~

(4) for a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised of *synchronous production* ~~*generating*~~ *units* and *asynchronous production* ~~*generating*~~ *units*:

(i) for that part of the *generating system* or *integrated resource system* comprised of *synchronous production* ~~*generating*~~ *units*, the requirements of paragraph (e); and

(ii) for that part of the *generating system* or *integrated resource system* comprised of *asynchronous production*~~*generating*~~ *units*, the requirements of paragraphs (f) to (i).

All generating systems and integrated resource systems

(c) A *generating system* or *integrated resource system* and each of its *production units* ~~*A generating system* and each of its *generating units*~~ must remain in *continuous uninterrupted operation* for any disturbance caused by:

(1) a *credible contingency event*;

(2) a three phase fault in a *transmission system* cleared by all relevant primary *protection systems*;

(3) a two phase to ground, phase to phase or phase to ground fault in a *transmission system* cleared in:

(i) the longest time expected to be taken for a relevant *breaker fail protection system* to clear the fault; or

(ii) if a *protection system* referred to in subparagraph (i) is not installed, the greater of the time specified in column 4 of Table S5.1a.2 (or if none is specified, 430 milliseconds) and the longest time expected to be taken for all relevant primary *protection systems* to clear the fault; or

(4) a three phase, two phase to ground, phase to phase or phase to ground fault in a *distribution network* cleared in:

(i) the longest time expected to be taken for the *breaker fail protection system* to clear the fault; or

(ii) if a *protection system* referred to in subparagraph (i) is not installed, the greater of 430 milliseconds and the longest time expected to be taken for all relevant primary *protection systems* to clear the fault,

provided that the event is not one that would *disconnect* the *production unit* ~~*generating unit*~~ from the *power system* by removing *network elements* from service.

(d) A *generating system* or *integrated resource system* and each of its *production units* ~~*generating units*~~ must remain in *continuous uninterrupted operation* for a series of up to 15 disturbances within any five minute period caused by any combination of the events described in paragraph (c) where:

(1) up to six of the disturbances cause the *voltage* at the *connection point* to drop below 50% of *normal voltage*;

(2) in parts of the *network* where three-phase automatic reclosure is permitted, up to two of the disturbances are three phase faults, and otherwise, up to one three phase fault where *voltage* at the *connection point* drops below 50% of *normal voltage*;

(3) up to one disturbance is cleared by a *breaker fail protection system* or similar back-up *protection system*;

(4) up to one disturbance causes the *voltage* at the *connection point* to vary within the ranges under clause S5.2.5.4(a)(7) and (a)(8);

(5) the minimum clearance from the end of one disturbance and commencement of the next disturbance may be zero milliseconds; and

(6) all remaining disturbances are caused by faults other than three phase faults,

provided that none of the events would result in:

(7) the islanding of the *generating system* or *integrated resource system* or cause a material reduction in *power transfer capability* by removing *network elements* from service;

(8) the cumulative time that *voltage* at the *connection point* is lower than 90% of *normal voltage* exceeding 1,800 milliseconds within any five minute period; or

(9) the time integral, within any five minute period, of the difference between 90% of *normal voltage* and the *voltage* at the *connection point* when the *voltage* at the *connection point* is lower than 90% of *normal voltage* exceeding 1 pu second.

Synchronous generating systems and synchronous integrated resource systems~~Synchronous generating systems~~

(e) Subject to any changed *power system* conditions or energy source availability beyond the *Generator~~'~~'s* or *Integrated Resource Provider's* reasonable control, a *generating system* or (to the extent comprised of *production units*) *integrated resource system* that in either case is comprised of *synchronous production units~~generating units~~*, in respect of the types of fault described in subparagraphs (c)(2) to (4), must supply to or absorb from the *network*:

(1) to assist the maintenance of *power system voltages* during the fault, capacitive reactive current of at least the greater of its pre-disturbance reactive current and 4% of the maximum continuous current of ~~the~~ *~~generating system~~* ~~including~~ all operating *synchronous production units* of the *generating system* or *integrated resource system* *~~generating units~~* (in the absence of a disturbance) for each 1% reduction (from the level existing just prior to the fault) of *connection point voltage* during the fault;

(2) after clearance of the fault, *reactive power* sufficient to ensure that the *connection point voltage* is within the range for *continuous uninterrupted operation* under clause S5.2.5.4; and

(3) from 100 milliseconds after clearance of the fault, *active power* of at least 95% of the level existing just prior to the fault.

Asynchronous generating systems and asynchronous integrated resource systems~~Asynchronous generating systems~~

(f) Subject to any changed *power system* conditions or energy source availability beyond the *Generator~~'~~'s* or *Integrated Resource Provider's* reasonable control, a *generating system* or (to the extent comprised of *production units*) *integrated resource system* that in either case is comprised of *asynchronous production units~~asynchronous generating units~~*, in respect of the types of fault described in subparagraphs (c)(2) to (4), must have *facilities* capable of supplying to or absorbing from the *network*:

(1) to assist the maintenance of *power system voltages* during the fault:

(i) capacitive reactive current in addition to its pre-disturbance level of at least 4% of the maximum continuous current of ~~the~~ *~~generating system~~* ~~including~~ all operating *asynchronous production units* of the *generating system* or *integrated resource system* *~~asynchronous generating units~~* (in the absence of a disturbance) for each 1% reduction of *voltage* at the *connection point* below the relevant range in which a reactive current response must commence, as identified in subparagraph (g)(1), with the *performance standards* to record the required response agreed with *AEMO* and the *Network Service Provider*; and

(ii) inductive reactive current in addition to its pre-disturbance level of at least 6% of the maximum continuous current of ~~the~~ *~~generating system~~* ~~including~~ all operating *asynchronous production units* of the *generating system* or *integrated resource system* *~~asynchronous generating units~~* (in the absence of a

disturbance) for each 1% increase of *voltage* at the *connection point* above the relevant range in which a reactive current response must commence, as identified in subparagraph (g)(1), with the *performance standards* to record the required response agreed with *AEMO* and the *Network Service Provider*,

during the disturbance and maintained until *connection point voltage* recovers to between 90% and 110% of *normal voltage*, or such other range agreed with the *Network Service Provider* and *AEMO*, except for *voltages* below the relevant threshold identified in paragraph (h); and

(2) from 100 milliseconds after clearance of the fault, *active power* of at least 95% of the level existing just prior to the fault.

(g) For the purpose of paragraph (f):

(1) the *generating system* or *integrated resource system* must commence a response when the *voltage* is in an under-voltage range of 85% to 90% or an over-voltage range of 110% to 115% of *normal voltage*. These ranges may be varied with the agreement of the *Network Service Provider* and *AEMO* (provided the magnitude of the range between the upper and lower bounds remains at Δ5%); and

(2) the reactive current response must have a *rise time* of no greater than 40 milliseconds and a *settling time* of no greater than 70 milliseconds and must be *adequately damped*.

(h) Despite paragraph (f), a *generating system* or *integrated resource system* is not required to provide a capacitive reactive current response in accordance with subparagraph (f)(1)(i) where:

(1) the *generating system* or *integrated resource system* is directly *connected* to the *power system* with no step-up or *connection transformer*; and

(2) *voltage* at the *connection point* is 5% or lower of *normal voltage*.

(i) Subject to paragraph (h), despite the amount of reactive current injected or absorbed during *voltage* disturbances, and subject to thermal limitations and energy source availability, a *generating system* or *integrated resource system* must make available at all times:

(1) sufficient current to maintain rated apparent power of ~~the *generating system* including~~ all operating *production units* of the *generating system* or *integrated resource system* ~~*generating units*~~ (in the absence of a disturbance), for all *connection point voltages* above 115% (or otherwise, above the over-voltage range agreed in accordance with subparagraph (g)(1)); and

(2) the maximum continuous current of ~~the *generating system* including~~ all operating *production units* of the *generating system* or *integrated resource system* ~~*generating units*~~ (in the absence of a disturbance) for all *connection point voltages* below 85% (or otherwise, below the under-voltage range agreed in accordance with subparagraph (g)(1)),

except that *AEMO* and the *Network Service Provider* may agree limits on active current injection where required to maintain *power system security* and/or the quality of *supply* to other *Network Users*.

Minimum access standard

(j) The *minimum access standard* is:

(1) for a *generating system* or *integrated resource system* and each of its *production units*~~*generating units*~~, the requirements of paragraphs (k) and (l);

(2) for a *generating system* or (to the extent comprised of *production units*) an *integrated resource system* that in either case is comprised solely of *synchronous production*~~*generating*~~ *units*, the requirements of paragraph (m);

(3) for a *generating system* or (to the extent comprised of *production units*) an *integrated resource system* that in either case is comprised solely of *asynchronous production*~~*generating*~~ *units*, the requirements of paragraphs (n) to (p); ~~and~~

(4) for a *generating system* or (to the extent comprised of *production units*) an *integrated resource system* that in either case is comprised of *synchronous production* ~~*generating*~~ *units* and *asynchronous production*~~*generating*~~ *units*:

(i) for that part of the *generating system* or *integrated resource system* comprised of *synchronous* ~~*generating*~~ *production units*, the requirements of paragraph (m); and

(ii) for that part of the *generating system* or *integrated resource system* comprised of *asynchronous production*~~*generating*~~ *units*, the requirements of paragraphs (n) to (p).

All generating systems and integrated resource systems

(k) A *generating system* or *integrated resource system* and each of its *production units* ~~A *generating system* and each of its *generating units*~~ must remain in *continuous uninterrupted operation* for any disturbance caused by:

(1) a *credible contingency event*; or

(2) a single phase to ground, phase to phase or two phase to ground fault in a *transmission system* or *distribution network* cleared in the longest time expected to be taken for all relevant primary *protection systems* to clear the fault, unless *AEMO* and the *Network Service Provider* agree that the total impact on ~~reduction of *generation* in~~ the *power system* due to that fault would not exceed 100 MW, or a greater limit based on what *AEMO* and the *Network Service Provider* both consider to be reasonable in the circumstances,

provided that the event is not one that would *disconnect* the *production unit*~~*generating unit*~~ from the *power system* by removing *network elements* from service.

(l) A *generating system* or *integrated resource system* and each of its *production units* ~~A *generating system* and each of its *generating units*~~ must remain in

continuous uninterrupted operation for a series of up to six disturbances within any five minute period caused by any combination of the events described in paragraph (k) where:

(1) up to three of the disturbances cause the *voltage* at the *connection point* to drop below 50% of *normal voltage*;

(2) up to one disturbance causes the *voltage* at the *connection point* to vary within the ranges agreed by *AEMO* and the *Network Service Provider* under clause S5.2.5.4(a)(7), (a)(8), (b)(4) or (b)(5) (as appropriate);

(3) the time difference between the clearance of one disturbance and commencement of the next disturbance exceeds 200 milliseconds;

(4) no more than three of the disturbances occur within 30 seconds; and

(5) all disturbances are caused by faults other than three phase faults,

provided that none of the events would result in:

(6) the islanding of the *generating system* or *integrated resource system* or cause a material reduction in *power transfer capability* by removing *network elements* from service;

(7) the cumulative time that *voltage* at the *connection point* is lower than 90% of *normal voltage* exceeding 1,000 milliseconds within any five minute period; or

(8) the time integral, within any five minute period, of the difference between 90% of *normal voltage* and the *voltage* at the *connection point* when the *voltage* at the *connection point* is lower than 90% of *normal voltage* exceeding 0.5 pu second,

and there is a minimum of 30 minutes where no disturbances occur following a five minute period of multiple disturbances.

Synchronous generating systems and synchronous integrated resource systems

(m) Subject to any changed *power system* conditions or energy source availability beyond the *Generator's* or *Integrated Resource Provider's* reasonable control after clearance of the fault, a *generating system* or *integrated resource system* comprised of *synchronous production ~~generating~~ units*, in respect of the types of fault described in subparagraph (k)(2) must:

(1) deliver *active power* to the *network*, and supply or absorb leading or lagging *reactive power*, sufficient to ensure that the *connection point voltage* is within the range for *continuous uninterrupted operation* agreed under clause S5.2.5.4; and

(2) return to at least 95% of the pre-fault *active power* level~~output~~, after clearance of the fault, within a period of time agreed by the *Connection Applicant*, *AEMO* and the *Network Service Provider*.

Asynchronous generating systems and asynchronous integrated resource systems

(n) Subject to any changed *power system* conditions or energy source availability beyond the *Generator's* or *Integrated Resource Provider's* reasonable

control, a *generating system* or (to the extent comprised of *production units*) *integrated resource system* that in either case is comprised of *asynchronous production~~generating~~ units* must:

(1) for the types of fault described in subparagraph (k)(2), and to assist the maintenance of *power system voltages* during the fault, have *facilities* capable of supplying to or absorbing from the *network*:

(i) capacitive reactive current in addition to its pre-disturbance level of at least 2% of the maximum continuous current of ~~the *generating system* including~~ all operating *asynchronous production~~generating~~ units* of the *generating system* or *integrated resource system* (in the absence of a disturbance) for each 1% reduction of *voltage* at the *connection point* below the relevant range in which a reactive current response must commence, as identified in paragraph (o)(1), with the *performance standards* to record the required response agreed with *AEMO* and the *Network Service Provider*; and

(ii) inductive reactive current in addition to its pre-disturbance level of at least 2% of the maximum continuous current of ~~the *generating system* including~~ all operating *asynchronous production~~generating~~ units* of the *generating system* or *integrated resource system* (in the absence of a disturbance) for each 1% increase of *voltage* at the *connection point* above the relevant range in which a reactive current response must commence, as identified in paragraph (o)(1), with the *performance standards* to record the required response agreed with *AEMO* and the *Network Service Provider*,

during the disturbance and maintained until *connection point voltage* recovers to between 90% and 110% of *normal voltage*, or such other range agreed with the *Network Service Provider* and *AEMO*, except for *voltages* below the relevant threshold identified in paragraph (p); and

(2) return to at least 95% of the pre-fault *active power* level~~output~~, after clearance of the fault, within a period of time agreed by the *Connection Applicant*, *AEMO* and the *Network Service Provider*.

(o) For the purpose of paragraph (n):

(1) the *generating system* or *integrated resource system* must commence a response when the *voltage* is in an under-voltage range of 80% to 90% or an over-voltage range of 110% to 120% of *normal voltage*. These ranges may be varied with the agreement of the *Network Service Provider* and *AEMO* (provided the magnitude of the range between the upper and lower bounds remains at Δ10%);

(2) where *AEMO* and the *Network Service Provider* require the *generating system* or *integrated resource system* to sustain a response duration of 2 seconds or less, the reactive current response must have a *rise time* of no greater than 40 milliseconds and a *settling time* of no greater than 70 milliseconds and must be *adequately damped*; and

(3) where *AEMO* and the *Network Service Provider* require the *generating system* or *integrated resource system* ~~generating system~~ to sustain a response duration of greater than 2 seconds, the reactive current *rise time* and *settling time* must be as soon as practicable and must be *adequately damped*.

(p) Despite paragraph (n), a *generating system* or *integrated resource system* is not required to provide a capacitive reactive current response in accordance with subparagraph (n)(1)(i) where:

(1) *voltage* at the *connection point* is 15% or lower of *normal voltage*; or

(2) where the *generating system* or *integrated resource system* is directly *connected* to the *power system* with no step-up or *connection transformer*, *voltage* at the *connection point* is 20% or lower of *normal voltage*.

Negotiated access standard

(q) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.5, the *Network Service Provider* and *AEMO* must take into account, without limitation:

(1) the expected performance of:

(i) existing *networks* and *considered projects*;

(ii) existing *generating plant* and other relevant projects; and

(iii) *control systems* and *protection systems*, including auxiliary systems and *automatic reclose equipment*; and

(2) the expected range of *power system* operating conditions.

(r) A proposed *negotiated access standard* may be accepted if the *connection* of the *plant* at the proposed access level would not cause other *plant* ~~*generating plant or loads*~~ to trip as a result of an event, when they would otherwise not have tripped for the same event.

(r1) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.5 where the *Connection Applicant* has elected in accordance with clause 5.3.4B(b1) to pay the *system strength charge* in relation to the *connection*, the *Network Service Provider* and *AEMO* must take into account the performance required to be provided by the *System Strength Service Provider* at the relevant *system strength node* in accordance with clause S5.1.14.

General requirement

All generating systems and integrated resource systems

(s) The *performance standard* must include any operational arrangements to ensure the *generating system* or *integrated resource system* including all operating *generating units* and all operating *bidirectional units* will meet its agreed performance levels under abnormal *network*, ~~or~~ *generating system* or *integrated resource system* conditions.

(t) When assessing multiple disturbances, a fault that is re-established following operation of *automatic reclose equipment* shall be counted as a separate disturbance.

Asynchronous generating systems and asynchronous integrated resource systems

(u) For the purpose of paragraphs (f) and (n):

(1) the reactive current contribution may be limited to the maximum continuous current of all ~~a *generating system*, including its~~ operating *asynchronous* ~~*generating units*~~ *production units* of the *generating system* or *integrated resource system*;

(2) the reactive current contribution and *voltage* deviation described may be measured at a location other than the *connection point* (including within the relevant *generating system* or *integrated resource system*) where agreed with *AEMO* and the *Network Service Provider*, in which case the level of injection and absorption will be assessed at that agreed location;

(3) the reactive current contribution required may be calculated using phase to phase, phase to ground or sequence components of *voltages*. The ratio of the negative sequence to positive sequence components of the reactive current contribution must be agreed with *AEMO* and the *Network Service Provider* for the types of disturbances listed in this clause S5.2.5.5; and

(4) the *performance standards* must record all conditions (which may include temperature) considered relevant by *AEMO* and the *Network Service Provider* under which the reactive current response is required.

Synchronous generating systems ~~and units~~and synchronous integrated resource systems

(v) For a *generating system* or (to the extent comprised of *production units*) *integrated resource system* that in either case is comprised solely of *synchronous* *production*~~*generating units*~~ *units*, the reactive current contribution may be limited to 250% of the maximum continuous current of the *generating system* or *integrated resource system*.

(w) For a *synchronous* ~~*generating*~~ *production unit* within a *generating system* or *integrated resource system* (other than a *generating system* or *integrated resource system* described in paragraph (v)), the reactive current contribution may be limited to 250% of the maximum continuous current of that *synchronous production unit*.~~*synchronous generating unit*~~

S5.2.5.6 Quality of electricity generated and continuous uninterrupted operation

Minimum access standard

The *minimum access standard* is a *generating system* and an *integrated resource system* including each of its operating *production units* ~~*generating units*~~ and *reactive plant*, must not *disconnect* from the *power system* as a result of *voltage*

fluctuation, harmonic *voltage* distortion and *voltage* unbalance conditions at the *connection point* within the levels specified in clauses S5.1a.5, S5.1a.6 and S5.1a.7.

S5.2.5.7 Partial load rejection

(a) For the purposes of this clause S5.2.5.7 **minimum generation** means minimum *sent out generation* for continuous stable operation.

(b) [**Deleted**]

Automatic access standard

(c) The *automatic access standard* is a *generating system* or an *integrated resource system* must be capable of *continuous uninterrupted operation* during and following a *power system load* reduction of 30% from its pre-disturbance level or equivalent impact from separation of part of the *power system* in less than 10 seconds, provided that the *loading level* remains above minimum generation.

Minimum access standard

(d) The *minimum access standard* is a *generating system* or an *integrated resource system* must be capable of *continuous uninterrupted operation* during and following a *power system load* reduction of 5% or equivalent impact from separation of part of the *power system* in less than 10 seconds provided that the *loading level* remains above minimum generation.

[Deleted]

(e) [**Deleted**]

(f) [**Deleted**]

General requirements

(g) The agreed partial load rejection performance must be recorded in the *performance standards*.

S5.2.5.8 Protection ~~of generating systems~~ from power system disturbances

Minimum access standard

(a) The *minimum access standard* is:

(1) subject to subparagraph (2) and paragraph (e), for a *generating system* or *integrated resource system* or any of its *production* ~~*generating*~~ *units* that is required by a *Generator*, *Integrated Resource Provider* or *Network Service Provider* to be automatically *disconnected* from the *power system* in response to abnormal conditions arising from the *power system*, the relevant *protection system* or *control system* must not *disconnect* the *generating system* or *integrated resource system* for:

(i) conditions for which it must remain in *continuous uninterrupted operation*; or

(ii) conditions it must withstand under the *Rules*; and

(2) a relevant system (as defined in paragraph (a1)) ~~a *generating system* with a *nameplate rating* of 30MW or more, or *generating system*~~

~~comprised of *generating units* with a combined *nameplate rating* of 30 MW or more,~~ *connected* to a *transmission system* must have *facilities* to automatically and rapidly reduce its *generation*:

(i) by at least half, if the *frequency* at the *connection point* exceeds a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*) and the duration above this *frequency* exceeds a value nominated by *AEMO* where the reduction may be achieved:

(A) by reducing the output of the *generating system* or *integrated resource system* within 3 seconds, and holding the output at the reduced level until the *frequency* returns to within the *normal operating frequency band*; or

(B) by *disconnecting* the *generating system* or *integrated resource system* from the *power system* within 1 second; or

(ii) in proportion to the difference between the *frequency* at the *connection point* and a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*), such that the *generation* is reduced by at least half, within 3 seconds of the *frequency* reaching the upper limit of the *extreme frequency excursion tolerance limits*.

(a1) For subparagraph (a)(2), a relevant system means any of the following:

(1) a *generating system* with a *nameplate rating* of 30MW or more;

(2) a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more;

(3) an *integrated resource system* that (to the extent it comprises *bidirectional units*) is comprised of *bidirectional units* with a combined *nameplate rating* of 5 MW or more; and

(4) an *integrated resource system* that (to the extent it comprises *generating units*) is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more.

[Deleted]

(b) [**Deleted**]

General requirements

(c) *AEMO* or the *Network Service Provider* may require that an *access standard* include a requirement for the *generating system* or *integrated resource system* to be automatically *disconnected* by a local or remote control scheme whenever the part of the *network* to which it is *connected* has been *disconnected* from the *national grid*, forming an island that *supplies load*~~that *supplies a Customer*~~.

(d) The *access standard* must include specification of conditions for which the *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system* must trip and must not trip.

(e) Notwithstanding clauses S5.2.5.3, S5.2.5.4, S5.2.5.5, S5.2.5.6 and S5.2.5.7, a *generating system* or *integrated resource system* may be automatically *disconnected* from the *power system* under any of the following conditions:

(1) in accordance with an *ancillary services agreement* between the *Generator* or *Integrated Resource Provider* and *AEMO*;

(2) where a source of *load* that is not part of the *generating system* or *integrated resource system* has the same *connection point* as the *generating system* or *integrated resource system* and *AEMO* and the *Network Service Provider* agree that the *disconnection* would in effect be under-frequency *load shedding*;

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

(4) where the *generating system* or *integrated resource system* is automatically *disconnected* under clause S5.2.5.10; or

(5) in accordance with an agreement between the *Generator* or *Integrated Resource Provider* and a *Network Service Provider* (including an agreement in relation to an emergency control scheme under clause S5.1.8) to provide a service that *AEMO* agrees is necessary to maintain or restore *power system security* in the event of a specified *contingency event*.

(f) The *Network Service Provider* is not liable for any loss or damage incurred by the *Generator* or *Integrated Resource Provider* or any other person as a consequence of a fault on either the *power system*, or within the *Generator's* or *Integrated Resource Provider*'s *facility*.

S5.2.5.9 Protection systems that impact on power system security

Automatic access standard

(a) The *automatic access standard* is:

(1) subject to clauses S5.1.9(k) and S5.1.9(l), primary *protection systems* must be provided to *disconnect* from the *power system* any faulted element in a *generating system* or *integrated resource system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1);

(2) each primary *protection system* must have sufficient redundancy to ensure that a faulted element within its protection zone is *disconnected* from the *power system* within the applicable *fault clearance time* with any single protection element (including any communications *facility* upon which that *protection system* depends) out of service; and

(3) *breaker fail protection systems* must be provided to clear faults that are not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1).

(b) In relation to an *automatic access standard* under this clause S5.2.5.9, the *Generator* or *Integrated Resource Provider* must provide redundancy in the

primary *protection systems* under paragraph (a)(2) and provide *breaker fail protection systems* under paragraph (a)(3) if *AEMO* or the *Network Service Provider* consider that a lack of these *facilities* could result in:

(1) a material adverse impact on *power system security* or quality of *supply* to other *Network Users*; or

(2) a reduction in *inter-regional* or *intra-regional power transfer capability*,

through any mechanism including:

(3) consequential tripping of, or damage to, other *network* equipment or *facilities* of other *Network Users*, that would have a *power system security* impact; or

(4) instability that would not be detected by other *protection systems* in the *network*.

Minimum access standard

(c) The *minimum access standard* is:

(1) subject to clauses S5.1.9(k) and S5.1.9(l), *protection systems* must be provided to *disconnect* from the *power system* any faulted element within a *generating system* or *integrated resource system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(2); and

(2) if a *fault clearance time* determined under clause S5.1.9(a)(2) for a protection zone is less than 10 seconds, a *breaker fail protection system* must be provided to clear from the *power system* any fault within that protection zone that is not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(3).

[Deleted]

(d) [**Deleted**]

General requirements

(e) The *Network Service Provider* and the *Generator* or *Integrated Resource Provider* must cooperate in the design and implementation of *protection systems* to comply with this clause S5.2.5.9, including cooperation on:

(1) the use of *current transformer* and *voltage transformer* secondary circuits (or equivalent) of one party by the *protection system* of the other;

(2) tripping of one party's circuit breakers by a *protection system* of the other party; and

(3) co-ordination of *protection system* settings to ensure inter-operation.

(f) The *protection system* design referred to in paragraphs (a) and (c) must:

(1) be coordinated with other *protection systems*;

(2) avoid consequential *disconnection* of other *Network Users' facilities*; and

(3) take into account existing obligations of the *Network Service Provider* under *connection agreements* with other *Network Users*.

S5.2.5.10 Protection to trip plant for unstable operation

Automatic access standard

(a) The *automatic access standard* is a *generating system* and an *integrated resource system* must have:

(1) for its *synchronous* ~~*generating*~~ *production units*, a *protection system* to *disconnect* it promptly when a condition that would lead to pole slipping is detected, to prevent pole slipping or other conditions where a *production* ~~*generating*~~ *unit* causes *active power*, *reactive power* or *voltage* at the *connection point* to become unstable as assessed in accordance with the *power system* stability guidelines established under clause 4.3.4(h); and

(2) for its *asynchronous production* ~~*generating*~~ *units*, a *protection system* to *disconnect* it promptly for conditions where the *active power*, *reactive power* or *voltage* at the *connection point* becomes unstable as assessed in accordance with the guidelines for *power system* stability established under clause 4.3.4(h).

Minimum access standard

(b) The *minimum access standard* is a *generating system* or an *integrated resource system* must not cause a *voltage* disturbance at the *connection point* due to sustained unstable behaviour of more than the maximum level specified in Table 7 of *Australian Standard* AS/NZS 61000.3.7:2001.

Negotiated access standard

(c) If the *Network Service Provider* and the *Generator* agree, a *protection system* may also trip any other part of the *generating system* or *integrated resource system* to cease the instability.

(d) Notwithstanding paragraph (c), a *protection system* must be provided in the *access standard* to trip the affected *production* ~~*generating*~~ *unit* where:

(1) the *Network Service Provider* considers it necessary to prevent consequential tripping of, or damage to, other *production* ~~*generating*~~ *units*, *network* equipment or other *Network Users' facilities*, or

(2) *AEMO* considers it necessary to prevent unstable operation having an adverse impact on *power system security*.

S5.2.5.11 Frequency control

(a) For the purpose of this clause S5.2.5.11:

droop means, in relation to *frequency response mode*, the percentage change in *power system frequency* as measured at the *connection point*, divided by the percentage change in *power transfer* of the *generating system* or *integrated resource system*, to the extent it comprises *production units*,

expressed as a percentage of the maximum operating level of the *generating system* or *integrated resource system*. Droop must be measured at *frequencies* that are outside the deadband and within the limits of *power transfer*.

maximum operating level means in relation to:

(1) a *non-scheduled generating unit* or *non-scheduled bidirectional*, the maximum *sent out generation* consistent with its *nameplate rating*;

(2) a *scheduled generating unit*, *scheduled bidirectional* or *semi-scheduled generating unit*, the maximum *generation* to which it may be *dispatched* and as provided to *AEMO* in the most recent *bid validation data*~~*bid and offer validation data*~~;

(3) a *non-scheduled generating system* or *non-scheduled integrated resource system*, the combined maximum *sent out generation* consistent with the *nameplate ratings* of its in-service *production units*~~*generating units*~~ (if any); ~~and~~

(4) a *scheduled generating system* or *semi-scheduled generating system*, the combined maximum *generation* to which its in-service *generating units* may be *dispatched* and as provided to *AEMO* in the most recent *bid validation data*; and ~~*bid and offer validation data.*~~

(5) a *scheduled integrated resource system*, the combined maximum *sent out generation* to which its in-service *production units* may be *dispatched* and as provided to *AEMO* in the most recent *bid validation data*.

minimum operating level means in relation to:

(1) a *non-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation;

(2) a *scheduled generating unit* or *semi-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation;

(2A) a *scheduled bidirectional unit* or *non-scheduled bidirectional unit*, its minimum *active power* level for continuous stable operation;

(3) a *non-scheduled generating system*, the combined *minimum operating level* of its in-service *generating units*; ~~and~~

(4) a *scheduled generating system* or *semi-scheduled generating system*, the combined minimum *sent out generation* of its in-service *generating units*~~.~~; and

(5) a *scheduled integrated resource system* or a *non-scheduled integrated resource system* the combined minimum operating level of its in-service *production units*.

Automatic access standard

(b) The *automatic access standard* is:

(1) ~~*a generating system's*~~ *power transfer* to the *power system* from a *generating system* or, to the extent it comprises *production units*, an *integrated resource system* must not:

(i) increase in response to a rise in the *frequency* of the *power system* as measured at the *connection point*; or

(ii) decrease in response to a fall in the *frequency* of the *power system* as measured at the *connection point*; ~~and~~

(2) a *generating system* must be capable of operating in *frequency response mode* such that it automatically provides a proportional:

(i) decrease in *power transfer* to the *power system* in response to a rise in the *frequency* of the *power system* as measured at the *connection point*; and

(ii) increase in *power transfer* to the *power system* in response to a fall in the *frequency* of the *power system* as measured at the *connection point*,

sufficiently rapidly and sustained for a sufficient period for the *Generator* or *Integrated Resource Provider* (as relevant) to be in a position to offer measurable amounts of all *market ancillary services* for the provision of *power system frequency* control~~.~~; and

(3) an *integrated resource system*, to the extent it comprises *production units*, must be capable of operating in *frequency response mode* such that it automatically provides a proportional:

(i) decrease in *power transfer* to the *power system*, with a continuous shift from one to the other mode, in response to a rise in the *frequency* of the *power system* as measured at the *connection point* accompanied by a smooth change in *bidirectional unit* operating mode between production and consumption; and

(ii) increase in *power transfer* to the *power system* in response to a fall in the *frequency* of the *power system* as measured at the *connection point* accompanied by a smooth change in *bidirectional unit* operating mode between production and consumption,

sufficiently rapidly and sustained for a sufficient period for the *Integrated Resource Provider* (as relevant) to be in a position to offer measurable amounts of all *market ancillary services* for the provision of *power system frequency* control.

Note

Clause 4.4.2(b) of the *Rules* sets out the obligations on *Generators* and *Integrated Resource Providers* in relation to compliance with the technical requirements in clause S5.2.5.11, including being capable of operating in *frequency response mode*.

Minimum access standard

(c) The *minimum access standard* is:

(1) for a *generating system* or, to the extent it comprises *production units*, an *integrated resource system* under relatively stable input energy, *power transfer* to the *power system* must not:

(i) increase in response to a rise in the *frequency* of the *power system* as measured at the *connection point*; and

(ii) decrease more than 2% per Hz in response to a fall in the *frequency* of the *power system* as measured at the *connection point*; ~~and~~

(2) a *generating system* must be capable of operating in *frequency response mode* such that, subject to energy source availability, it automatically provides:

(i) a decrease in *power transfer* to the *power system* in response to a rise in the *frequency* of the *power system* as measured at the *connection point*; or

(ii) an increase in *power transfer* to the *power system* in response to a fall in the *frequency* of the *power system* as measured at the *connection point*,

where the change in *active power* is either proportional or otherwise as agreed with *AEMO* and the *Network Service Provider*~~.~~; and

(3) an *integrated resource system*, to the extent it comprises *production units*, must be capable of operating in *frequency response mode* such that, subject to energy source availability, it automatically provides:

(i) a decrease in *power transfer* to the *power system*, in response to a rise in the *frequency* of the *power system* as measured at the *connection point*; and

(ii) increase in *power transfer* to the *power system* in response to a fall in the *frequency* of the *power system* as measured at the *connection point*,

where the change in *active power* is either proportional or otherwise as agreed with *AEMO* and the *Network Service Provider*.

Note

Clause 4.4.2(b) of the *Rules* sets out the obligations on *Generators* and *Integrated Resource Providers* in relation to compliance with the technical requirements in clause S5.2.5.11, including being capable of operating in *frequency response mode*.

[Deleted]

(d) [**Deleted**]

(e) [**Deleted**]

(f) [**Deleted**]

General requirements

(g) Each *control system* used to satisfy this clause S5.2.5.11 must be *adequately damped*.

(h) The amount of a relevant *market ancillary service* for which the *plant* may be registered must not exceed the amount that would be consistent with the *performance standard* registered in respect of this requirement.

(i) For the purposes of subparagraphs (b)(2) and (b)(3)~~subparagraph (b)(2)~~, and with respect to a *negotiated access standard* proposed for the technical requirements relevant to this clause S5.2.5.11:

(1) the change in *power transfer* to the *power system* must occur with no delay beyond that required for stable operation, or inherent in the *plant* controls, once the *frequency* of the *power system* as measured at the *connection point* leaves a deadband around 50 Hz;

(2) a *generating system* or *integrated resource system* must be capable of setting the deadband and droop within the following ranges:

(i) the deadband referred to in subparagraph (1) must be set within the range of 0 to ± 1.0 Hz. Different deadband settings may be applied for a rise or fall in the *frequency* of the *power system* as measured at the *connection point*; and

(ii) the droop must be set within the range of 2% to 10%, or such other settings as agreed with the *Network Service Provider* and *AEMO*;

(3) nothing in subparagraph (b)(2) or (b)(3) is taken to require a *generating system* or, to the extent it comprises *production units*, an *integrated resource system* to operate below its minimum operating level in response to a rise in the *frequency* of the *power system* as measured at the *connection point*, or above its maximum operating level in response to a fall in the *frequency* of the *power system* as measured at the *connection point*;

(4) [**Deleted**]

(5) the *performance standards* must record:

(i) agreed values for maximum operating level and minimum operating level, and where relevant the method of determining the values, and the values for:

(A) a *generating system* must take into account its in-service *generating units*; and

(B) an *integrated resource system* must take into account its in-service *production units*; and

(ii) for the purpose of subparagraphs (b)(2) and (b)(3), or a *negotiated access standard* offering measureable amounts of *market ancillary services* under this clause S5.2.5.11, the *market ancillary services*, including the performance parameters and requirements that apply to each such *market ancillary service*.

S5.2.5.12 Impact on network capability

Automatic access standard

(a) The *automatic access standard* is a *generating system* or *integrated resource system* must have *plant* capabilities and *control systems* that are sufficient so that when *connected* it does not reduce any *inter-regional* or *intra-regional power transfer capability* below the level that would apply if the *generating system* or *integrated resource system* were not *connected*.

Minimum access standard

(b) The *minimum access standard* is a *generating system* or *integrated resource system* must have *plant* capabilities, *control systems* and operational arrangements sufficient to ensure there is no reduction in:

(1) the ability to *supply* to *load* ~~*supply Customer load*~~ as a result of a reduction in *power transfer capability*; and

(2) *power transfer capabilities* into a ~~region~~ *region* by more than the combined *sent out generation* of its *production units*~~*generating units.*~~

Negotiated access standard

(c) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.5.12, the *Network Service Provider* and *AEMO* must take into account:

(1) the expected performance of:

(i) existing *networks* and *considered projects*;

(ii) existing *generating plant* and other relevant projects; and

(iii) *control systems* and *protection systems*, including *automatic reclose equipment*; and

(2) the expected range of *power system* operating conditions.

(d) The *negotiated access standard* must include:

(1) *control systems* to minimise any reduction in *power transfer capabilities*; and

(2) operational arrangements, including curtailment of the *generating system's* or *integrated resource system's* output or consumption ~~*the generating system's output*~~ if necessary to ensure that the *plant* ~~*generating plant*~~ is operated in a way that meets at least the *minimum access standard* under abnormal *network*, ~~and~~ *generating system* and *integrated resource system* conditions, so that *power system security* can be maintained.

(e) A *negotiated access standard* under this clause S5.2.5.12 must detail the *plant* capabilities, *control systems* and operational arrangements that will be maintained by the *Generator* or *Integrated Resource Provider*, notwithstanding that change to the *power system*, but not changes to the *generating system* or *integrated resource system*, may reduce the efficacy of the *plant* capabilities, *control systems* and operational arrangements over time.

(f) [**Deleted**]

General requirement

(g) If a *Network Service Provider* considers that *power transfer capabilities* of its *network* would be increased through provision of additional *control system facilities* to a *generating system* or *integrated resource system* (such as a *power system* stabiliser), the *Network Service Provider* and the *Generator* or *Integrated Resource Provider* (as the case may be) may negotiate for the

provision of such additional *control system facilities* as a commercial arrangement.

S5.2.5.13 Voltage and reactive power control

(a) **[Deleted]**

~~**[Deleted]**~~

Automatic access standard

(b) The *automatic access standard* is:

(1) a *generating system* or *integrated resource system* must have *plant* capabilities and *control systems* sufficient to ensure that:

(i) *power system* oscillations, for the frequencies of oscillation of the *production unit* ~~*generating unit*~~ against any other *production unit*~~*generating unit*~~, are *adequately damped*;

(ii) operation of the *generating system* or *integrated resource system* does not degrade the damping of any critical mode of oscillation of the *power system*; and

(iii) operation of the *generating system* or *integrated resource system* does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;

(2) a *control system* must have:

(i) for the purposes of disturbance monitoring and testing, permanently installed and operational, monitoring and recording *facilities* for key variables including each input and output; and

(ii) *facilities* for testing the *control system* sufficient to establish its dynamic operational characteristics;

(2A) a *generating system* or *integrated resource system* must have *facilities* with a *control system* to regulate *voltage*, *reactive power* and *power factor*, with the ability to:

(i) operate in any control mode; and

(ii) switch between control modes,

as shown in the manufacturer's and/or design specifications of the relevant equipment and demonstrated to the reasonable satisfaction of the *Network Service Provider* and *AEMO*;

(2B) a *generating system* or *integrated resource system* must have a *voltage control system* that:

(i) regulates *voltage* at the *connection point* or another agreed location in the *power system* (including within the *generating system* or *integrated resource system*) to within 0.5% of the setpoint, where that setpoint may be adjusted to incorporate any *voltage* droop or reactive current compensation agreed with *AEMO* and the *Network Service Provider*;

(ii) regulates *voltage* in a manner that helps to support *network voltages* during faults and does not prevent the *Network Service Provider* from achieving the requirements of clauses S5.1a.3 and S5.1a.4;

(iii) allows the *voltage* setpoint to be continuously controllable in the range of at least 95% to 105% of the target *voltage* (as determined by the *Network Service Provider* in accordance with clause S5.1.4(c) and recorded in the *connection agreement* in accordance with clause S5.1.4) at the *connection point* or agreed location on the *power system*, without reliance on a *tap-changing transformer* and subject to the *reactive power* capability agreed with *AEMO* and the *Network Service Provider* under clause S5.2.5.1; and

(iv) has limiting devices to ensure that a *voltage* disturbance does not cause a *production unit* ~~*generating unit*~~ to trip at the limits of its operating capability;

(3) a ~~synchronous~~ *generating system* or (to the extent it comprises *production units*) *integrated resource system* that is comprised of *synchronous production units* must have an *excitation control system* that:

(i) [**Deleted**]

(ii) can operate the stator continuously at 105% of *nominal voltage* with *rated active power* output;

(iii) [**Deleted**]

(iv) [**Deleted**]

(v) [**Deleted**]

(vi) has an excitation ceiling *voltage* of at least:

(A) for a *static excitation system*, 2.3 times; or

(B) for other *excitation control systems*, 1.5 times,

the excitation required to achieve transfer of power ~~*generation*~~ at the *nameplate rating* for rated *power factor*, rated speed and *nominal voltage*;

(vii) has settling *times* for a step change of *voltage* setpoint or *voltage* at the location agreed under subparagraph (2B)(i) of:

(A) generated *voltage* less than 2.5 seconds for a 5% *voltage* disturbance with the *production unit* ~~*generating unit*~~ not *synchronised*;

(B) *active power*, *reactive power* and *voltage* less than 5.0 seconds for a 5% *voltage* disturbance with the *generating unit synchronised*, from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and

(C) in respect of each limiting device, *active power*, *reactive power* and *voltage* less than 7.5 seconds for a 5% *voltage* disturbance with the *production unit* ~~*generating unit*~~ *synchronised*, when operating into a limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate;

(viii) can increase field *voltage* from rated field *voltage* to the excitation ceiling *voltage* in less than:

(A) 0.05 second for a *static excitation system*; or

(B) 0.5 second for other *excitation control systems*; and

(ix) has a *power system* stabiliser with sufficient flexibility to enable damping performance to be maximised, with characteristics as described in paragraph (c);

(4) a *generating system* or *integrated resource system*, other than one comprised of *synchronous production units*~~*synchronous generating units*~~, must have a *voltage control system* that:

(i) [**Deleted**]

(ii) [**Deleted**]

(iii) [**Deleted**]

(iv) [**Deleted**]

(v) with the *generating system* or *integrated resource system* *connected* to the *power system*, has settling *times* for *active power*, *reactive power* and *voltage* due to a step change of *voltage* setpoint or *voltage* at the location agreed under clause subparagraph (2B)(i), of less than:

(A) 5.0 seconds for a 5% *voltage* disturbance with the *generating system* or *integrated resource system* *connected* to the *power system*, from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and

(B) 7.5 seconds for a 5% *voltage* disturbance with the *generating system* or *integrated resource system* *connected* to the *power system*, when operating into any limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate;

(vi) has *reactive power* rise time, for a 5% step change in the *voltage* setpoint, of less than 2 seconds; and

(vii) has a power oscillation damping capability with sufficient flexibility to enable damping performance to be maximised:

(A) with characteristics as described in paragraph (c); or

(B) where *AEMO* has published characteristics for a *generating system* or *integrated resource system* other than ~~one~~ a system comprised of *synchronous production*~~*generating*~~

units, following consultation in accordance with the *Rules consultation procedures*, with characteristics as published by *AEMO*.

(c) A *power system* stabiliser provided under paragraph (b) must have:

(1) for a *synchronous* *production unit*~~*generating unit*~~, measurements of rotor speed and *active power* level ~~output~~ of the *production unit* ~~*generating unit*~~ as inputs, and otherwise, measurements of *power system frequency* and *active power* level ~~output~~ of the *production unit* ~~*generating unit*~~ as inputs;

(2) two washout filters for each input, with ability to bypass one of them if necessary;

(3) sufficient (and not less than two) lead-lag transfer function blocks (or equivalent number of complex poles and zeros) with adjustable gain and time-constants, to compensate fully for the phase lags due to the *generating plant*;

(4) an output limiter, which for a *synchronous* *production*~~*generating*~~ *unit* is continually adjustable over the range of –10% to +10% of stator *voltage*;

(5) monitoring and recording *facilities* for key variables including inputs, output and the inputs to the lead-lag transfer function blocks; and

(6) *facilities* to permit testing of the *power system* stabiliser in isolation from the *power system* by injection of test signals, sufficient to establish the transfer function of the *power system* stabiliser.

(c1) A *reactive power* or *power factor control system* provided under paragraph (b)(2A) must:

(1) regulate *reactive power* or *power factor* (as applicable) at the *connection point* or another agreed location in the *power system* (including within the *generating system* or *integrated resource system*), to within:

(i) for a *generating system* or *integrated resource system* operating in *reactive power* mode, 2% of the rating (in MVA) of the *generating system* or *integrated resource system* (expressed in MVAr); or

(ii) for a *generating system* or *integrated resource system* operating in *power factor* mode, a *power factor* equivalent to 2% of the rating (in MVA) of the *generating system* or *integrated resource system* (expressed in MVAr);

(2) allow the *reactive power* or *power factor* setpoint to be continuously controllable across the *reactive power* capability range established under clause S5.2.5.1; and

(3) with the *generating system* or *integrated resource system* *connected* to the *power system*, and for a step change in setpoint of at least 50% of the *reactive power* capability agreed with *AEMO* and the *Network Service Provider* under clause S5.2.5.1, or a 5% *voltage* disturbance at the location agreed under subparagraph (1):

(i) have *settling times* for *active power*, *reactive power* and *voltage* of less than 5.0 seconds from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and

(ii) have *settling times* for *active power*, *reactive power* and *voltage* of less than 7.5 seconds when operating into any limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate.

The *Network Service Provider* may determine whether to use a setpoint step test or a 5% *voltage* disturbance test for the purposes of this subparagraph (c1)(3).

Minimum access standard

(d) The *minimum access standard* is:

(1) a *generating system* or *integrated resource system* must have *plant* capabilities and *control systems*, including, if appropriate, a *power system* stabiliser, sufficient to ensure that:

(i) *power system* oscillations, for the frequencies of oscillation of the *production unit* ~~*generating unit*~~ against any other *production unit*~~*generating unit*~~, are *adequately damped*;

(ii) operation of the *production unit* ~~*generating unit*~~ does not degrade:

(A) any mode of oscillation that is within 0.3 nepers per second of being unstable, by more than 0.01 nepers per second; and

(B) any other mode of oscillation to within 0.29 nepers per second of being unstable; and

(iii) operation of the *production unit* ~~*generating unit*~~ does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;

(1A) an *integrated resource system* (to the extent it comprises *production units*) that is comprised of:

(i) *bidirectional units* with a combined *nameplate rating* of 5 MW or more, or

(ii) *generating units* with a combined *nameplate rating* of 30 MW or more,

must have *facilities* for testing its *control systems* sufficient to establish their dynamic operational characteristics;

(2) a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more must have *facilities* for testing its *control systems* sufficient to establish their dynamic operational characteristics;

(2A) a *generating system* or *integrated resource system* must have *facilities* with a *control system* to regulate:

(i) *voltage*; or

(ii) either of *reactive power* or *power factor* with the agreement of *AEMO* and the *Network Service Provider*;

(2B) a *voltage control system* for a *generating system* or *integrated resource system* must:

(i) regulate *voltage* at the *connection point* or another agreed location in the *power system* (including within the *generating system* or *integrated resource system*), to within 2% of the setpoint, where that setpoint may be adjusted to incorporate any *voltage* droop or reactive current compensation agreed with *AEMO* and the *Network Service Provider*; and

(ii) allow the *voltage* setpoint to be controllable in the range of at least 98% to 102% of the target *voltage* (as determined by the *Network Service Provider* in accordance with clause S5.1.4(c) and recorded in the *connection agreement* in accordance with clause S5.1.4) at the *connection point* or the agreed location, subject to the *reactive power* capability agreed with *AEMO* and the *Network Service Provider* under clause S5.2.5.1;

(3) a *generating system's* or *integrated resource system's* *reactive power* or *power factor control system* must:

(i) regulate *reactive power* or *power factor* (as applicable) at the *connection point* or another agreed location in the *power system* (including within the *generating system* or *integrated resource system*), to within:

(A) for a *generating system* or *integrated resource system* operating in *reactive power* mode, 5% of the rating (in MVA) of the *generating system* or *integrated resource system* (expressed in MVAr); or

(B) for a *generating system* or *integrated resource system* operating in *power factor* mode, a *power factor* equivalent to 5% of the rating (in MVA) of the *generating system* or *integrated resource system* (expressed in MVAr); and

(ii) allow the *reactive power* or *power factor* setpoint to be continuously controllable across the *reactive power* capability range established under clause S5.2.5.1;

(4) a ~~synchronous~~ *generating system* with *synchronous generating units* with a *nameplate rating* of 30 MW or more, or an *integrated resource system* (to the extent it comprises *production units*) comprising *synchronous bidirectional units* with a *nameplate rating* of 5 MW or more or *synchronous generating units* with a *nameplate rating* of 30 MW or more, in any case with an *excitation control system* required to regulate *voltage* under subparagraph (d)(2A)(i) must:

(i) [**Deleted**]

(ii) have excitation ceiling *voltage* of at least 1.5 times the excitation required to achieve transfer of power~~generation~~ at the *nameplate rating* for rated *power factor*, rated speed and *nominal voltage*;

(iii) subject to co-ordination under paragraph (i), have a *settling time* of less than 7.5 seconds for a 5% *voltage* disturbance with the *production unit* ~~*generating unit*~~ synchronised, from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and

(iv) have over and under excitation limiting devices sufficient to ensure that a *voltage* disturbance does not cause the *production unit* ~~*generating unit*~~ to trip at the limits of its operating capability; ~~and~~

(5) a *generating system* comprised of *asynchronous generating units* with a *nameplate rating* of 30 MW or more, with a *voltage control system* required to regulate *voltage* under subparagraph (d)(2A)(i) must:

(i) [**Deleted**]

(ii) subject to co-ordination under paragraph (i), have a *settling time* less than 7.5 seconds for a 5% *voltage* disturbance with the *generating unit* electrically connected to the *power system* from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and

(iii) have limiting devices to ensure that a *voltage* disturbance would not cause the *generating unit* to trip at the limits of its operating capability~~.~~; and

(6) an *integrated resource system* (to the extent it comprises *production units*) comprised of *asynchronous bidirectional units* with a *nameplate rating* of 5 MW or more, or *synchronous generating units* with a *nameplate rating* of 30 MW or more, in either case with a *voltage control system* required to regulate *voltage* under subparagraph (d)(2A)(i) must:

(i) subject to co-ordination under paragraph (i), have a *settling time* less than 7.5 seconds for a 5% *voltage* disturbance with the *production unit* electrically connected to the *power system* from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and

(ii) have limiting devices to ensure that a *voltage* disturbance would not cause the *production unit* to trip at the limits of its operating capability.

Negotiated access standard

(e) [**Deleted**]

(f) The *negotiated access standard* proposed by the *Generator* or *Integrated Resource Provider* under clause 5.3.4A(b1) must be the highest level that the *generating system* or *integrated resource system* can reasonably achieve, including by installation of additional dynamic *reactive power* equipment, and through optimising its *control systems*.

(g) [**Deleted**]

General requirements

(g1) For the purposes of subparagraph (b)(2A), the *Network Service Provider* and *AEMO* will nominate one or more control modes to be implemented when the *generating system* or *integrated resource system* is commissioned, and may require additional control modes to be commissioned after *connection* if the *Network Service Provider* or *AEMO* reasonably considers such additional modes to be necessary to ensure *power system security* or quality of *supply*. Where a *generating system* or *integrated resource system* has been commissioned for more than one control mode, the *Generator* or *Integrated Resource Provider* (as relevant), *Network Service Provider* and *AEMO* must agree on a procedure for switching between control modes. The initial operating mode, other available modes and the procedure for switching between modes must be recorded as part of the *performance standard*.

(h) A limiting device provided under paragraphs (b) and (d) must:

(1) not detract from the performance of any power system stabiliser or power oscillation damping capability; and

(2) be co-ordinated with all *protection systems*.

(i) The *Network Service Provider* may require that the design and operation of the *control systems* of a *production unit* ~~*generating unit* or *generating system*~~ be coordinated with the existing *voltage control systems* of the *Network Service Provider* and of other *Network Users*, in order to avoid or manage interactions that would adversely impact on the *Network Service Provider* and other *Network Users*.

(j) Any requirements imposed by the *Network Service Provider* under paragraph (i) must be recorded in the *performance standard*.

(k) The assessment of impact of the *production units* ~~*generating units*~~ on *power system* stability and damping of *power system* oscillations shall be in accordance with the guidelines for *power system* stability established under clause 4.3.4(h).

S5.2.5.14 Active power control

(a) The *automatic access standard* is a *generating system* or *integrated resource system* must have an *active power control system* capable of:

(1) for a *scheduled generating unit*, ~~or~~ a *scheduled generating system*, *scheduled bidirectional unit* or *scheduled integrated resource system*:

(i) maintaining and changing its *active power* level ~~output~~ in accordance with its *dispatch instructions*;

(ii) ramping its *active power* level ~~output~~ linearly from one level of *dispatch* to another; and

(iii) receiving and automatically responding to signals delivered from the *AGC*, as updated at a rate of once every 4 seconds (or such other period specified by *AEMO* as required);

(2) subject to energy source availability, for a *non-scheduled generating unit*, ~~or~~ *non-scheduled generating system*, *non-scheduled bidirectional unit* or *non-scheduled integrated resource system*:

(i) automatically reducing or increasing its *active power* level ~~output~~ within 5 minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to subparagraph (iii);

(ii) automatically limiting its *active power* level ~~output~~, to below the level specified in subparagraph (i); and

(iii) not changing its *active power* level~~output~~ within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and

(3) subject to energy source availability, for a *semi-scheduled generating unit* or a *semi-scheduled generating system*:

(i) automatically reducing or increasing its *active power* level~~output~~ within 5 minutes at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*;

(ii) automatically limiting its *active power* level ~~output~~, to or below the level specified in subparagraph (i);

(iii) not changing its *active power* level~~output~~ within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*;

(iv) ramping its *active power* level~~output~~ linearly from one level of *dispatch* to another; and

(v) receiving and automatically responding to signals delivered from the *AGC*, as updated at a rate of once every 4 seconds (or such other period specified by *AEMO* as required).

Minimum access standard

(b) The *minimum access standard* is a *generating system* or *integrated resource system* must have an *active power control system* capable of:

(1) for a *scheduled generating unit*, ~~or a~~ *scheduled generating system*, *scheduled bidirectional unit* or *scheduled integrated resource system*:

(i) maintaining and changing its *active power* level~~output~~ in accordance with its *dispatch instructions*; and

(ii) receiving and automatically responding to signals delivered from the *AGC*, as updated at a rate of once every four seconds (or such other period specified by *AEMO* as required);

(2) for a *non-scheduled generating system* or *non-scheduled integrated resource system*:

(i) reducing its *active power* level~~output~~, within 5 minutes, to or below the level required to manage *network* flows that is specified in a verbal instruction issued by the *control centre*;

(ii) limiting its *active power* level~~output~~, to or below the level specified in subparagraph (i); and

(iii) subject to energy source availability, ensuring that the change of *active power* level~~output~~ in a 5 minute period does not exceed a value agreed with *AEMO* and the *Network Service Provider*; and

(3) subject to energy source availability, for a *semi-scheduled generating unit* or a *semi-scheduled generating system*:

(i) maintaining and changing its *active power* level~~output~~ in accordance with its *dispatch instructions*;

(ii) not changing its *active power* level~~output~~ within five minutes by more than the rise and lower amounts specified in an instruction electronically issued by a *control centre*; and

(iii) receiving and automatically responding to signals delivered from the *AGC*, as updated at a rate of once every 4 seconds (or such other period specified by *AEMO* as required).

Negotiated access standard

(c) A *negotiated access standard* may provide that if the number or frequency of verbal instructions becomes difficult for a *control centre* to manage, *AEMO* may require the *Generator* or *Integrated Resource Provider* to upgrade its *facilities* to receive electronic instructions and fully implement them within 5 minutes.

(d) The *negotiated access standard* must document to *AEMO's* satisfaction any operational arrangements necessary to manage *network* flows that may include a requirement for the *generating system* or *integrated resource system* to be operated in a manner that prevents its *active power* level ~~output~~ changing within 5 minutes by more than an amount specified by a *control centre*.

(e) [**Deleted**]

General requirements

(f) Each *control system* used to satisfy the requirements of paragraphs (a) and (b) must be *adequately damped*.

S5.2.5.15 Short circuit ratio

(a) This clause S5.2.5.15:

(1) applies to a *generating system* and (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *asynchronous production*~~*generating*~~ *units*;

(2) does not apply to a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *synchronous production*~~generating~~ *units*; and

(3) for a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that is comprised of both *synchronous production*~~*generating*~~ *units* and *asynchronous production*~~*generating*~~ *units*, applies only to the *asynchronous production*~~*generating*~~ *units* and to the *generating system* or *integrated resource system* to the extent it relates to its *asynchronous production*~~*generating*~~ *units*.

Minimum access standard

(b) The *minimum access standard* is a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that is comprised of *asynchronous* *production* ~~*generating*~~ *units* must have *plant* capability sufficient to operate stably and remain *connected* at a *short circuit ratio* of 3.0, assessed in accordance with the methodology prescribed in the *system strength impact assessment guidelines*.

General requirements

(c) The performance standards in the connection agreement must record:

(1) the agreed value of the *short circuit ratio* which must be the minimum of 3.0 and the value at which the *generating system* or *integrated resource system* has *plant* capability sufficient to operate stably and remain *connected*;

(2) the *rated active power* used to calculate the value of the *short circuit ratio*; and

(3) any arrangements agreed under paragraph (e).

(d) The *plant* capability referred to in paragraph (c)(1) may be demonstrated with any appropriate *control system* and/or *protection system* settings. The settings used may be different to the setting required for compliance with other *performance standards* established under this clause S5.2.5.

(e) If the *generating system* or *integrated resource system* is not capable of meeting the *minimum access standard*, the *Generator* or *Integrated Resource Provider* may, if agreed by *AEMO*, the *Network Service Provider* and the *System Strength Service Provider*, achieve compliance by demonstrating it has:

(1) in accordance with paragraph (f), legally binding commitments to make additional investment in its *plant* or for the supply to it of services to remedy, at its cost, the shortfall in capability, either on *connection* or in agreed circumstances (such as the occurrence of an event that results in a change to the *three phase fault level* at the *connection point*); together with

(2) operational arrangements agreed with the *Network Service Provider* that apply when the investment or services referred to in subparagraph (1) have not yet been made or are not available.

(f) For paragraph (e)(1), the *Generator* or *Integrated Resource Provider* may:

(1) reach agreement with the *Network Service Provider* for the *Generator* or *Integrated Resource Provider* to undertake investment in its *plant* to achieve *plant* capability sufficient to operate stably and remain *connected* at a *short circuit ratio* of 3.0; or

(2) procure from the *Network Service Provider*, the *System Strength Service Provider* or another *Registered Participant*, services to enable the *generating system* or *integrated resource system* to operate stably and remain connected at a *short circuit ratio* of 3.0 but calculated using

a *three phase fault level* at the *connection point* that excludes any contribution from the *facilities* providing the service.

S5.2.5.16 Voltage phase angle shift

(a) This clause S5.2.5.16:

(1) applies to a *generating system* and (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *asynchronous* ~~*generating*~~ *production units*;

(2) does not apply to a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that in either case is comprised solely of *synchronous production* ~~*generating*~~ *units*; and

(3) for a *generating system* or (to the extent it comprises *production units*) an *integrated resource system* that is comprised of both *synchronous* ~~*generating*~~ *production units* and *asynchronous production*~~*generating*~~ *units*, applies only to the *asynchronous* ~~*generating*~~ *production units* and to the *generating system* or *integrated resource system* to the extent it relates to its *asynchronous production* ~~*generating*~~ *units*.

Minimum access standard

(b) The *minimum access standard* is a *generating system* or *integrated resource system* and each of its *asynchronous production*~~*generating*~~ *units* must not include any vector shift or similar relay or protective function that acts upon *voltage* phase angle which might operate for phase angle changes less than 20 degrees at the *connection point*.

General requirements

(c) The agreed value of the settings of any *protection system* must be recorded in the *performance standards*.

S5.2.6 Monitoring and control requirements

S5.2.6.1 Remote Monitoring

Automatic access standard

(a) The *automatic access standard* is a:

(1) *scheduled generating unit*;

(2) *scheduled generating system*;

(3) *non-scheduled generating unit*;

(4) *non-scheduled generating system*;

(5) *semi-scheduled generating unit*; ~~or~~

(6) *semi-scheduled generating system*~~,~~;

(7) *scheduled bidirectional unit*;

(8) *scheduled integrated resource system*;

(9) *non-scheduled bidirectional unit*; or

(10) *non-scheduled integrated resource system*,

must have *remote monitoring equipment* and *remote control equipment* to transmit to, and receive from, *AEMO's control centres* in real time in accordance with rule 4.11 the quantities that *AEMO* reasonably requires to discharge its *market* and *power system security* functions set out in Chapters 3 and 4.

(b) The remote monitoring quantities referred to under paragraph (a) that *AEMO* may request include:

(1) in respect of a *generating system* or *integrated resource system* of a type referred to in subparagraphs (a)(1) to (10)~~(6)~~:

(i) the status of all switching devices that carry the *generation* or *load*;

(ii) *tap-changing transformer* tap position(s) and *voltages*;

(iii) *active power* and *reactive power* aggregated for groups of identical *production units*~~*generating units*~~;

(iv) either the number of identical *production units* ~~*generating units*~~ operating or the operating status of each non-identical *production unit*~~*generating unit*~~;

(v) *active power* and *reactive power* for the *generating system* or *integrated resource system*; and

(vi) *voltage control system* setpoint and mode (as applicable);

(2) in respect of:

(i) a *generating unit* with a *nameplate rating* of 30 MW or more~~,~~; or

(ii) a *bidirectional unit* with a *nameplate rating* of 5 MW or more,

current, *voltage*, *active power* and *reactive power* in respect of *generating unit* or *bidirectional unit* stators or power conversion systems (as applicable);

(3) in respect of an auxiliary supply system with a capacity of 30 MW or more associated with a *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system*, *active power* and *reactive power*;

(4) in respect of *reactive power* equipment that is part of a *generating system* or *integrated resource system* but not part of a particular ~~*generating unit*~~ *production unit*, its *reactive power*;

(5) in respect of a *semi-scheduled generating system*, or a *semi-scheduled generating unit* in an *integrated resource system*, all data specified as mandatory in the relevant *energy conversion model* applicable to that type of *semi-scheduled generating system*;

(6) in respect of a *scheduled generating system*, ~~or~~ *semi-scheduled generating system*, or *scheduled integrated resource system*:

(i) maximum *active power* limit;

(ii) minimum *active power* limit;

(iii) maximum *active power* raise *ramp rate*; and

(iv) maximum *active power* lower *ramp rate*;

(7) in respect of a run-back scheme agreed with the *Network Service Provider*:

(i) run-back scheme status; and

(ii) *active power*, *reactive power* or other control limit, as applicable;

(8) the mode of operation of the *generating unit*, *bidirectional unit*, turbine control limits, or other information required to reasonably predict the *active power* response of the *generating system* or *integrated resource system* to a change in *power system frequency* at the *connection point*; and

(9) any other quantity that *AEMO* reasonably requires to discharge its *market* and *power system security* functions as set out in Chapters 3 and 4.

(b1) The remote control quantities referred to under paragraph (a) that *AEMO* may request include:

(1) in respect of a *generating system* or *integrated resource system*:

(i) *voltage control* setpoint; and

(ii) *voltage control* mode (where applicable);

(2) in respect of a *scheduled generating system*, ~~or~~ *semi-scheduled generating system*~~,~~ or *scheduled integrated resource system*, the *AGC* signal; and

(3) in respect of a *non-scheduled generating system* or *non-scheduled integrated resource system*, to the extent required to manage *network* flows:

(i) *active power* limit; and

(ii) *active power* ramp limit.

Minimum access standard

(c) The *minimum access standard* is a:

(1) *scheduled generating unit*;

(2) *scheduled generating system*;

(3) *non-scheduled generating system*;

(4) *semi-scheduled generating unit*; ~~or~~

(5) *semi-scheduled generating system*~~,~~;

(6) *scheduled bidirectional unit*;

(7) *scheduled integrated resource system*;

(8) *non-scheduled bidirectional unit*; or

(9) *non-scheduled integrated resource system*,

must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time in accordance with rule 4.11 the quantities that *AEMO* reasonably requires to discharge its *market* and *power system security* functions set out in Chapters 3 and 4.

(d) The quantities referred to under paragraph (c) that *AEMO* may request include:

(1) the *active power* level~~output~~ of the *generating unit* or *generating system* (as applicable);

(2) if *connected* to a *transmission system*, the *reactive power* level~~output~~ of the *generating unit* or *generating system* (as applicable);~~ and~~

(3) if a *semi-scheduled generating system* or a *semi-scheduled generating unit* in an *integrated resource system*, all data specified as mandatory in the relevant *energy conversion model* applicable to that type of *semi-scheduled generating system* or *semi-scheduled generating unit*;~~.~~

(4) the *active power* level of the *bidirectional unit* or *integrated resource system* (as applicable); and

(5) if *connected* to a *transmission system*, the *reactive power* level of the *bidirectional unit* or *integrated resource system* (as applicable).

S5.2.6.2 Communications equipment

Automatic access standard

(a) The *automatic access standard* is a *Generator* or *Integrated Resource Provider* must:

(1) provide and maintain two separate telephone *facilities* using independent telecommunications service providers, for the purposes of *operational communications* between the *Generator's* or *Integrated Resource Provider's* responsible operator under clause 4.11.3(a) and *AEMO's control centre*; and

(2) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* or *integrated resource system* capable of keeping such equipment available for at least 3 hours following total loss of *supply* at the *connection point* for the relevant *production unit*~~*generating unit*~~.

Minimum access standard

(b) The *minimum access standard* is a *Generator* or *Integrated Resource Provider* must:

(1) provide and maintain a telephone facility for the purposes of *operational communications* between the *Generator's* or *Integrated Resource Provider's* responsible operator under clause 4.11.3(a) and *AEMO's control centre*; and

(2) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* or *integrated resource system* capable of keeping such equipment

available for at least 1 hour following total loss of *supply* at the *connection point* for the relevant *production unit*~~*generating unit*~~.

Negotiated access standard

(c) A *negotiated access standard* must include, where the *Network Service Provider* or *AEMO* reasonably require, a back-up telephone facility be independent of commercial telephone service providers, and the *Network Service Provider* must provide and maintain the separate facility on a cost-recovery basis only through the charge for *connection*.

(d) A *negotiated access standard* must include that a *Generator* or *Integrated Resource Provider* must provide communications paths (with appropriate redundancy) from the *remote monitoring equipment* or *remote control equipment* installed for each of its *generating systems* or *integrated resource systems* as appropriate, to an interface for communication purposes in a location reasonably acceptable to the *Network Service Provider* at the relevant *generation* facility.

(e) Communications systems between the interface for communication purposes under paragraph (d) and the *control centre* must be the responsibility of the *Network Service Provider* unless otherwise agreed by the *Generator* or *Integrated Resource Provider* (as the case may be) and the *Network Service Provider*.

(f) A *negotiated access standard* must include that the *Generator* or *Integrated Resource Provider* provide accommodation and secure power supplies for communications *facilities* provided by the *Network Service Provider* under this clause S5.2.6.2.

S5.2.7 Power station auxiliary supplies

In cases where a *generating system* or *integrated resource system* takes its *auxiliary load* ~~auxiliary supplies~~ via a *connection point* through which its *generation* is not transferred to the *network*, the *access standards* must be established under clause S5.3.5 as if the *Generator* or *Integrated Resource Provider* (as the case may be) were a *Market Customer*.

S5.2.8 Fault current

Automatic access standard

(a) The *automatic access standard* is:

(1) the contribution of the *generating system* or *integrated resource system* to the fault current on the *connecting network* through its *connection point* must not exceed the contribution level that will ensure that the total fault current can be safely interrupted by the circuit breakers of the *connecting network* and safely carried by the *connecting network* for the duration of the applicable *breaker fail protection system fault clearance times*, as specified for the relevant *connection point* by the *Network Service Provider*;

(2) a *generating system's* or *integrated resource system's connected plant* must be capable of withstanding fault current through the *connection point* up to the higher of:

(i) the level specified in clause S5.2.4(e1)(1) ; and

(ii) the highest level of current at the *connection point* that can be safely interrupted by the circuit breakers of the *connecting network* and safely carried by the *connecting network* for the duration of the applicable *breaker fail protection system fault clearance times*, as specified by the *Network Service Provider*; and

(3) a circuit breaker provided to isolate a *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system* from the *network* must be capable of breaking, without damage or restrike, the maximum fault currents that could reasonably be expected to flow through the circuit breaker for any fault in the *network* or in the *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system*, as specified in the *connection agreement*.

Minimum access standard

(b) The *minimum access standard* is:

(1) the *generating system* or *integrated resource system* does not need to limit fault current contribution;

(2) a *generating system's* or *integrated resource system's connected plant* must be capable of withstanding fault current through the *connection point* up to the level specified in clause S5.2.4(e1)(1) ; and

(3) a circuit breaker provided to isolate a *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system* from the *network* must be capable of breaking, without damage or restrike, the maximum fault currents that could reasonably be expected to flow through the circuit breaker for any fault in the *network* or in the *generating unit*, ~~or~~ *generating system*, *bidirectional unit* or *integrated resource system*, as specified in the *connection agreement*.

Negotiated access standard

(c) In negotiating a *negotiated access standard*, the *Network Service Provider* must consider alternative *network* configurations in the determination of the applicable fault current level and must prefer those options that maintain an equivalent level of service to other *Network Users* and which, in the opinion of the *Generator* or *Integrated Resource Provider* (as the case may be), impose the least obligation on the *Generator* or *Integrated Resource Provider*.

(d) In carrying out assessments of proposed *negotiated access standards* under this clause S5.2.8, the *Network Service Provider* must take into account, without limitation:

(1) the expected performance of existing *networks* and *considered projects*;

(2) the expected performance of existing *generating plant* and other relevant projects; and

(3) the expected range of *power system* operating conditions.

Schedule 5.3 Conditions for Connection of Customers

S5.3.1a Introduction to the schedule

(a) This schedule applies to the following classes of *Network User*:

(1) ~~a *First-Tier Customer* in respect of its *first-tier load*;~~**[Deleted]**

(2) ~~a *Second-Tier Customer* in respect of its *second-tier load*;~~**[Deleted]**

(3) a *Market Customer* in respect of its ~~*market load*~~*market connection points*;

(4) a *Non-Registered Customer* in respect of its *connection* to a *network*; and

(5) a *Distribution Network Service Provider* in respect of its *distribution network*.

(b) For the purposes of this schedule 5.3 the term ***Network Service Provider*** must be interpreted to mean the *Network Service Provider* with whom the *Connection Applicant* has sought, or is seeking, a *connection* in accordance with clause 5.3.2 of the *Rules*.

(c) All *Network Users* must comply with the requirements for the establishment of *performance standards* in accordance with provisions contained in schedule 5.1a for *system standards* or schedule 5.1 for *Network Service Providers* and this schedule 5.3 for *Customers*.

(d) If the *Connection Applicant* is a *Registered Participant* in relation to the proposed *connection*, the *Network Service Provider* may include as terms and conditions of the *connection agreement* any provision of this schedule that is expressed as an obligation on a *Network User*. If the *Connection Applicant* is not a *Registered Participant* in relation to the proposed *connection*, the *Network Service Provider* must include as terms and conditions of the *connection agreement*:

(1) each provision of this schedule that is expressed as an obligation on a *Network User*; and

(2) each agreed *performance standard* and an obligation to comply with it.

(e) The purpose of this schedule is to:

(1) describe the information that must be exchanged for the *connection* enquiry and *application to connect* processes described in rule 5.3 of the *Rules*;

(2) establish the *automatic access standards* and *minimum access standards* that will apply to the process of negotiating access standards under clause 5.3.4A of the *Rules*; and

(3) establish obligations to apply prudent design standards for the *plant* to be *connected*.

Schedule 5.4 Information to be Provided with Preliminary Enquiry

The following items of information are required to be submitted with a preliminary enquiry for *connection* or modification of an existing *connection*:

(a) Type of *plant* – (eg. gas turbine *generating unit*; rolling mill, etc.).

(b) Preferred site location – (listing any alternatives in order of preference as well).

(c) Maximum power *generation* ~~or~~ and demand of whole *plant* – (maximum MW and/or MVA, or average over 15 minutes or similar).

(d) Expected *energy* production and~~or~~ consumption (MWh per month).

(e) *Plant* type and configuration – (eg. number and type of *production units* ~~*generating units*~~ or number of separate production lines).

(f) Nature of any disturbing source of *load* (size of disturbing component MW/MVAr, duty cycle, nature of power electronic *plant* which may produce harmonic distortion).

(g) Technology of proposed *production unit* ~~*generating unit*~~ (e.g. *synchronous* ~~*generating*~~ *production unit*, induction generator, photovoltaic array, etc).

(h) When *plant* is to be in service – (eg. estimated date for each *production unit*~~*generating unit*~~).

(i) Name, ABN, ACN and address of enquirer, and, if relevant, of the party for whom the enquirer is acting.

(j) Other information may be requested by the *Network Service Provider*, such as amount and timing of power required during construction or any auxiliary power requirements.

Schedule 5.4A Preliminary Response

For the purposes of clause 5.3A.7(a), the following information must be included in the preliminary response:

(a) relevant technical information about the *Distribution Network Service Provider's distribution network*, including guidance on how the *Connection Applicant* may meet the following requirements if it were to proceed to prepare an *application to connect*:

(1) primary protection and backup protection;

(2) other protection and control requirements applicable to ~~*embedded generating units*~~ *distribution connected units* and associated *plant*;

(3) *remote monitoring equipment* and control communications *facilities*;

(4) insulation co-ordination and lightning protection;

(5) existing maximum and minimum fault levels and *fault clearance times* of relevant local *zone substations*";

(6) switching and *isolation* facilities;

(7) interlocking and *synchronising* arrangements;

(8) *metering installations*; and

(9) remedy or avoid a *general system strength impact* caused by the *connection*;

(b) if not otherwise provided in accordance with paragraph (a), to the extent the *Distribution Network Service Provider* holds technical information necessary to prepare an *application to connect*, that information;

(c) information relevant to each technical requirement of the proposed *plant* as relevant to:

(1) the *automatic access standards*;

(2) any relevant *minimum access standards*;

(3) any applicable *plant standards*; and

(4) the *normal voltage* level, if it is expected to change from the *nominal voltage* level;

(d) the identity of other parties that the *Distribution Network Service Provider* considers:

(1) will need to be involved in planning to make the *connection* or must be involved under clause 5.3A.10(c); and

(2) must be paid for *transmission services* or *distribution services*;

(e) whether it will be necessary for any of the parties identified in subparagraph (d) to enter into an agreement with the *Connection Applicant* in respect of the provision of *connection services* or other *transmission services* or *distribution services* or both, to the *Connection Applicant*;

(f) where relevant the *Distribution Network Service Provider* is to identify whether any service required to *establish a connection* is *contestable* in the relevant *participating jurisdiction*;

(g) worked examples of *connection service* charges relevant to the enquiry and an explanation of the factors on which the charges depend;

(h) information regarding the *Distribution Network Service Provider* and its *network*, system limitations for *sub-transmission lines* and *zone substations* and other information relevant to constraints on the *network* as such information is relevant to the *application to connect*;

(i) an indication of whether *network augmentation* may be required and if required, what work the *network augmentation* may involve;

(i1) an indication of whether the new *connection* is expected in the reasonable opinion of a *Network Service Provider* to have a *general system strength impact* and whether a *system strength locational factor* can be calculated in relation to the new *connection*;

(j) a hyperlink to the *Distribution Network Service Provider's information pack*;

(k) the contact details for the relevant point of contact within the *Distribution Network Service Provider* managing the *connection* enquiry;

(l) the *Distribution Network Service Provider's* response to the objectives of the *connection* sought as included by the *Connection Applicant* in its enquiry under clause 5.3A.5(c)(1);

(m) a description of the process for the provision of the *detailed response*, including the further information to be provided by the *Connection Applicant* and analysis to be undertaken by the *Distribution Network Service Provider* as part of the preparation of the *detailed response*;

(n) an overview of any available options for *connection* to the *Distribution Network Service Provider's network*, as relevant to an enquiry lodged, at more than one *connection point* in a *network*, including:

(1) example single line diagram and relevant *protection systems* and *control systems* used by existing *connection* arrangements;

(2) a description of the characteristics of supply; and

(3) an indication of the likely impact on terms and conditions of *connection*,

as relevant to each optional differing *connection point*;

(o) a statement of further information required from the *Connection Applicant* for the preparation of the *detailed response*, including:

(1) details of the *Connection Applicant's connection* requirements, and the *Connection Applicant's* specifications of the *facility* to be *connected*, consistent with the requirements advised in accordance with paragraphs (a) to (c); and

(2) details of the *Connection Applicant's* reasonable expectations of the level and standard of service of *power transfer capability* that the *network* should provide;

(3) the *Connection Applicant's* proposal for any *system strength remediation scheme*;

(p) an estimate of the enquiry fee payable by the *Connection Applicant* for the *detailed response*, including details of how components of the fee were calculated;

(q) the component of the estimate of the enquiry fee payable by the *Connection Applicant* to request the *detailed response*;

(r) an estimate of the application fee which is payable on submitting an *application to connect*; and

(s) any additional information relevant to the enquiry.

Schedule 5.5 Technical Details to Support Application for Connection and Connection Agreement

S5.5.5 Asynchronous production unit~~generating unit~~ data

A *Generator* or an *Integrated Resource Provider* that *connects* a *generating system*, that comprises any ~~is an~~ *asynchronous generating units*, or an *Integrated Resource Provider* that *connects* an *integrated resource system* that (to the extent it comprises *production units*) comprises any *asynchronous bidirectional units*, must be given

exemption from complying with those parts of the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Design Data Sheet* that are determined by the *Network Service Provider* to be not relevant to such *generating systems* or *integrated resource systems*, but must comply with those parts of schedules 5.5.3, 5.5.4, and 5.5.5 that are relevant to such *generating systems* or *integrated resource systems*, as determined by the *Network Service Provider*.

S5.5.6 Generating units smaller than 30MW data

A *Generator* or an *Integrated Resource Provider* that *connects* a *generating unit* smaller than 30 MW or *generating units* totalling less than 30 MW to a *connection point* to a *distribution network* must submit registered system planning data and registered data to *AEMO* and the relevant *Network Service Provider* in accordance with the requirements specified in the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Setting Data Sheet*.

Codes:

S = Standard Planning Data

D = Detailed Planning Data

R = Registered Data (R1 pre-*connection*, R2 post-*connection*)

S5.5.6A Bidirectional units smaller than 5 MW data

An *Integrated Resource Provider* that *connects* a *bidirectional unit* smaller than 5 MW or *bidirectional units* totalling less than 5 MW to a *connection point* to a *distribution network* must submit registered system planning data and registered data to *AEMO* and the relevant *Network Service Provider* in accordance with the requirements specified in the *Power System Model Guidelines*, *Power System Design Data Sheet* and *Power System Setting Data Sheet*.

Codes:

S = Standard Planning Data

D = Detailed Planning Data

R = Registered Data (R1 pre-*connection*, R2 post-*connection*)

S5.5.7 Power System Design Data Sheet, Power System Setting Data Sheet and Power System Model Guidelines

(a) *AEMO* must, subject to paragraphs (b) and (c), develop, *publish* and maintain, in accordance with the *Rules consultation procedures*:

(1) a *Power System Design Data Sheet* describing, for relevant *plant technologies*, *plant* design parameters including *plant* configurations, impedances, time constants, non-linearities, ratings and capabilities to be provided under clauses 3.11.5(b)(5), 3.11.9(g), 4.3.4(o), 5.2.3(j), 5.2.3(k), 5.2.3A(a), 5.2.4(c), 5.2.4(d), 5.2.5(d), 5.2.5(e), 5.2.5A(d), 5.2.5A(e), 5.3.9(b)(2), 5.3.9(b)(2A), 5.3.12(b)(2), S5.2.4, S5.3.1, S5.3a.1 and this schedule 5.5;

(2) a *Power System Setting Data Sheet* describing, for relevant *power systems* and *control system* technologies, the *protection system* and *control system* functions and their settings, including configurations,

gains, time constants, delays, deadbands, non-linearities and limits to be provided under clauses 3.11.5(b)(5), 3.11.9(g), 4.3.4(o), 5.2.3(j), 5.2.3(k), 5.2.3A(a), 5.2.3A(b), 5.2.4(c), 5.2.4(d), 5.2.5(d), 5.2.5(e), 5.2.5A(d), 5.2.5A(e), 5.3.9(b)(2), 5.3.9(b)(2A), 5.3.12(b)(2), S5.2.4, S5.3.1, S5.3a.1 and this schedule 5.5; and

(3) *Power System Model Guidelines* describing, for relevant *power system* technologies at the *transmission system* and *distribution system* level, *AEMO's* requirements when developing mathematical models for *plant*, including the impact of their *control systems* and *protection systems* on *power system security* to be provided under clauses 3.11.5(b)(5), 3.11.9(g), 4.3.4(o), 5.2.3(j), 5.2.3(k), 5.2.3A(a), 5.2.3A(b), 5.2.4(c), 5.2.4(d), 5.2.5(d), 5.2.5(e), 5.2.5A(d), 5.2.5A(e), 5.3.9(b)(2), 5.3.9(b)(2A), 5.3.12(b)(2), S5.2.4, S5.3.1, S5.3a.1 and this schedule 5.5.

(b) When developing, *publishing* and maintaining the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet* under paragraph (a), *AEMO* must have regard to the purpose of the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet*, which is to:

(1) allow *plant* and equipment to be mathematically modelled by *AEMO* with sufficient accuracy to permit:

(i) the *power system* operating limits for ensuring *power system security* to be quantified with the lowest practical safety margins;

(ii) the assessment of proposed *negotiated access standards*;

(iii) settings of *control systems* and *protection systems* of *plant* and *networks* to be assessed and quantified for maximum practical performance of the *power system*; and

(iv) the efficient procurement of *SRASs* and *NSCASs*; and

(2) identify for each type of data its category in terms of clause S5.5.2.

(b1) The *Power System Model Guidelines* must specify:

(1) the information, including the types of models, that:

(i) *Generators* and *Integrated Resource Providers* must provide under clause 5.2.5(d), clause 5.2.5(e), clause 5.2.5A(d), clause 5.2.5A(e), clause 5.3.9(b)(2), 5.3.9(b)(2A), clause S5.2.4 and clause S5.5.6;

(ii) *Network Service Providers* must provide under clause 4.3.4(o), clause 5.2.3(j) and clause 5.2.3(k);

(iii) *Network Users* must provide under clause 5.2.4(c), clause 5.2.4(d), clause 5.3.12(b)(2) and clause S5.3.1(a1);

(iv) *Market Network Service Providers* must provide under clause 5.2.3A(a), clause 5.2.3A(b), clause 5.3.12(b)(2) and clause S5.3a.1(a1);

(v) prospective *NSCAS* tenderers must provide under clause 3.11.5(b)(5); and

(vi) prospective *SRAS Providers* must provide under clause 3.11.9(g);

(2) the model accuracy requirements that are applicable to each type of model provided, as well as the types of *generating systems*, *integrated resource systems* and *plant* and equipment that the model accuracy requirements apply to;

(3) when information to which the *Power System Model Guidelines* relates must be provided;

(4) a process to be followed in circumstances where a person is unable to provide information required to be provided under clauses 3.11.5(b)(5), 3.11.9(g), 4.3.4(o), 5.2.3(j), 5.2.3(k), 5.2.3A(a), 5.2.3A(b), 5.2.4(c), 5.2.4(d), 5.2.5(d), 5.2.4(e), 5.2.5A(d), 5.2.5A(e), 5.3.9(b)(2), 5.3.9(b)(2A), 5.3.12(b)(2), S5.2.4, S5.3.1, S5.3a.1, S5.5.6, schedule 5.5 or as otherwise required by the *Power System Model Guidelines*, *Power System Design Data Sheet* or *Power System Setting Data Sheet*;

(5) guidance on the factors that *AEMO* will take into account when determining the circumstances under which *AEMO* will request information to be provided, including the *power system* conditions that necessitate the usage of a certain type of model in order to achieve the desired level of accuracy;

(6) the format in which information must be provided and any material *AEMO* requires to assess the accuracy of information provided to it; and

(7) the circumstances in which model source code is required to be provided.

(c) In developing and amending the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet*, *AEMO* must:

(1) have regard to the reasonable costs of efficient compliance by *Registered Participants* with those guidelines and data sheets compared to the likely benefits from the use of the information provided under the guidelines and data sheets;

(2) have regard to any requirements to protect the intellectual property and confidential information of third parties, including where those third parties are not *Registered Participants*; and

(3) have regard to *Distribution Network Service Providers*' and *Transmission Network Service Providers*' requirements for data and modelling information that is reasonably necessary for the relevant provider to fulfil its obligations under the *Rules* or *jurisdictional electricity legislation*.

(d) *AEMO* may amend the *Power System Model Guidelines*, the *Power System Design Data Sheet* or the *Power System Setting Data Sheet* from time to time.

(e) Any person may submit a written request (with reasons) for *AEMO* to amend the *Power System Model Guidelines*, the *Power System Design Data Sheet* or the *Power System Setting Data Sheet* from time to time.

(f) In developing and amending the *Power System Model Guidelines*, the *Power System Design Data Sheet* or the *Power System Setting Data Sheet*, *AEMO*

must, subject to paragraph (g), consult with *Registered Participants* and such other persons who, in *AEMO*'s reasonable opinion have, or have identified themselves as having, an interest in the *Power System Model Guidelines*, in accordance with the *Rules consultation procedures*.

(g) *AEMO* is not required to comply with the *Rules consultation procedures* when making minor or administrative amendments to the *Power System Model Guidelines*, the *Power System Design Data Sheet* or the *Power System Setting Data Sheet*.

(h) *AEMO* may at the conclusion of the *Rules consultation procedures* under paragraph (f) or otherwise under paragraph (g), amend the relevant data sheet or guidelines (if necessary).

Schedule 5.5.3 Network and plant technical data of equipment at or near connection point

Data Description	Units	Data Category
Voltage Rating		
Nominal voltage	kV	S, D
Highest *voltage*	kV	D
Insulation Co-ordination		
Rated lightning impulse withstand *voltage*	kVp	D
Rated short duration power *frequency* withstand *voltage*	kV	D
Rated Currents		
Circuit maximum current	kA	S, D
Rated Short Time Withstand Current	kA for seconds	D
Ambient conditions under which above current applies	Text	S,D
Earthing		
System Earthing Method	Text	S, D
Earth grid rated current	kA for seconds	D

Data Description	Units	Data Category
Insulation Pollution Performance		
Minimum total creepage	mm	D
Pollution level	Level of IEC 815	D
Controls		
Remote control and data transmission arrangements	Text	D
Metering Provided by Customer		
Measurement *transformer* ratios:		D
Current transformers	A/A	D
Voltage transformers	V/kV	D
Measurement *Transformer* Test Certification details	Text	R1
Network Configuration		
Operation Diagrams showing the electrical circuits of the existing and proposed main *facilities* within the *Registered Participant's* ownership including *busbar* arrangements, phasing arrangements, earthing arrangements, switching *facilities* and operating *voltages*.	Single line Diagrams	S, D, R1
Network Impedance		
For each item of *plant*: details of the positive, negative and zero sequence series and shunt impedance, including mutual coupling between physically adjacent elements.	% on 100 MVA base	S, D, R1
Short Circuit Infeed to the Network		

Data Description	Units	Data Category
Maximum generator 3-phase short circuit infeed including infeeds from *production units* ~~*generating units*~~ *connected* to the *Registered Participant's* system, calculated by method of AS 3851 (1991).	kA symmetrical	S, D, R1
The total infeed at the instant of fault (including contribution of induction motors).	kA	D, R1
Minimum zero sequence impedance of *Registered Participant's network* at *connection point*.	% on 100 MVA base	D, R1
Minimum negative sequence impedance of *Registered Participant's network* at *connection point*.	% on 100 MVA base	D, R1
Load Transfer Capability:		
Where a *load*, or group of *loads*, may be fed from alternative *connection points*:		
Load normally taken from *connection point* X	MW	D, R1
Load normally taken from *connection point* Y	MW	D, R1
Arrangements for transfer under planned or fault *outage* conditions	Text	D
Circuits Connecting ~~Embedded Generating Units~~ Distribution Connected Units to the Network:		
For all *generating units*, all connecting lines/cables, *transformers* etc.		
Series Resistance	% on 100 MVA base	D, R
Series Reactance	% on 100 MVA base	D, R
Shunt Susceptance	% on 100 MVA base	D, R
Normal and short-time emergency ratings	MVA	D,R
Technical Details of *generating units*, ~~and~~ *generating systems*, *bidirectional units* and		

Data Description	Units	Data Category
integrated resource systems as per the *Power System Design Data Sheet*, *Power System Setting Data Sheet* and the *Power System Model Guidelines* where such details are not *confidential information*		
***Transformers* at *connection points*:**		
Saturation curve	Diagram	R
Equipment associated with DC Links		
Number of poles	MVA	D,R
Converters per station	Quantity	D,R
Reactive Power consumption of converters	MCAr	D,R
Location and Rating of A.C. Filters	MVAr	D,R
Location and Rating of Shunt Capacitors	MVAr	D,R
Location and Rating of Smoothing *Reactor*	MVAr	D,R
Location and Rating of DC Filter	MVAr	D,R

Schedule 5.5.4 Network Plant and Apparatus Setting Data

Data Description	Units	Data Category
Protection Data for Protection relevant to Connection Point:		
Reach of all protections on *transmission lines*, or cables	ohms or % on 100 MVA base	S, D
Number of protections on each item	Text	S, D
Total fault clearing times for near and remote faults	ms	S, D, R1
Line reclosure sequence details	Text	S, D, R1
Tap Change Control Data:		

Data Description	Units	Data Category
Time delay settings of all *transformer* tap changers.	Seconds	D, R1
Reactive Compensation:		
Location and Rating of individual *shunt reactors*	MVAr	D, R1
Location and Rating of individual *shunt capacitor* banks	MVAr	D, R1
Capacitor bank capacitance	microfarads	D
Inductance of switching *reactor* (if fitted)	millihenries	D
Resistance of capacitor plus *reactor*	Ohms	D
Details of special controls (e.g. Point-on-wave switching)	Text	D
For each shunt reactor or capacitor bank:		
Method of switching	Text	S
Details of automatic control logic such that operating characteristics can be determined	Text	D, R1
FACTS Installation:		
Data sufficient to enable static and dynamic performance of the installation to be modelled	Text, diagrams control settings	S, D, R1
Transmission line flow control device	Text,	D
Details of the operation of the control device under normal operation conditions (including startup and shutdown of the line) and during a fault (close up and remote)	diagrams	
Models for the control device and transmission line appropriate for load flow, small signal stability and transient stability analysis	Text, diagrams	D
Capability of the line flow control device	KA, MVA, MW	D

Data Description	Units	Data Category
Details of the rate of change of flow capability of the control device	Text	D
Details of the capability of the control device to provide frequency and voltage control	Text	D
Description of possible failure modes of control device	Text	D
Details of performance of the control device under disturbance conditions including changes in AC frequency, variations in AC system voltages and Ac system waveform distortion.	Text	D
For DC control devices, contribution to the AC system short circuit level	KA, MVA	D
Short circuit ratio		
The value of the *short circuit ratio* in the *minimum access standard* in clause S5.2.5.15(b), clause S5.3.11(b) or clause S5.3a.7(b) (as applicable) or if the procedures in clause 5.3.4A have been followed, a *negotiated access standard* agreed pursuant to clause S5.2.5.15(c), clause S5.3.11(c) or clause S5.3a.7(c) (as applicable).	Numeric ratio	S, D, R1

Schedule 5.6 Terms and Conditions of Connection agreements and network operating agreements

Part A Connection agreements

The *connection agreements* must contain the specific conditions that have been agreed to for *connection* and access to the *transmission network* or *distribution network*, including but not limited to:

(a) details of the *connection point* including the *distribution network* coupling points where appropriate;

(b) metering arrangements and adjustments for losses where the point of metering is significantly different to the *connection point*;

(c) authorised demand which may be taken or supplied at the *connection point* (under specified conditions);

(c1) details of each *access standard* agreed between the *Network Service Provider* and the *Registered Participant* and all related conditions of agreement resulting from the application of any access provisions contained in schedule

5.1 for *Network Service Providers*, or schedule 5.2 for *Generators* and *Integrated Resource Providers*, or schedule 5.3 for *Customers*, or schedule 5.3a for *Market Network Service Providers*;

(c2) details of any *system strength remediation scheme* agreed, determined or modified in accordance with clause 5.3.4B and associated terms and conditions;

(c3) details of any *system strength connection works*;

(d) *connection service* charges;

(e) payment conditions;

(f) duration and termination conditions of the *connection agreement*;

(g) terms, conditions and *constraints* that have been agreed to for *connection* to the *network* to protect the legitimate interest of the *Network Service Providers* including rights to *disconnect* the *Registered Participant* for breach of commercial undertakings;

(h) details of any agreed standards of *reliability* of *transmission service* or *distribution service* at the *connection points* or within the *network*;

(i) testing intervals for *protection systems* associated with the *connection point*;

(j) agreed protocols for maintenance co-ordination;

(k) where an expected *load* or *bidirectional unit*, to be connected to a *network*, has a *peak load* requirement in excess 10 MW, the provision, installation, operation and maintenance of automatic *load* shedding facilities for 60 percent of the *load* at anytime;

(l) terms and conditions of access to the *metering installation* for the *Metering Provider* and access to *metering installations* type 4A, 5 and 6 for the *Metering Data Provider*;

(m) the arrangements for the provision of services relating to *non-contestable IUSA components* (if applicable);

(n) the functional specifications for the *contestable IUSA components*; and

(o) if the *Connection Applicant* has obtained services related to a *contestable IUSA components* other than from the *Primary Transmission Network Service Provider* and intends to transfer ownership of some or all of those components to the *Primary Transmission Network Service Provider*, arrangements for the transfer of ownership of those components upon energisation of the *identified user shared asset* to the *Primary Transmission Network Service Provider* (if applicable) and how any defects liabilities will be managed.

The *connection agreements* may include other technical, commercial and legal conditions governing works required for the *connection* or *extension* to the *network* which the parties have negotiated and agreed to. The circumstances under which the terms of the *connection agreement* would require renegotiation may also be included.

Schedule 5.8 Distribution Annual Planning Report

For the purposes of clause 5.13.2(c), the following information must be included in a *Distribution Annual Planning Report*:

(a) information regarding the *Distribution Network Service Provider* and its *network*, including:

(1) a description of its *network*;

(2) a description of its operating environment;

(3) the number and types of its *distribution assets*;

(4) methodologies used in preparing the *Distribution Annual Planning Report*, including methodologies used to identify system limitations and any assumptions applied; and

(5) analysis and explanation of any aspects of forecasts and information provided in the *Distribution Annual Planning Report* that have changed significantly from previous forecasts and information provided in the preceding year;

(b) forecasts for the *forward planning period*, including at least:

(1) a description of the forecasting methodology used, sources of input information, and the assumptions applied;

(2) *load* forecasts:

(i) at the *transmission-distribution connection points*;

(ii) for *sub-transmission lines*; and

(iii) for *zone substations*,

including, where applicable, for each item specified above:

(iv) *total capacity*;

(v) *firm delivery capacity* for summer periods and winter periods;

(vi) *peak load* (summer or winter and an estimate of the number of hours per year that 95% of *peak load* is expected to be reached);

(vii) *power factor* at time of *peak load*;

(viii) load transfer capacities; and

(ix) ~~generation~~ *generation* capacity of known ~~*embedded generating units*~~*distribution connected units*;

(2A) forecast use of *distribution services* by ~~*embedded generating units*~~*distribution connected units*:

(i) at the *transmission-distribution connection points*;

(ii) for *sub-transmission lines*; and

(iii) for *zone substations*,

including, where applicable, for each item specified above:

(iv) *total capacity* to accept *supply* from *distribution connected units*~~*embedded generating units*~~;

(v) *firm delivery capacity* for each period during the year;

(vi) peak *supply* into the *distribution network* from *distribution connected units*~~*embedded generating units*~~ (at any time during the year) and an estimate of the number of hours per year that 95% of the peak is expected to be reached; and

(vii) *power factor* at time of peak *supply* into the *distribution network*;

(3) forecasts of future *transmission-distribution connection points* (and any associated *connection assets*), *sub-transmission lines* and *zone substations*, including for each future *transmission-distribution connection point* and *zone substation*:

(i) location;

(ii) future *loading level*; and

(iii) proposed commissioning time (estimate of month and year);

(4) forecasts of the *Distribution Network Service Provider's* performance against any applicable performance targets in a *service target performance incentive scheme*; and

(5) a description of any factors that may have a material impact on its *network*, including factors affecting;

(i) fault levels;

(ii) *voltage* levels;

(iii) other *power system security* requirements;

(iv) the quality of *supply* to other *Network Users* (where relevant); and

(v) ageing and potentially unreliable assets;

(b1) for all *network* asset retirements, and for all *network* asset de-ratings that would result in a system limitation, that are planned over the *forward planning period*, the following information in sufficient detail relative to the size or significance of the asset:

(1) a description of the *network* asset, including location;

(2) the reasons, including methodologies and assumptions used by the *Distribution Network Service Provider*, for deciding that it is necessary or prudent for the *network* asset to be retired or *de-rated*, taking into account factors such as the condition of the *network* asset;

(3) the date from which the *Distribution Network Service Provider* proposes that the *network* asset will be retired or *de-rated*; and

(4) if the date to retire or *de-rate* the *network* asset has changed since the previous *Distribution Annual Planning Report*, an explanation of why this has occurred;

(b2) for the purposes of subparagraph (b1), where two or more *network* assets are:

(1) of the same type;

(2) to be retired or *de-rated* across more than one location;

(3) to be retired or *de-rated* in the same calendar year; and

(4) each expected to have a replacement cost less than $200,000 (as varied by a *cost threshold determination*),

those assets can be reported together by setting out in the *Distribution Annual Planning Report*:

(5) a description of the *network* assets, including a summarised description of their locations;

(6) the reasons, including methodologies and assumptions used by the *Distribution Network Service Provider*, for deciding that it is necessary or prudent for the *network* assets to be retired or *de-rated*, taking into account factors such as the condition of the *network* assets;

(7) the date from which the *Distribution Network Service Provider* proposes that the *network* assets will be retired or *de-rated*; and

(8) if the calendar year to retire or *de-rate* the *network* assets has changed since the previous *Distribution Annual Planning Report*, an explanation of why this has occurred;

(c) information on *system limitations* for *sub-transmission lines* and *zone substations*, including at least:

(1) estimates of the location and timing (month(s) and year) of the system limitation;

(2) analysis of any potential for *load transfer capacity* between *supply* points that may decrease the impact of the *system limitation* or defer the requirement for investment;

(3) impact of the *system limitation*, if any, on the capacity at *transmission-distribution connection points*;

(4) a brief discussion of the types of potential solutions that may address the *system limitation* in the *forward planning period*, if a solution is required; and

(5) where an estimated change in forecast *load* or forecast *generation* from *distribution connected units*~~*embedded generating units*~~ would defer a forecast *system limitation* for a period of at least 12 months, include:

(i) an estimate of the month and year in which a *system limitation* is forecast to occur as required under subparagraph (1);

(ii) the relevant *connection points* at which the estimated change in forecast *load* or forecast *generation* may occur; and

(iii) the estimated change in forecast *load* or forecast *generation* in MW or improvements in *power factor* needed to defer the forecast system limitation;

(d) for any *primary distribution feeders* for which a *Distribution Network Service Provider* has prepared forecasts of *maximum demands* under clause 5.13.1(d)(1)(iii) and which are currently experiencing an overload, or are forecast to experience an overload in the next two years the *Distribution Network Service Provider* must set out:

(1) the location of the *primary distribution feeder*;

(2) the extent to which load exceeds, or is forecast to exceed, 100% (or lower utilisation factor, as appropriate) of the *normal cyclic rating* under normal conditions (in summer periods or winter periods);

(3) the types of potential solutions that may address the overload or forecast overload; and

(4) where an estimated reduction in forecast *load* would defer a forecast overload for a period of 12 months, include:

(i) estimate of the month and year in which the overload is forecast to occur;

(ii) a summary of the location of relevant *connection points* at which the estimated reduction in forecast *load* would defer the overload;

(iii) the estimated reduction in forecast *load* in MW needed to defer the forecast system limitation;

(d1) for any *primary distribution feeders* for which a *Distribution Network Service Provider* has prepared forecasts of demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ under clause 5.13.1(d1)(3) and which are currently experiencing a *system limitation*, or are forecast to experience a *system limitation* in the next two years, the *Distribution Network Service Provider* must set out:

(1) the location of the *primary distribution feeder*;

(2) the extent to which demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ exceeds, or is forecast to exceed, 100% (or lower utilisation factor, as appropriate) of the normal capacity to provide those *distribution services* under normal conditions;

(3) the types of potential solutions that may address the *system limitation* or forecast *system limitation*;

(4) where an estimated reduction in demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ would defer a forecast *system limitation* for a period of 12 months, include:

(i) an estimate of the month and year in which the *system limitation* is forecast to occur;

(ii) a summary of the location of relevant *connection points* at which the estimated reduction in demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ would defer the *system limitation*; and

(iii) the estimated reduction in demand for *distribution services* by *distribution connected units*~~*embedded generating units*~~ in MW needed to defer the forecast *system limitation*;

(e) a high-level summary of each *RIT-D project* for which the *regulatory investment test for distribution* has been completed in the preceding year or is in progress, including:

(1) if the *regulatory investment test for distribution* is in progress, the current stage in the process;

(2) a brief description of the *identified need*;

(3) a list of the *credible options* assessed or being assessed (to the extent reasonably practicable);

(4) if the *regulatory investment test for distribution* has been completed a brief description of the conclusion, including:

(i) the net economic benefit of each *credible option*;

(ii) the estimated capital cost of the *preferred option*; and

(iii) the estimated construction timetable and commissioning date (where relevant) of the *preferred option*; and

(5) any impacts on *Network Users*, including any potential material impacts on *connection* charges and *distribution use of system* charges that have been estimated;

(f) for each identified *system limitation* which a *Distribution Network Service Provider* has determined will require a *regulatory investment test for distribution*, provide an estimate of the month and year when the test is expected to commence;

(g) a summary of all committed investments to be carried out within the *forward planning period* with an estimated capital cost of $2 million or more (as varied by a *cost threshold determination*) that are to address an urgent and unforeseen *network* issue as described in clause 5.17.3(a)(1), including:

(1) a brief description of the investment, including its purpose, its location, the estimated capital cost of the investment and an estimate of the date (month and year) the investment is expected to become operational;

(2) a brief description of the alternative options considered by the *Distribution Network Service Provider* in deciding on the preferred investment, including an explanation of the ranking of these options to the committed project. Alternative options could include, but are not limited to, *generation* options, demand side options, and options involving other *distribution* or *transmission networks*;

(h) the results of any joint planning undertaken with a *Transmission Network Service Provider* in the preceding year, including:

(1) a summary of the process and methodology used by the *Distribution Network Service Provider* and relevant *Transmission Network Service Providers* to undertake joint planning;

(2) a brief description of any investments that have been planned through this process, including the estimated capital costs of the investment and an estimate of the timing (month and year) of the investment; and

(3) where additional information on the investments may be obtained;

(i) the results of any joint planning undertaken with other *Distribution Network Service Providers* in the preceding year, including:

(1) a summary of the process and methodology used by the *Distribution Network Service Providers* to undertake joint planning;

(2) a brief description of any investments that have been planned through this process, including the estimated capital cost of the investment and an estimate of the timing (month and year) of the investment; and

(3) where additional information on the investments may be obtained;

(j) information on the performance of the *Distribution Network Service Provider's network*, including:

(1) a summary description of reliability measures and standards in *applicable regulatory instruments*;

(2) a summary description of the quality of *supply* standards that apply, including the relevant codes, standards and guidelines;

(3) a summary description of the performance of the *distribution network* against the measures and standards described under subparagraphs (1) and (2) for the preceding year;

(4) where the measures and standards described under subparagraphs (1) and (2) were not met in the preceding year, information on the corrective action taken or planned;

(5) a summary description of the *Distribution Network Service Provider's* processes to ensure compliance with the measures and standards described under subparagraphs (1) and (2); and

(6) an outline of the information contained in the *Distribution Network Service Provider's* most recent submission to the *AER* under the *service target performance incentive scheme*;

(k) information on the *Distribution Network Service Provider's asset management* approach, including:

(1) a summary of any *asset management* strategy employed by the *Distribution Network Service Provider*;

(1A) an explanation of how the *Distribution Network Service Provider* takes into account the cost of *distribution losses* when developing and implementing its *asset management* and investment strategy;

(2) a summary of any issues that may impact on the *system limitations* identified in the *Distribution Annual Planning Report* that has been identified through carrying out *asset management*; and

(3) information about where further information on the *asset management* strategy and methodology adopted by the *Distribution Network Service Provider* may be obtained;

(l) information on the *Distribution Network Service Provider's* demand management activities and activities relating to *distribution connected units*~~*embedded generating units*~~, including:

(1) a qualitative summary of:

(i) *non-network options* that have been considered in the past year, including *generation* from *distribution connected units*~~*embedded generating units*~~;

(ii) key issues arising from *applications to connect* *distribution connected units*~~*embedded generating units*~~ received in the past year;

(iii) actions taken to promote non-network proposals in the preceding year, including *generation* from *distribution connected units*~~*embedded generating units*~~; and

(iv) the *Distribution Network Service Provider's* plans for demand management and *generation* from *distribution connected units*~~*embedded generating units*~~ over the *forward planning period*;

(2) a quantitative summary of:

(i) *connection* enquiries received under clause 5.3A.5 and of the total, the number for *non-registered DER providers* ~~*non-registered embedded generators*~~;

(ii) *applications to connect* received under clause 5.3A.9 and of the total, the number for *non-registered DER providers*~~*non-registered embedded generators*~~; and

(iii) the average time taken to complete *applications to connect*; and

(3) a quantitative summary of:

(i) *enquiries* under clause 5A.D.2 in relation to the *connection* of *micro resource operators* or *non-registered DER providers* ~~*micro embedded generators*~~ ~~or~~ ~~*non-registered embedded generators*~~; and

(ii) applications for a *connection service* under clause 5A.D.3 in relation to the *connection* of *micro resource operators* or *non-registered DER providers* ~~*micro embedded generators*~~ ~~or~~ ~~*non-registered embedded generators*~~;

(m) information on the *Distribution Network Service Provider's* investments in information technology and communication systems which occurred in the preceding year, and planned investments in information technology and communication systems related to management of *network* assets in the *forward planning period*; and

(n) a regional development plan consisting of a map of the *Distribution Network Service Provider's network* as a whole, or maps by regions, in accordance with the *Distribution Network Service Provider's* planning methodology or as required under any *regulatory obligation or requirement*, identifying:

(1) *sub-transmission lines*, *zone substations* and *transmission-distribution connection points*; and

(2) any system limitations that have been forecast to occur in the *forward planning period*, including, where they have been identified, overloaded *primary distribution feeders*; and

(o) the analysis of the known and potential interactions between:

(1) any *emergency frequency control schemes*, or emergency controls in place under clause S5.1.8, on its *network*; and

(2) protection systems or control systems of plant connected to its network (including consideration of whether the settings of those systems 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.

(q) the *system strength locational factor* for each *system strength connection point* for which it is the *Network Service Provider* and the corresponding *system strength node*.

Schedule 5.9 Demand side engagement document (clause 5.13.1(h))

For the purposes of clause 5.13.1(h), the following information must be included in a *Distribution Network Service Provider's demand side engagement document*:

(a) a description of how the *Distribution Network Service Provider* will investigate, develop, assess and report on potential *non-network options*;

(b) a description of the *Distribution Network Service Provider's* process to engage and consult with potential *non-network providers* to determine their level of interest and ability to participate in the development process for potential *non-network options*;

(c) an outline of the process followed by the *Distribution Network Service Provider* when negotiating with *non-network providers* to further develop a potential *non-network option*;

(d) an outline of the information a *non-network provider* is to include in a non-*network* proposal, including, where possible, an example of a best practice non-network proposal;

(e) an outline of the criteria that will be applied by the *Distribution Network Service Provider* in evaluating non-*network* proposals;

(f) an outline of the principles that the *Distribution Network Service Provider* considers in developing the payment levels for *non-network options*;

(g) a reference to any applicable incentive payment schemes for the implementation of *non-network options* and whether any specific criteria is applied by the *Distribution Network Service Provider* in its application and assessment of the scheme;

(h) the methodology to be used for determining *avoided Customer TUOS charges*, in accordance with clauses 5.4AA and 5.5; and

(i) a summary of the factors the *Distribution Network Service Provider* takes into account when negotiating *connection agreements* with ~~*Embedded Generators*~~ *Distribution Connected Resource Providers*;

(j) the process used, and a summary of any specific regulatory requirements, for setting charges and the terms and conditions of *connection agreements* for *distribution connected units*~~*embedded generating units*~~;

(k) the process for lodging an *application to connect* for a~~n~~ *distribution connected unit*~~*embedded generating unit*~~ and the factors taken into account

by the *Distribution Network Service Provider* when assessing such applications;

(l) worked examples to support the description of how the *Distribution Network Service Provider* will assess potential *non-network options* in accordance with paragraph (a);

(m) a hyperlink to any relevant, publicly available information produced by the *Distribution Network Service Provider*;

(n) a description of how parties may be listed on the *demand side engagement register*; and

(o) the *Distribution Network Service Provider's* contact details.

CHAPTER 5A

5A. Electricity connection for retail customers

Part A Preliminary

5A.A.1 Definitions

In this Chapter:

basic connection service

means a *connection service* related to a *connection* (or a proposed *connection*) between a *distribution system* and a *retail customer's* premises (excluding a *non-registered DER provider's* ~~*non-registered embedded generator's*~~ premises) in the following circumstances:

(a) either:

(1) the *retail customer* is typical of a significant class of *retail customers* who have sought, or are likely to seek, the service; or

(2) the *retail customer* is, or proposes to become, a *micro resource operator* ~~*micro embedded generator*~~; and

(b) the provision of the service involves minimal or no *augmentation* of the *distribution network*; and

(c) a *model standing offer* has been approved by the *AER* for providing that service as a *basic connection service*.

basic micro ~~EG~~ DER connection service

means a *basic connection service* for a *retail customer* who is a *micro resource operator* ~~*micro embedded generator*~~.

confidential information

means, in relation to a *Registered Participant*, *AEMO* or a *connection applicant*, information which is or has been provided to that *Registered Participant*, *AEMO* or *connection applicant* under or in connection with the *Rules* and which is stated under the *Rules*, or by *AEMO*, the *AER* or the *AEMC*, to be *confidential information* or is otherwise confidential or commercially sensitive. It also includes any information which is derived from such information.

connection

means a physical link between a *distribution system* and a *retail customer's* premises to allow the flow of electricity.

connection alteration

means an alteration to an existing *connection* including an addition, upgrade, *extension*, expansion, *augmentation* or any other kind of alteration.

connection applicant

means an applicant for a *connection service* of 1 of the following categories:

(a) *retail customer*;

(b) *retailer* or other person acting on behalf of a *retail customer*;

(c) *real estate developer*.

connection application

means an application under clause 5A.D.3.

connection charge

means a charge imposed by a *Distribution Network Service Provider* for a *connection service*.

connection charge guidelines

– see clause 5A.E.3.

connection charge principles

– see clause 5A.E.1.

connection contract

means a contract formed by the making and acceptance of a *connection offer*.

connection offer

means an offer by a *Distribution Network Service Provider* to enter into a *connection contract* with:

(a) a *retail customer*; or

(b) a *real estate developer*.

connection policy

means a document, approved as a *connection policy* by the *AER* under Chapter 6, Part E, setting out, among other things, the circumstances in which *connection charges* are payable and the basis for determining the amount of such charges.

connection service

means either or both of the following:

(a) a service relating to a *new connection* for premises;

(b) a service relating to a *connection alteration* for premises,

but, to avoid doubt, does not include a service of providing, installing or maintaining a *metering installation* for premises.

contestable

– a service is *contestable* if the laws of the *participating jurisdiction* in which the service is to be provided permit the service to be provided by more than one supplier as a *contestable* service or on a competitive basis.

customer connection contract

– see section 67 of the *NERL*.

enquiry

means a preliminary *enquiry* under clause 5A.D.2.

~~**MSGA Customer**~~

~~means a person who owns, operates or controls, or proposes to own, operate or control, a *small generating unit* and who has an agreement with a *Market Small Generation Aggregator* relating to the *small generating unit* under which the~~

~~*Market Small Generation Aggregator* is *financially responsible* for the *market connection point* at which the *small generating unit* is *connected* to the *national grid*.~~

micro ~~EG~~ DER connection

means a *connection* between a *distribution connected unit*~~an *embedded generating unit*~~ and a *distribution network* of the kind contemplated by *Australian Standard* AS 4777 (Grid connection of energy systems via inverters).

model standing offer

means a document approved by the *AER* as a *model standing offer* to provide *basic connection services* (see clause 5A.B.3) or as a *model standing offer* to provide *standard connection services* (see clause 5A.B.5).

negotiated connection contract

– see clause 5A.C.1.

new connection

means a *connection* established or to be established, in accordance with this Chapter and applicable *energy laws*, where there is no existing *connection*.

premises connection assets

means the components of a *distribution system* used to provide *connection services*.

real estate developer

means a person who carries out a *real estate development*.

real estate development

means the commercial development of land including its development in 1 or more of the following ways:

(a) subdivision;

(b) the construction of commercial or industrial premises (or both);

(c) the construction of multiple new residential premises.

SRA Customer

means a person who owns, operates or controls, or proposes to own, operate or control, a *small generating unit* or *small bidirectional unit* and who has an agreement with a *Small Resource Aggregator* relating to the *small generating unit* or *small bidirectional unit* (as the case may be) under which the *Small Resource Aggregator* is *financially responsible* for the *small resource connection point* for the relevant unit.

standard connection service

means a *connection service* (other than a *basic connection service*) for a particular class (or sub-class) of *connection applicant* and for which a *model standing offer* has been approved by the *AER*.

supply service

means a service (other than a *connection service*) relating to the *supply* of electricity (whether for import or export).

5A.A.2 Application of this Chapter

(a) This Chapter does not apply to, or in relation to, a *connection applicant* that is a *Registered Participant* or an *Intending Participant* unless the *Registered Participant* or *Intending Participant* is acting as the agent of a *retail customer*.

(a1) This Chapter, other than Part E, does not apply to, or in relation to, a *connection applicant* in relation to the provision of a *connection service* in respect of a *large inverter based resource.*

(b) Where a *non-registered DER provider* ~~*non-registered embedded generator* wishing to *connect* an *embedded generating unit*~~ (other than a *non-registered DER provider* ~~*non-registered embedded generator*~~ to whom paragraph (a1) applies) wishing to *connect* a *generating system* or *integrated resource system* to a *Distribution Network Service Provider's network*:

(1) falls within a particular class (or subclass) of *connection applicant* for which that *Distribution Network Service Provider* provides a *standard connection service*, this Chapter will apply;

(2) does not fall within a particular class (or subclass) of *connection applicant* for which that *Distribution Network Service Provider* provides a *standard connection service*, paragraph (c) will apply.

(c) A ~~*non-registered embedded generator*~~ *non-registered DER provider* that meets the requirements in paragraph (b)(2) may elect to seek *connection* of the relevant *plant*~~*embedded generating unit*~~ under rule 5.3A instead of this Chapter.

(d) Any election made by a *non-registered DER provider* ~~*non-registered embedded generator*~~ under paragraph (c) must be:

(1) made before an *enquiry* is made or if no *enquiry* is made, before a *connection application* is lodged with the relevant *Distribution Network Service Provider*;

(2) in writing; and

(3) delivered to the relevant *Distribution Network Service Provider* at the same time as lodging an *enquiry* under clause 5.3A.5.

(e) For the avoidance of doubt, clause 5A.C.1(a)(2) is still applicable when a *non-registered DER provider*~~*non-registered embedded generator*~~ meets the requirements in paragraph (b)(1).

5A.A.3 ~~Market Small Generation~~Small Resource Aggregator deemed to be agent of its ~~MSGA~~ SRA customers

A ~~*Market Small Generation*~~*Small Resource Aggregator* is deemed to be the agent of its ~~*MSGA*~~ *SRA customers* for the purposes of this Chapter.

Part B Standardised offers to provide basic and standard connection services

Division 1 Basic connection services

5A.B.1 Obligation to have model standing offer to provide basic connection services

(a) Subject to paragraph (b), a *Distribution Network Service Provider* must have a *model standing offer* to provide *basic connection services* to *retail customers*.

(b) *Basic connection services* are of 2 classes:

(1) *basic connection services* for *retail customers* who are not ~~*embedded generating unit operators*~~*distribution connected unit operators*; and

(2) *basic connection services* for *retail customers* who are *micro* ~~*embedded generators*~~*resource operators*.

Note

Basic connection services are not available to *non-registered DER providers*~~*non-registered embedded generator*~~

(c) A *model standing offer* may relate to each class of *basic connection services* (or a subclass for which there is significant demand) within the area served by the relevant *distribution network*.

5A.B.2 Proposed model standing offer for basic connection services

(a) A *Distribution Network Service Provider* must submit for the *AER's* approval a proposed *model standing offer* to provide *basic connection services* for each class (or subclass) of *basic connection services* on specified terms and conditions.

(b) The terms and conditions of the proposed *model standing offer* must cover:

(1) a description of the *connection* (and the *premises connection assets* of which it is to be comprised) including a statement of its maximum capacity; and

(2) timeframes for commencing and completing the work; and

(3) the qualifications required for carrying out the work involved in providing a *contestable* service (including reference to the jurisdictional or other legislation and statutory instruments under which the qualifications are required); and

(4) the safety and technical requirements (including reference to the jurisdictional or other legislation and statutory instruments under which the requirements are imposed) to be complied with by the provider of a *contestable* service or the *retail customer* (or both); and

(5) details of the *connection charges* (or the basis on which they will be calculated) including details of the following (so far as applicable):

(i) the cost of any necessary *extension* to the *distribution system* for which provision has not already been made through existing

distribution use of system charges or a tariff applicable to the *connection*;

(ii) **[Deleted]**

(iii) the cost of any other relevant *premises connection assets*;

(iv) the costs of common components of minor variations from the standard specifications;

(v) any other incidental costs; and

(6) the manner in which *connection charges* are to be paid by the *retail customer*; and

(7) if the service is a *basic micro ~~EG~~ DER connection service*, the particular requirements with regard to the export of electricity into the *distribution system* including:

(i) the special requirements for metering and other equipment for the export of electricity; and

(ii) the required qualification for installers of relevant equipment (including reference to the jurisdictional or other legislation and statutory instruments under which the qualifications are required); and

(iii) the special safety and technical requirements (including reference to the jurisdictional or other legislation and statutory instruments under which they are imposed) to be complied with by the provider of a *contestable* service or the *retail customer* (or both); and

(iv) the *DER generation information* that the *Distribution Network Service Provider* requires; and

(v) the requirement that the new or replacement *~~embedded generating unit~~ distribution connected unit* the subject of the *basic micro ~~EG~~ DER connection service* must be compliant with the *DER Technical Standards*.

5A.B.3 Approval of terms and conditions of model standing offer to provide basic connection services

(a) The *AER* may approve a proposed *model standing offer* to provide *basic connection services* of a particular class (or subclass) on specified terms and conditions if satisfied that:

(1) the services are likely to be sought by:

(i) a significant number of *retail customers* in the area served by the *distribution network* (excluding *~~embedded generating unit operators~~distribution connected unit operators*); or

(ii) *micro ~~embedded generators~~resource operators*; and

(2) the *connection charges* are consistent with the *Distribution Network Service Provider's* distribution determination including the *connection policy*; and

(3) the terms and conditions are fair and reasonable; and

(4) the terms and conditions comply with applicable requirements of the *energy laws*; and

(5) if the service is a *basic micro ~~EG~~ DER connection service*, the terms and conditions are consistent with applicable requirements in the *tariff structure statement* and the tariff assignment arrangements in Chapter 6B.

(b) In deciding whether to approve a proposed *model standing offer* to provide *basic connection services* on specified terms and conditions, the *AER* must have regard to:

(1) the *national electricity objective*; and

(2) the basis on which the *Distribution Network Service Provider* has provided the relevant services in the past; and

(3) the geographical characteristics of the area served by the relevant *distribution network*.

(c) If the *AER* does not approve a proposed *model standing offer* to provide *basic connection services* of a particular class on specified terms and conditions:

(1) the *AER* must give the *Distribution Network Service Provider* written reasons for its decision; and

(2) the *Distribution Network Service Provider* must re-submit the proposed *model standing offer* with appropriate amendments as soon as reasonably practicable.

(d) The *AER* must deal expeditiously with a proposed *model standing offer* to provide *basic connection services*.

Part C Negotiated connection

5A.C.3 Negotiation framework

(a) The following rules (collectively described as the **negotiation framework**) govern negotiations between a *Distribution Network Service Provider* and a *connection applicant*:

(1) each party must negotiate in good faith.

(1a) the *connection applicant* must, at the request of the *Distribution Network Service Provider*, provide the *Distribution Network Service Provider* with *DER generation information*.

(2) the *connection applicant* must, at the request of the *Distribution Network Service Provider*, provide the *Distribution Network Service Provider* with information it reasonably requires in order to negotiate on an informed basis.

Note

The information might (for example) include estimates of average and *maximum demand* for electricity to be *supplied* through the *connection*.

(3) the *Distribution Network Service Provider* must provide the *connection applicant* with information the *connection applicant* reasonably requires in order to negotiate on an informed basis including:

(i) an estimate of the amount to be charged by the *Distribution Network Service Provider* for assessment of the application and the making of a connection offer for a negotiated *connection contract*; and

(ii) an estimate of *connection charges*; and

(iii) a statement of the basis on which *connection charges* are calculated; and

(iv) if the *connection applicant* has elected to extend the negotiations to *supply services*— an estimate of any applicable charges for *supply services* and a statement of the basis of their calculation; and

(v) if the *connection applicant* is proposing to connect a new or replacement ~~*embedded generating unit*~~ *distribution connected unit* by way of a *basic micro* ~~*EG*~~ *DER connection service*, that the ~~*embedded generating unit*~~ *distribution connected unit* must be compliant with the *DER Technical Standards*.

Note

The *Distribution Network Service Provider* might, according to the circumstances of a particular case, need to provide further information to ensure the *connection applicant* is properly informed – for example, information about:

- technical and safety requirements;
- the types of *connection* that are technically feasible;
- *network* capacity at the proposed *connection point*;
- possible strategies to reduce the cost of the *connection*.

(4) the *Distribution Network Service Provider* may consult with other users of the *distribution network* who may be adversely affected by the proposed *new connection* or *connection alteration*.

(5) in assessing the application, the *Distribution Network Service Provider* must determine:

(i) the technical requirements for the proposed *new connection* or *connection alteration*; and

(ii) the extent and costs of any necessary *augmentation* of the *distribution system*; and

(iii) any consequent change in charges for *distribution use of system* services; and

(iv) any possible material effect of the proposed *new connection* or *connection alteration* on the *network power transfer capability* of the *distribution network* to which the *new connection* or *connection alteration* is proposed to be made and any other *distribution network* that might be affected by the proposed *new connection* or *connection alteration*.

(6) the *Distribution Network Service Provider* must make reasonable endeavours to make a *connection offer* that complies with the *connection applicant's* reasonable requirements.

Example

Reasonable requirements as to the location of the proposed *connection point* or the level and standard of the *distribution network's power transfer capability*.

(7) the *Distribution Network Service Provider* must comply with its *connection policy*.

(b) The following supplementary rules apply:

(1) if a *Distribution Network Service Provider* requires information from a *connection applicant* in addition to the information provided in the application, a request for the additional information under paragraphs (a)(1a) or (a)(2) must (if practicable) be made within 20 *business days* after the *Distribution Network Service Provider* receives the relevant application;

(2) the *Distribution Network Service Provider* must provide the information required under paragraph (a)(3) as soon as practicable after the *Distribution Network Service Provider* receives the *connection applicant's* application or, if the *Distribution Network Service Provider* requests additional information under paragraph (a)(2), as soon as practicable after the *Distribution Network Service Provider* receives the relevant information.

(c) Each party to the negotiations must maintain the confidentiality of *confidential information* disclosed by the other party in the course of the negotiations unless disclosure of the information is authorised:

(1) by the party to whom the duty of confidentiality is owed; or

(2) under:

(i) NEL or the *Rules*; or

(ii) any other law.

Part D Application for connection service

Division 1 Information

5A.D.1 Publication of information

(a) A *Distribution Network Service Provider* must publish on its website the following:

(1) an application form for a *new connection* or a *connection alteration*; and

(2) a description of how an application for a *new connection* or a *connection alteration* is to be made (including a statement of the information required for the application); and

(3) a description of the *Distribution Network Service Provider's basic connection services* and *standard connection services* and the classes

(or subclasses) of *retail customer* to which they apply. If the *Distribution Network Service Provider* does not provide *standard connection services* for all or some *non-registered DER providers* ~~*non-registered embedded generators*~~, a clear statement to this effect must also be included in the description; and

(4) an explanation of the *connection applicant's* right to negotiate with the *Distribution Network Service Provider* for a negotiated *connection contract* and a description of the negotiation process; and

(5) the requirements for an expedited *connection*; and

(6) the basis for calculation of *connection charges*; and

(7) information set out in clauses 5.3A.3(b)(1)(vii) and 5.3A.3(b)(2)-(7) as such information relates to the *connection* of *distribution connected units* ~~*embedded generating units*~~ by a *non-registered DER provider* ~~*non-registered embedded generator*~~.

(b) To the extent a *Distribution Network Service Provider* has provided the information required under paragraph (a)(7) by including that information in its *information pack published* under clause 5.3A.3(a)(3), it will be taken to have complied with paragraph (a)(7).

5A.D.1A Register of completed ~~embedded generation~~non-registered DER projects

(a) For the purposes of this clause 5A.D.1A:

completed non-registered ~~embedded generation~~DER projects means all *distribution connected units* ~~*embedded generating units*~~, operated or controlled by a *non-registered DER provider* ~~*non-registered embedded generator*~~ that are *connected* to the *Distribution Network Service Provider's network*.

DAPR date has the same meaning as in clause 5.13.2.

(b) In relation to completed non-registered ~~embedded generation~~DER projects, a *Distribution Network Service Provider* must establish and *publish*, on its website, a register of the *plant*, including but not limited to:

(1) technology of *distribution connected unit* ~~*generating unit*~~ (e.g. *synchronous* ~~*generating*~~ *production unit*, induction generator, photovoltaic array, etc) and its make and model;

(2) maximum power *generation* capacity of all *distribution connected units* ~~*embedded generating units*~~ comprised in the relevant *generating system* or *integrated resource system*;

(3) contribution to fault levels;

(4) the size and rating of the relevant *transformer*;

(5) a single line diagram of the *connection* arrangement;

(6) *protection systems* and communication systems;

(7) *voltage* control, *power factor* control and/or *reactive power capability* (where relevant); and

(8) details specific to the location of a *facility connected* to the *network* that are relevant to any of the details in subparagraphs (1)-(7).

(c) The *Distribution Network Service Provider* must not *publish confidential information* as part of, or in connection with, the register, unless disclosure of the information is authorised:

(1) by the party to whom the duty of confidentiality is owed; or

(2) under:

(i) the *NEL* or the *Rules*; or

(ii) any other law.

(d) The *Distribution Network Service Provider* must:

(1) by the *DAPR date* each year, include in the register the details contained in paragraph (b) for all completed non-registered ~~embedded generation~~DER projects since the date the register referred to in paragraph (b) is established; and

(2) in the fifth year after the establishment of the register, and in each year thereafter, update the register by the *DAPR date* with details of all completed non-registered ~~embedded generation~~DER projects in the 5 year period preceding the *DAPR date*.

(e) To the extent a *Distribution Network Service Provider* includes the information required under paragraphs (b) and (d) in its register established under rule 5.18B, it will be taken to have complied with paragraphs (b) and (d).

Part E Connection charges

5A.E.1 Connection charge principles

(a) This clause states the ***connection charge principles***.

(b) A *retail customer* (other than a *non-registered* ~~*embedded generator*~~*DER provider* or a *real estate developer*) who applies for a *connection service* for which an *augmentation* is required cannot be required to make a capital contribution towards the cost of the *augmentation* (insofar as it involves more than an *extension*) if:

(1) the application is for a *basic connection service*; or

(2) a relevant threshold set in the *Distribution Network Service Provider's connection policy* is not exceeded.

Note

In general, the intention is to exclude deep system *augmentation* charges for *retail customers*.

(b1) Paragraph (a) does not apply to charges for *system strength connection works* in accordance with clause 5.3.4B(e).

(c) Subject to paragraph (b), in determining *connection charges* in accordance with its *connection policy*, a *Distribution Network Service Provider* must apply the following principles:

(1) if an *extension* to the *distribution network* is necessary in order to provide a *connection service*, *connection charges* for the service may include a reasonable capital contribution towards the cost of the *extension* necessary to provide the service;

(2) if *augmentation* of *premises connection assets* at the *retail customer*'s *connection* point is necessary in order to provide a *connection service*, *connection charges* for the service may include a reasonable capital contribution towards the cost of the *augmentation* of *premises connection assets* at the *connection point* necessary to provide the service;

(3) if *augmentation* of the *distribution system* is necessary in order to provide a *standard connection service*, *connection charges* for the service may include a reasonable capital contribution towards the cost of the *augmentation* necessary to provide the service;

(4) if *augmentation* of the *distribution system* is necessary in order to provide a *connection service* under a negotiated *connection contract*, *connection charges* for the service may, subject to any agreement to the contrary, include a reasonable capital contribution towards the cost of *augmentation* of the *distribution system* to the extent necessary to provide the service and to any further extent that a prudent service provider would consider necessary to provide efficiently for forecast *load* growth;

(5) despite subparagraphs (1) to (4) if *augmentation* of the *distribution system* is necessary in order to provide, on the application of a *real estate developer*, *connection services* for premises comprised in a *real estate development*, *connection charges* for the services may, subject to any agreement to the contrary, include a reasonable capital contribution towards the cost of *augmentation* of the *distribution system* to the extent necessary to provide the services and to any further extent that a prudent service provider would consider necessary to provide efficiently for forecast *load* growth;

(6) however, a capital contribution may only be required in the circumstances described in subparagraphs (1) to (5) if provision for the costs has not already been made through existing *distribution use of system* charges or a tariff applicable to the *connection*.

(d) If:

(1) a *connection asset* ceases, within 7 years after its construction or installation, to be dedicated to the exclusive use of the *retail customer* occupying particular premises; and

(2) the *retail customer* is entitled, in accordance with the *connection charge guidelines*, to a refund of *connection charges*,

the *Distribution Network Service Provider* must make the refund, and may recover the amount of the refund, by way of a *connection charge*, from the new users of the asset.

(e) For the purposes of paragraph (d), a person is taken to be a new user of a *connection asset* if the asset comes to be used to provide a *connection* to that person's premises

(f) For the purposes of this clause capital contribution includes a prepayment or financial guarantee.

5A.E.3 Connection charge guidelines

(a) The *AER* must develop and *publish* guidelines (***connection charge guidelines***) for the development of *connection policies* by *Distribution Network Service Providers*.

(b) The purpose of the guidelines is to ensure that *connection charges*:

(1) are reasonable, taking into account the efficient costs of providing the *connection services* arising from the *new connection* or *connection alteration* and the revenue a prudent operator in the circumstances of the relevant *Distribution Network Service Provider* would require to provide those *connection services*; and

(2) provide, without undue administrative cost, a user-pays signal to reflect the efficient cost of providing the *connection services*; and

(3) limit cross-subsidisation of *connection* costs between different classes (or subclasses) of *retail customer*; and

(4) if the *connection services* are *contestable* – are competitively neutral.

(b1) The purpose of the guidelines is also to ensure that *static zero export limits* apply to *micro ~~EG~~ DER connections* only to the extent consistent with:

(1) the safe, secure and efficient provision and use of *distribution services*; and

(2) the relevant *Distribution Network Service Provider's* distribution determination (including expenditure to support the provision of *distribution services* for *supply* from *micro ~~embedded generators~~resource operators*).

(c) The guidelines must:

(1) describe the method for determining charges for *premises connection assets*; and

(2) describe the circumstances (or how to determine the circumstances) under which a *Distribution Network Service Provider* may receive a capital contribution, prepayment or financial guarantee from a *retail customer* or *real estate developer* for the provision of a *connection service*; and

(3) describe how the amount of any such capital contribution, prepayment or financial guarantee is to be determined; and

(4) establish principles for fixing a threshold (based on capacity or any other measure the *AER* thinks fit) below which *retail customers* (not being a *non-registered ~~embedded generator~~DER provider* or a *real estate developer*) are exempt from any requirement to pay *connection charges* (or to give consideration in the form of a capital contribution,

prepayment or financial guarantee) for an *augmentation* (other than an *extension*) to the *distribution network* necessary to make the *connection*; and

(5) describe the methods for calculating the *augmentation* component for the *connection assets* and, if the *augmentation* consists of or includes an *extension*, the *extension* component of a *connection charge*; and

(6) describe the method for calculating:

(i) the amount of a refund of *connection charges* for a *connection asset* when an *extension* asset originally installed to *connect* the premises of a single *retail customer* is used, within 7 years of its installation, to *connect* other premises and thus comes to be used for the benefit of 2 or more *retail customers*; and

(ii) the threshold below which the refund is not payable;

(7) describe the treatment of *augmentation* assets; and

(8) describe the circumstances (or how to determine the circumstances) under which a *Distribution Network Service Provider* may offer a *static zero export limit* to a *micro* ~~*embedded generator*~~*resource operator* for the purposes of clause 5A.F.1(c)(2).

(d) The principles for establishing an exemption under paragraph (c)(4) must ensure that the exemption only operates in the following circumstances:

(1) the *connection* is a low *voltage connection*; and

(2) the *connection* would not normally require *augmentation* of the *network* beyond the *extension* to the *distribution network* necessary to make the *connection*; and

(3) the *connection* is not expected to increase the *load* on the *distribution network* beyond a level the *Distribution Network Service Provider* could reasonably be expected to cope with in the ordinary course of managing the *distribution network*.

(d1) In developing guidelines dealing with *static zero export limits* for the purposes of paragraph (c)(8), the *AER* must ensure that *static zero export limits* are offered only where consistent with the purpose in clause 5A.E.3(b1), which may include where reasonably required due to:

(1) *system limitations*, whether in particular circumstances or at particular locations or otherwise; or

(2) limitations on the capabilities of *plant* or equipment of *Distribution Network Service Providers* or *retail customers*.

(e) In developing the guidelines, the *AER* must have regard to:

(1) historical and geographical differences between *networks*; and

(2) inter-jurisdictional differences related to regulatory control mechanisms, classification of services and other relevant matters; and

(3) the circumstances in which *connection services* may be provided by persons other than *Distribution Network Service Providers* (and are therefore *contestable*).

(f) In developing guidelines dealing with the method for calculating the amount of a refund of *connection charges* paid before a *connection asset* becomes a shared asset, the *AER* must have regard to:

(1) the *Distribution Network Service Provider's* obligation to make the refund; and

(2) future projections of *distribution network* expansion and usage and any consequent effect on the *Distribution Network Service Provider's* capacity to finance the acquisition of *augmentation* assets out of increased revenue; and

(3) the fact that the *Distribution Network Service Provider's* obligation to make the refund will expire after 7 years.

(g) In developing guidelines under this clause, the *AER* must act in accordance with the *distribution consultation procedures*.

5A.E.4 Payment of connection charges

(a) *Connection charges* payable in respect of a *connection service* must be paid to the *Distribution Network Service Provider* by the *retail customer's retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator* unless:

(1) the *retailer* did not apply for the *connection service* and the *Distribution Network Service Provider* has notified the *retail customer* that the *retail customer* must pay the *connection charge* directly; or

(2) the *retail customer* asks to pay the *connection charge* directly and the *Distribution Network Service Provider* agrees; or

(3) the *Distribution Network Service Provider* and the *retailer* or *Small Resource*~~*Market Small Generation*~~ *Aggregator* agree that the *Distribution Network Service Provider* is to recover the *connection charge* from the *retail customer*.

(b) If the *retail customer* pays, or is required to pay, a *connection charge* directly to a *Distribution Network Service Provider* under paragraph (a), the *Distribution Network Service Provider* must not recover that charge from the *retail customer's retailer* or *Small Resource*~~*Market Small Generation*~~ *Aggregator*.

(c) The *Distribution Network Service Provider* must separately identify each *connection charge* on the statement or invoice to the *retailer* or *Small Resource*~~*Market Small Generation*~~ *Aggregator*.

Note

Rule 25 of the *NERR* requires the listing of *connection charges* that are passed through by a *retailer* to a retail customer in the customer's bill.

Part F Formation and integration of connection contracts

5A.F.1 Distribution Network Service Provider's response to application

(a) If the *connection service* sought by a *connection applicant* is a *basic connection service* or a *standard connection service* (and the applicant does not elect to apply for a negotiated *connection contract*), the *Distribution*

Network Service Provider must make a *connection offer* to the applicant within:

(1) 10 *business days* after receiving a properly completed application for the service and the additional information (if any) reasonably required under clause 5A.D.3(e); or

(2) some other period agreed between the *Distribution Network Service Provider* and the *connection applicant*.

(b) The *connection offer* must be in accordance with the relevant *model standing offer* and must include:

(1) the date of the offer; and

(2) details of the *connection service* to be provided; and

(3) a statement of the *connection charges* payable by the *connection applicant*.

(c) Where the *connection applicant* is a *micro* ~~*embedded generator*~~*resource operator*, the *connection offer* must not specify a *static zero export limit* except:

(1) where the *connection applicant* requests the *static zero export limit*; or

(2) in circumstances permitted by the *connection charge guidelines*.

5A.F.7 Energisation where new connection

A *Distribution Network Service Provider* is not required to *energise* a *new connection* unless a request to *energise* the *new connection* is submitted by a *retailer* or *Small Resource*~~*Market Small Generation*~~ *Aggregator*, or the *Distribution Network Service Provider* is otherwise satisfied that there is a relevant contract with a *retailer* or *Small Resource*~~*Market Small Generation*~~ *Aggregator* in relation to the premises.

Schedule 5A.1 – Minimum content requirements for connection contract

Part B Connection offer involving ~~embedded generation~~distribution connected units

(a) A *connection offer* to ~~an~~ ~~*embedded generating unit operator*~~a *distribution connected unit operator* or a person who proposes to be ~~an~~ a *distribution connected unit operator*~~*embedded generating unit operator*~~ must contain:

(1) a provision stating that a *connection contract* will be formed, and will come into operation, on acceptance of the *connection offer*; and

(2) details of the *connection point*, the maximum capacity of the *connection* to import and export electricity, and the *distribution connected unit operator's*~~*embedded generating unit operator's*~~ installation required at the *connection point*; and

(2a) details of the *DER generation information* required to be provided to the *Distribution Network Service Provider* by the *distribution connected unit operator*~~*embedded generating unit operator*~~*;* and

(3) details of the *premises connection assets* and additional equipment to be installed on the premises and responsibility for undertaking the work; and

(4) details of any *distribution network extension* or other *augmentation* required for the purposes of the *connection*; and

(5) an undertaking to complete the work required to establish the *connection* within a specified time frame; and

(6) a requirement that the *distribution connected unit operator*~~*embedded generating unit operator*~~ have appropriate metering installed; and

(7) the relevant technical and safety obligations to be met by the *distribution connected unit operator*~~*embedded generating unit operator*~~ relating to the installation; and

(7a) if the *connection applicant* is proposing to connect a new or replacement ~~*embedded generating unit*~~ *distribution connected unit* by way of a *basic micro* ~~*EG*~~ *DER connection service*, a requirement that the *distribution connected unit*~~*embedded generating unit*~~ must be compliant with the *DER Technical Standards*.

(8) the *distribution connected unit operator's*~~*embedded generating unit operator's*~~ obligation to allow access to the premises by the *Distribution Network Service Provider's* agents, contractors and employees; and

(9) the *distribution connected unit operator's*~~*embedded generating unit operator's*~~ obligation to accommodate on its premises, and protect from harm, any equipment necessary for the *connection*; and

(10) details of the *distribution connected unit operator's*~~*embedded generating unit operator's*~~ monetary obligations including billing arrangements and any security to be provided by the *distribution connected unit operator* ~~*embedded generating unit operator*~~; and

(11) details of the *Distribution Network Service Provider's* monetary obligations (if any) to the *distribution connected unit operator*~~*embedded generating unit operator*~~; and

(12) a provision requiring the *Distribution Network Service Provider* to provide information about the *connection* to the *distribution connected unit operator*~~*embedded generating unit operator*~~; and

(13) provision for amendment of the *connection contract* by agreement between the *Distribution Network Service Provider* and the *distribution connected unit operator*~~*embedded generating unit operator*~~.

(b) A *connection contract* that relates to *supply services* must also deal with:

(1) the *Distribution Network Service Provider's* power to interrupt or reduce the *supply services* at the *connection point*; and

(2) warranties and limitations on the *Distribution Network Service Provider's* liability; and

(3) *disconnection* and reconnection; and

(4) reporting and correction of faults; and

(5) dispute resolution; and

(6) ongoing obligations of the *Distribution Network Service Provider* and the *distribution connected unit operator*~~*embedded generating unit operator*~~; and

(7) termination of the *connection contract*.

CHAPTER 6

6. Economic Regulation of Distribution Services

Part C Building Block Determinations for standard control services

6.6 Adjustments after making of building block determination.

6.6.1 Cost pass through

(a1) Any of the following is a *pass through event* for a distribution determination:

(1) a *regulatory change event*;

(2) a *service standard event*;

(3) a *tax change event*;

(4) a *retailer insolvency event*; and

(5) any other event specified in a distribution determination as a *pass through event* for the determination.

(a) If a *positive change event* occurs, a *Distribution Network Service Provider* may seek the approval of the *AER* to pass through to *Distribution Network Users* a *positive pass through amount*.

(b) If a *negative change event* occurs, the *AER* may require the *Distribution Network Service Provider* to pass through to *Distribution Network Users* a *negative pass through amount* as determined by the *AER* under paragraph (g).

Positive pass through

(c) To seek the approval of the *AER* to pass through a *positive pass through amount*, a *Distribution Network Service Provider* must submit to the *AER*, within 90 *business days* of the relevant *positive change event* occurring, a written statement which specifies:

(1) the details of the *positive change event*;

(2) the date on which the *positive change event* occurred;

(3) the *eligible pass through amount* in respect of that *positive change event*;

(4) the *positive pass through amount* the *Distribution Network Service Provider* proposes in relation to the *positive change event*;

(5) the amount of the *positive pass through amount* that the *Distribution Network Service Provider* proposes should be passed through to *Distribution Network Users* in the *regulatory year* in which, and each *regulatory year* after that in which, the *positive change event* occurred;

(6) evidence:

(i) of the actual and likely increase in costs referred to in subparagraph (3);

(ii) that such costs occur solely as a consequence of the *positive change event*; and

(iii) in relation to a *retailer insolvency event*, of:

(A) the amount to which the *Distribution Network Service Provider* is entitled under any relevant *credit support*;

(B) the maximum amount of *credit support* (if any) that the *Distribution Network Service* Provider was entitled to request the *retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator* to provide under the *credit support rules*; and

(C) any amount that the *Distribution Network Service* Provider is likely to receive on a winding-up of the *retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator*; and

(7) such other information as may be required under any relevant *regulatory information instrument*.

(c1) The *positive pass through amount* proposed by the *Distribution Network Service Provider* under subparagraph (c)(4) must not, in whole or in part, be in respect of *expenditure for a restricted asset*, unless the *Distribution Network Service Provider* has submitted an *exemption application* with the statement under paragraph (c), which requests an *asset exemption* under clause 6.4B.1(a)(3) in respect of that asset or class of asset for the *positive pass through amount*.

(d) If the *AER* determines that a *positive change event* has occurred in respect of a statement under paragraph (c), the *AER* must:

(1) determine:

(i) the *approved pass through amount*; and

(ii) the amount of that *approved pass through amount* that should be passed through to *Distribution Network Users* in the *regulatory year* in which, and each *regulatory year* after that in which, the *positive change event* occurred,

taking into account the matters referred to in paragraph (j); and

(2) determine whether or not to grant the *asset exemption* requested under paragraph (c1).

(d1) The *AER* must *publish*:

(1) the reasons for its determination under subparagraph (d)(2); and

(2) any content required under clause 6.2.8(c)(2),

at the same time as making its determination under subparagraph (d)(1).

(d2) The *AER* must not determine an *approved pass through amount* that is, in whole or in part, in respect of *expenditure for a restricted asset*, unless:

(1) the *Distribution Network Service Provider* has requested an *asset exemption* under paragraph (c1) in respect of that asset or that class of asset for the *positive pass through amount*; and

(2) the *AER* has granted that *asset exemption* under subparagraph (d)(2).

(e) Subject to paragraph (k1), if the *AER* does not make the determinations referred to in paragraph (d) within 40 *business days* from the later of the date it receives the *Distribution Network Service Provider's* statement and accompanying evidence under paragraph (c), and the date it receives any additional information required under paragraph (e1), then, on the expiry of that period, the *AER* is taken to have determined that:

(1) the *positive pass through amount* as proposed in the *Distribution Network Service Provider's* statement under paragraph (c) is the *approved pass through amount* in respect of that *positive change event*;

(2) the amount of that *positive pass through amount* that the *Distribution Network Service Provider* proposes in its statement under paragraph (c) should be passed through to *Distribution Network Users* in the *regulatory year* in which, and each *regulatory year* after that in which, the *positive change event* occurred, is the amount that should be so passed through in each such *regulatory year*; and

(3) the *asset exemption* requested under paragraph (c1) is granted.

(e1) A *Distribution Network Service Provider* must provide the *AER* with such additional information as the *AER* requires for the purpose of making a determination under paragraph (d) within the time specified by the *AER* in a notice provided to the *Distribution Network Service Provider* by the *AER* for that purpose.

Negative pass through

(f) A *Distribution Network Service Provider* must submit to the *AER*, within 90 *business days* of becoming aware of the occurrence of a *negative change event* for the *Distribution Network Service Provider*, a written statement which specifies:

(1) the details of the *negative change event* concerned;

(2) the date the *negative change event* occurred;

(3) the costs in the provision of *direct control services* that the *Distribution Network Service Provider* has saved and is likely to save as a result of the *negative change event* until:

(i) unless subparagraph (ii) applies – the end of the *regulatory control period* in which the *negative change event* occurred; or

(ii) if the distribution determination for the *regulatory control period* following that in which the *negative change event* occurred does not make any allowance for the pass through of those cost savings - the end of the *regulatory control period* following that in which the *negative change event* occurred;

(4) the aggregate amount of those saved costs that the *Distribution Network Service Provider* proposes should be passed through to *Distribution Network Users*;

(5) the amount of the costs referred to in subparagraph (4) the *Distribution Network Service Provider* proposes should be passed through to

Distribution Network Users in the *regulatory year* in which, and each *regulatory year* after that in which, the *negative change event* occurred; and

(6) such other information as may be required under any relevant *regulatory information instrument*.

(f1) If the occurrence of the *negative change event* is not notified by the *Distribution Network Service Provider* to the *AER* under paragraph (f) then, as soon as is reasonably practicable and before making a determination referred to in paragraph (g), the *AER* must notify the *Distribution Network Service Provider* of the occurrence of that *negative change event*.

(g) If a *negative change event* occurs (whether or not the occurrence of that *negative change event* is notified by the *Distribution Network Service Provider* to the *AER* under paragraph (f)) and the *AER* determines to impose a requirement on the provider in relation to that *negative change event* as described in paragraph (b), the *AER* must determine:

(1) the *required pass through amount*; and

(2) taking into account the matters referred to in paragraph (j):

(i) how much of that *required pass through amount* should be passed through to *Distribution Network Users* (the "*negative pass through amount*"); and

(ii) the amount of that *negative pass through amount* that should be passed through to *Distribution Network Users* in the *regulatory year* in which, and each *regulatory year* after that in which, the *negative change event* occurred.

(g1) Subject to paragraph (k1), if the *AER* does not make the determinations referred to in paragraph (g) within 40 *business days* from:

(1) where the *Distribution Network Service Provider* notifies the *AER* of the occurrence of the *negative change event* under paragraph (f) - the later of the date the *AER* receives the *Distribution Network Service Provider's* statement under paragraph (f) and the date the *AER* receives any information required by the *AER* under paragraph (h); or

(2) where the *Distribution Network Service Provider* does not notify the *AER* of the occurrence of the *negative change event* under paragraph (f) – the later of the date the *AER* notifies the *Distribution Network Service Provider* under paragraph (g1) and the date the *AER* receives any information required by the *AER* under paragraph (h),

then the *AER* is taken to have determined that the *required pass through amount* is zero.

(h) A *Distribution Network Service Provider* must provide the *AER* with such information as the *AER* requires for the purpose of making a determination under paragraph (g) within the time specified by the *AER* in a notice provided to the *Distribution Network Service Provider* by the *AER* for that purpose.

Consultation

(i) Before making a determination under paragraph (d) or (g), the *AER* may consult with the relevant *Distribution Network Service Provider* and such other persons as the *AER* considers appropriate, on any matters arising out of the relevant *pass through event* the *AER* considers appropriate.

Relevant factors

(j) In making a determination under paragraph (d) or (g) in respect of a *Distribution Network Service Provider*, the *AER* must take into account:

(1) the matters and proposals set out in any statement given to the *AER* by the *Distribution Network Service Provider* under paragraph (c) or (f); and

(2) in the case of a *positive change event*, the increase in costs in the provision of *direct control services* that, as a result of the *positive change event*, the *Distribution Network Service Provider* has incurred and is likely to incur until:

(i) unless subparagraph(ii) applies – the end of the *regulatory control period* in which the *positive change event* occurred; or

(ii) if the distribution determination for the *regulatory control period* following that in which the *positive change event* occurred does not make any allowance for the recovery of that increase in costs – the end of the *regulatory control period* following that in which the *positive change event* occurred;

(2A) in the case of a *negative change event*, the costs in the provision of *direct control services* that, as a result of the *negative change event*, the *Distribution Network Service Provider* has saved and is likely to save until:

(i) unless subparagraph(ii) applies – the end of the *regulatory control period* in which the *negative change event* occurred; or

(ii) if the distribution determination for the *regulatory control period* following that in which the *negative change event* occurred does not make any allowance for the pass through of those cost savings to *Distribution Network Users* – the end of the *regulatory control period* following that in which the *negative change event* occurred;

(3) in the case of a *positive change event*, the efficiency of the *Distribution Network Service Provider's* decisions and actions in relation to the risk of the *positive change event*, including whether the *Distribution Network Service Provider* has failed to take any action that could reasonably be taken to reduce the magnitude of the *eligible pass through amount* in respect of that *positive change event* and whether the *Distribution Network Service Provider* has taken or omitted to take any action where such action or omission has increased the magnitude of the amount in respect of that *positive change event*;

(4) the time cost of money based on the *allowed rate of return* for the *Distribution Network Service Provider* for the *regulatory control period* in which the *pass through event* occurred;

(5) the need to ensure that the *Distribution Network Service Provider* only recovers any actual or likely increment in costs under this paragraph (j) to the extent that such increment is solely as a consequence of a *pass through event*;

(6) in the case of a *tax change event*, any change in the way another *tax* is calculated, or the removal or imposition of another *tax*, which, in the *AER's* opinion, is complementary to the *tax change event* concerned;

(7) whether the costs of the *pass through event* have already been factored into the calculation of the *Distribution Network Service Provider's annual revenue requirement* for the *regulatory control period* in which the *pass through event* occurred or will be factored into the calculation of the *Distribution Network Service Provider's annual revenue requirement* for a subsequent *regulatory control period*;

(7A) the extent to which the costs that the *Distribution Network Service Provider* has incurred and is likely to incur are the subject of a previous determination made by the *AER* under this clause 6.6.1; and

(8) any other factors that the *AER* considers relevant.

Extension of time limits

(k) The *AER* must, by written notice to a *Distribution Network Service Provider*, extend a time limit fixed in paragraph (c) or (f) if the *AER* is satisfied that the difficulty of assessing or quantifying the effect of the relevant *pass through event* justifies the extension.

(k1) If the *AER* is satisfied that the making of a determination under paragraph (d) or (g) involves issues of such complexity or difficulty that the time limit fixed in paragraph (e) or (g1) should be extended, the *AER* may extend that time limit by a further period of up to 60 *business days*, provided that it gives written notice to the *Distribution Network Service Provider* of that extension not later than 10 *business days* before the expiry of that time limit.

(k2) If the *AER* extends a time limit under paragraph (k1), it must make available on its website a notice of that extension as soon as is reasonably practicable.

(k3) Subject to paragraph (k6), if the *AER* gives a written notice to the *Distribution Network Service Provider* stating that it requires information from an *Authority* in order to make a determination under paragraph (d) or (g) then, for the purpose of calculating elapsed time, the period between when the *AER* gives that notice to the *Distribution Network Service Provider* and when the *AER* receives that information from that *Authority* is to be disregarded.

(k4) Subject to paragraph (k6), if the *AER* gives a written notice to the *Distribution Network Service Provider* stating that, in order to make a determination under paragraph (d) or (g), it requires information that it anticipates will be made publicly available by a judicial body or royal commission then, for the purpose of calculating elapsed time, the period between when the *AER* gives

that notice to the *Distribution Network Service Provider* and when that information is made publicly available is to be disregarded.

(k5) Where the *AER* gives a notice to the *Distribution Network Service Provider* under paragraph (k3) or (k4), it must:

(1) as soon as is reasonably practicable make available on its website a notice stating when the period referred to in paragraph (k3) or (k4), as the case may be, has commenced;

(2) as soon as is reasonably practicable make available on its website a notice stating when the period referred to in paragraph (k3) or (k4), as the case may be, has ended; and

(3) if the information specified in that notice is required from an *Authority*, promptly request that information from the relevant *Authority*.

(k6) Paragraphs (k3) and (k4) do not apply if the *AER* gives the notice specified in those paragraphs to the *Distribution Network Service Provider* later than 10 *business days* before the expiry of the time limit fixed in paragraphs (e) or (g1).

Retailer insolvency event

(l) For the purposes of calculating the *eligible pass through amount* in relation to a *positive change event* which is a *retailer insolvency event*, the increase in costs is the *retailer insolvency costs* excluding:

(i) any amount recovered or recoverable from a *retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator* or a guarantor of a *retailer* or *Small Resource*~~*Market Small Generation Aggregator*~~ under any relevant *credit support*; and

(ii) amounts that the *Distribution Network Service* Provider is likely to receive on a winding-up of the *retailer* or *Small Resource*~~*Market Small Generation Aggregator*~~; and

(iii) any costs that are recoverable under a *RoLR cost recovery scheme distributor payment determination*.

(m) The amount the *AER* determines should be passed through to *Distribution Network Users* in respect of a *retailer insolvency event* must be taken to be a cost that can be passed through and not a revenue impact of the event.

Part D Negotiated distribution services

6.7 Negotiated distribution services

6.7.2 Determination of terms and conditions of access for negotiated distribution services

(a) A *Distribution Network Service Provider* must comply with:

(1) the provider's *negotiating framework*; and

(2) the provider's *Negotiated Distribution Service Criteria*,

when the provider is negotiating the *terms and conditions of access* to *negotiated distribution services*.

(b) The *Distribution Network Service Provider* must also comply with any other applicable requirements of the *Rules*, including the requirements of:

(1) rules 5.3, 5.3A and 5.3AA, when negotiating for the provision of *connection services* and the associated *connection service* charges in respect of the provision of *negotiated distribution services* which would have been *negotiated distribution services* regardless of the operation of clause 6.24.2(c);

(2) rules 5.3 and 5.3A, when negotiating for the provision of *connection* services and the associated *connection service* charges in respect of the provision of *negotiated distribution services* which would have been treated as *negotiated transmission services* were it not for the operation of clause 6.24.2(c);

(3) rule 5.3AA, when negotiating the charges ~~*use of system services charges* and *access charges*~~ to be paid to or by a *Distribution Network User* in respect of the provision of *negotiated distribution services* which would have been *negotiated distribution services* regardless of the operation of clause 6.24.2(c); and

(4) for the *declared transmission system* of an *adoptive jurisdiction*, rule 5.4A (as preserved under clause 11.98.8(a)(2)), when negotiating the *use of system services charges* and *access charges* to be paid to or by a *Distribution Network User* in respect of the provision of *negotiated distribution services* which would have been treated as *negotiated transmission services* were it not for the operation of clause 6.24.2(c).

Part DA Connection policies

6.7A Connection policy requirements

This *Rule* deals with the preparation of, requirements for and approval of *connection policies*.

6.7A.1 Preparation of, and requirements for, connection policy

(a) A *Distribution Network Service Provider* must prepare a document (its proposed *connection policy*) setting out:

(1) the circumstances in which it may require a *retail customer* or *real estate developer* to pay a *connection charge*, for the provision of a *connection service* under Chapter 5A; and

(2) the circumstances in which it may specify a *static zero export limit* in a *connection offer* for a *retail customer*.

(b) The proposed *connection policy*:

(1) must be consistent with:

(i) the *connection charge principles*; and

(ii) the *connection charge guidelines*; and

(2) must specify:

(i) the categories of persons that may be required to pay a *connection charge* and the circumstances in which such a requirement may be imposed; and

(ii) the aspects of a *connection service* for which a *connection charge* may be made; and

Example

The *Distribution Network Service Provider* might (for example) make separate *connection charges* for the provision of a *distribution connection asset* and for making a necessary *extension* to, or other *augmentation* of, the *distribution network*.

(iii) the basis on which *connection charges* are determined; and

(iv) the manner in which *connection charges* are to be paid (or equivalent consideration is to be given); and

Examples

The payment (or equivalent consideration) might take the form of a capital contribution, prepayment or financial guarantee.

(v) a threshold (based on capacity or any other measure identified in the *connection charge guidelines*) below which a *retail customer* (not being a *non-registered DER provider* ~~non-registered embedded generator~~ or a *real estate developer*) will not be liable for a *connection charge* for an *augmentation* other than an *extension*.

Part E Regulatory proposal and proposed tariff structure statement

6.8 Regulatory proposal and proposed tariff structure statement

6.8.1B Export Tariff Guidelines

(a) The *AER* must in accordance with the *distribution consultation procedures*, develop and *publish* guidelines (the *Export Tariff Guidelines*) taking into account the objective in paragraph (b).

(b) The objective of the *Export Tariff Guidelines* is to provide information and guidance to *Distribution Network Service Providers*, *distribution service end users*, *retailers*, *Small Resource*~~*Market Small Generation*~~ *Aggregators* and other stakeholders about the process for development and approval of *export tariffs*.

(c) The *Export Tariff Guidelines* may include information and guidance about:

(1) stakeholder engagement in relation to proposed *export tariffs*;

(2) the provision of information about stakeholder concerns and how they have been taken into account;

(3) the *AER's* approach (including worked examples) to applying the *network pricing objective* and *pricing principles for direct control services* in relation to *export tariffs*;

(4) the development of *export tariff transition strategies*; and

(5) any other matters the *AER* considers appropriate.

(d) The *Export Tariff Guidelines* are not binding on the *AER* or a *Distribution Network Service Provider*.

6.8.2 Submission of regulatory proposal, tariff structure statement and exemption application

(a) A *Distribution Network Service Provider* must, whenever required to do so under paragraph (b), submit to the *AER* a *regulatory proposal* and a proposed *tariff structure statement* related to the *distribution services* provided by means of, or in connection with, the *Distribution Network Service Provider's distribution system*.

(a1) A *Distribution Network Service Provider* must submit to the *AER* any *exemption application* for an *asset exemption* under clause 6.4B.1(a)(1) or 6.4B.1(a)(2) for the *regulatory control period* at the same time as submitting the relevant *regulatory proposal* under paragraph (a).

(b) A *regulatory proposal*, a proposed *tariff structure statement* and, if required under paragraph (a1), an *exemption application* must be submitted:

(1) at least 17 months before the expiry of a distribution determination that applies to the *Distribution Network Service Provider*; or

(2) if no distribution determination applies to the *Distribution Network Service Provider*, within 3 months after being required to do so by the *AER*.

(c) A *regulatory proposal* must include (but need not be limited to) the following elements:

(1) a classification proposal:

(i) showing how the *distribution services* to be provided by the *Distribution Network Service Provider* should, in the *Distribution Network Service Provider's* opinion, be classified under this Chapter; and

(ii) if the proposed classification differs from the classification suggested in the relevant *framework and approach paper* – including the reasons for the difference;

(2) for *direct control services* classified under the proposal as *standard control services* – a *building block proposal*;

(3) for *direct control services* classified under the proposal as *alternative control services* – a demonstration of the application of the control mechanism, as set out in the *framework and approach paper*, and the necessary supporting information;

(4) **[Deleted]**.

(5) for services classified under the proposal as *negotiated distribution services* – the proposed *negotiating framework*;

(5A) the proposed *connection policy*;

(6) an identification of any parts of the *regulatory proposal* the *Distribution Network Service Provider* claims to be confidential and wants suppressed from publication on that ground in accordance with the *Distribution Confidentiality Guidelines*; and

Note:

Additional information that must be included in a *regulatory proposal* is referred to in clause 6.3.1(c) and Schedule 6.1.

(7) a description (with supporting materials) of how the proposed *tariff structure statement* complies with the *pricing principles for direct control services* including:

(i) a description of where there has been any departure from the pricing principles set out in paragraphs 6.18.5(e) to (g); and

(ii) an explanation of how that departure complies with clause 6.18.5(c).

(c1) The *regulatory proposal* must be accompanied by an overview paper in reasonably plain language which includes each of the following matters:

(1) a summary to explain:

(i) the *regulatory proposal*;

(ii) the proposed *tariff structure statement* including the *export tariff transition strategy*;

(iii) the interrelationship between the elements of the *regulatory proposal;*

(iv) the interrelationship between the *regulatory proposal* and performance; and

(v) the interrelationship between the proposed *tariff structure statement* and relevant elements of the *regulatory proposal* (including the proposed *connection policy* and capital expenditure or operating expenditure);

(2) a description of:

(i) how the *Distribution Network Service Provider* has engaged with relevant stakeholders including *distribution service end users* or groups representing them and (in relation to the *tariff structure statement*) *retailers* and *Small Resource*~~*Market Small Generation Aggregators*~~ in developing the *regulatory proposal* and the proposed *tariff structure statement* including the *export tariff transition strategy*;

(ii) the relevant concerns identified as a result of that engagement; and

(iii) how the *Distribution Network Service Provider* has sought to address those concerns.

(3) a summary to explain the *Distribution Network Service Provider*'s approach to identifying demand for, and where relevant providing for, *distribution services* for *supply* into the *distribution network* from *micro*

resource operators and *non-registered DER providers* ~~*micro embedded generators* and *non-registered embedded generators*~~;

(4) a summary of other approaches considered by the *Distribution Network Service Provider* in deciding on the approach referred to in subparagraph (3), including relevant proposals from *distribution service end users*, and how they compare to the approach referred to in subparagraph (3);

(5) a description of the key risks and benefits for *distribution service end users* of the *regulatory proposal* and the proposed *tariff structure statement* including the *export tariff transition strategy*;

(6) a comparison of the *Distribution Network Service Provider's* proposed *total revenue requirement* with its *total revenue requirement* for the current *regulatory control period* and an explanation for any material differences between the two amounts; and

(7) a comparison of the *Distribution Network Service Provider's* proposed capital expenditure to support the provision of *distribution services* for *supply* into the *distribution network* from *micro resource operators* and *non-registered DER providers* ~~*micro embedded generators* and *non-registered embedded generators*~~ for the current *regulatory control period* and its actual or committed capital expenditure in the current *regulatory control period* for that purpose and an explanation for any material differences between the two amounts.

(c2) The *regulatory proposal* must be accompanied by information required by the *Expenditure Forecast Assessment Guidelines* as set out in the *framework and approach paper*.

(d) The *regulatory proposal* must comply with the requirements of, and must contain or be accompanied by the information required by any relevant *regulatory information instrument*.

(d1) The proposed *tariff structure statement* must be accompanied by an *indicative pricing schedule*.

(d2) The proposed *tariff structure statement* must comply with the *pricing principles for direct control services*.

(e) If more than one *distribution system* is owned, controlled or operated by a *Distribution Network Service Provider*, then, unless the *AER* otherwise determines, a separate *regulatory proposal* and a separate *tariff structure statement* are to be submitted for each *distribution system*.

(f) If, at the commencement of this Chapter, different parts of the same *distribution system* were separately regulated, then, unless the *AER* otherwise determines, a separate *regulatory proposal* and a separate *tariff structure statement* are to be submitted for each part as if it were a separate *distribution system*.

Part I Distribution Pricing Rules

6.18 Distribution Pricing Rules

6.18.1B Amending a tariff structure statement with the AER's approval

(a) No later than nine months before the start of a *regulatory year* (other than the first *regulatory year* of a *regulatory control period*) (**relevant regulatory year**), a *Distribution Network Service Provider* may request the *AER* to approve an amendment to its current *tariff structure statement*.

(b) A request for an amendment to a *tariff structure statement* under paragraph (a) must include:

(1) the proposed amended *tariff structure statement*;

(2) a description of the event that has occurred to cause the *Distribution Network Service Provider* to seek an amendment to its current *tariff structure statement* and why the event:

(i) was beyond the reasonable control of the *Distribution Network Service Provider*; and

(ii) could not reasonably have been foreseen by the *Distribution Network Service Provider* at the time its current *tariff structure statement* was approved by the *AER*;~~.~~

(3) a description and justification of the differences between the proposed amended *tariff structure statement* and the *Distribution Network Service Provider's* current *tariff structure statement*;

(4) a description of how the differences referred to in sub-paragraph (3) would impact the other elements of the *tariff structure statement*;

(5) a description of how the proposed amended *tariff structure statement* would better comply with the *pricing principles for direct control services* than the current *tariff structure statement*; and

(6) a description of:

(i) how the *Distribution Network Service Provider* has engaged with relevant stakeholders including *distribution service end users* or groups representing them, *retailers* and *Small Resource*~~*Market Small Generation*~~ *Aggregators* in developing the proposed amended *tariff structure statement;*

(ii) relevant concerns identified as a result of that engagement; and

(iii) how the *Distribution Network Service Provider* has sought to address the concerns.

(c) The *AER* must, on receipt of a *Distribution Network Service Provider's* request for an amendment to its *tariff structure statement*, *publish* the request.

(d) The *AER* must approve the request for an amendment to a *tariff structure statement* under paragraph (a) if the *Distribution Network Service Provider* demonstrates to the reasonable satisfaction of the *AER* that:

(1) an event has occurred that:

(i) was beyond the reasonable control of the *Distribution Network Service Provider*; and

(ii) could not reasonably have been foreseen by the *Distribution Network Service Provider* at the time its current *tariff structure statement* was approved by the *AER*; and

(2) as a result of the event referred to in sub-paragraph (1), the proposed amended *tariff structure statement* would, or would be likely to, materially better comply with the *pricing principles for direct control services* than the *Distribution Network Service Provider's* current *tariff structure statement*.

(e) No later than four months before the start of the relevant *regulatory year*, the *AER* must either approve or refuse to approve the request for an amendment to a *tariff structure statement* under paragraph (a) and set out reasons for its decision.

(f) If the *AER* refuses to approve the request for an amendment to a *tariff structure statement* under paragraph (a), the current *tariff structure statement* will apply for the relevant *regulatory year* and, subject to any subsequent amendment approved under this clause 6.18.1B, the remainder of the *regulatory control period*.

Note

Rule 6.13 still applies in relation to a *tariff structure statement* because that rule deals with the revocation and substitution of a distribution determination (which includes a *tariff structure statement*) as opposed to its amendment.

6.18.1C Sub-threshold tariffs

(a) No later than four months before the start of a *regulatory year* (other than the first *regulatory year* of a *regulatory control period*), a *Distribution Network Service Provider* may notify the *AER*, affected *retailers* and *Small Resource*~~*Market Small Generation*~~ *Aggregators* and affected *retail customers* of a new proposed tariff (a **relevant tariff**) that is determined otherwise than in accordance with the *Distribution Network Service Provider's* current *tariff structure statement*, if both of the following are satisfied:

(1) the *Distribution Network Service Provider's* forecast revenue from the relevant tariff during each *regulatory year* in which the tariff is to apply is no greater than 0.5 per cent of the *Distribution Network Service Provider's annual revenue requirement* for that *regulatory year* (the **individual threshold**); and

(2) the *Distribution Network Service Provider's* forecast revenue from the relevant tariff, as well as from all other relevant tariffs, during each *regulatory year* in which those tariffs are to apply is no greater than one per cent of the *Distribution Network Service Provider's annual revenue requirement* for that *regulatory year* (the **cumulative threshold**).

(b) Notwithstanding any other provision in the *Rules* to the contrary, a relevant tariff notified by the *Distribution Network Service Provider* in accordance with paragraph (a) is, for the remainder of the *regulatory control period* in which the notification is given:

(1) not required to comply with the *pricing principles for direct control services*; and

(2) for the purposes of the submission and approval of a *pricing proposal*, deemed to comply with the *Distribution Network Service Provider's* current *tariff structure statement*,

unless, at any point in time after the notification of the relevant tariff is given under paragraph (a) (the **post-notification point**), either the individual threshold or the cumulative threshold (in each case calculated using actual rather than forecast revenue) are exceeded by virtue of the amount of revenue that is attributable to the relevant tariff, in which case sub-paragraphs (1) and (2) cease to apply to the relevant tariff in relation to the *regulatory years* that commence after the post-notification point.

(c) Where sub-paragraphs (b)(1) and (2) cease to apply to a relevant tariff in accordance with paragraph (b), then sub-paragraphs (b)(1) and (2) will be taken to continue to apply to other relevant tariffs that were notified before the post-notification point, but only to the extent that those sub-paragraphs would apply if the first-mentioned relevant tariff were not a relevant tariff.

6.18.5 Pricing principles

Network pricing objective

(a) The *network pricing objective* is that the tariffs that a *Distribution Network Service Provider* charges in respect of its provision of *direct control services* to a *retail customer* should reflect the *Distribution Network Service Provider's* efficient costs of providing those services to the *retail customer*.

Note:

Charges in respect of the provision of *direct control services* may reflect efficient negative costs.

Application of the pricing principles

(b) Subject to paragraph (c), a *Distribution Network Service Provider's* tariffs must comply with the pricing principles set out in paragraphs (e) to (j).

(c) A *Distribution Network Service Provider's* tariffs may vary from tariffs which would result from complying with the pricing principles set out in paragraphs (e) to (g) only:

(1) to the extent permitted under paragraph (h); and

(2) to the extent necessary to give effect to the pricing principles set out in paragraphs (i) to (j).

(d) A *Distribution Network Service Provider* must comply with paragraph (b) in a manner that will contribute to the achievement of the *network pricing objective*.

Pricing principles

(e) For each *tariff class*, the revenue expected to be recovered must lie on or between:

(1) an upper bound representing the stand alone cost of serving the *retail customers* who belong to that class; and

(2) a lower bound representing the avoidable cost of not serving those *retail customers*.

(f) Each tariff must be based on the *long run marginal cost* of providing the service to which it relates to the *retail customers* assigned to that tariff with the method of calculating such cost and the manner in which that method is applied to be determined having regard to:

(1) the costs and benefits associated with calculating, implementing and applying that method as proposed;

(2) the additional costs likely to be associated with meeting demand from *retail customers* that are assigned to that tariff at times of greatest utilisation of the relevant service; and

(3) the location of *retail customers* that are assigned to that tariff and the extent to which costs vary between different locations in the *distribution network*.

(g) The revenue expected to be recovered from each tariff must:

(1) reflect the *Distribution Network Service Provider's* total efficient costs of serving the *retail customers* that are assigned to that tariff;

(2) when summed with the revenue expected to be received from all other tariffs, permit the *Distribution Network Service Provider* to recover the expected revenue for the relevant services in accordance with the applicable distribution determination for the *Distribution Network Service Provider*; and

(3) comply with sub-paragraphs (1) and (2) in a way that minimises distortions to the price signals for efficient usage of the relevant service that would result from tariffs that comply with the pricing principle set out in paragraph (f).

(h) A *Distribution Network Service Provider* must consider the impact on *retail customers* of changes in tariffs from the previous *regulatory year* and may vary tariffs from those that comply with paragraphs (e) to (g) to the extent the *Distribution Network Service Provider* considers reasonably necessary having regard to:

(1) the desirability for tariffs to comply with the pricing principles referred to in paragraphs (f) and (g), albeit after a reasonable period of transition (which may extend over more than one *regulatory control period*);

(2) the extent to which *retail customers* can choose the tariff to which they are assigned; and

(3) the extent to which *retail customers* are able to mitigate the impact of changes in tariffs through their decisions about usage of services.

(i) The structure of each tariff must be reasonably capable of:

(1) being understood by *retail customers* that are or may be assigned to that tariff (including in relation to how decisions about usage of services or controls may affect the amounts paid by those customers); or

(2) being directly or indirectly incorporated by *retailers* or *Small Resource~~Market Small Generation~~ Aggregators* in contract terms offered to those customers,

having regard to information available to the *Distribution Network Service Provider*, which may include:

(3) the type and nature of those *retail customers*;

(4) the information provided to, and the consultation undertaken with, those *retail customers*; and

(5) the information provided by, and consultation undertaken with, *retailers* and *Small Resource~~Market Small Generation~~ Aggregators*.

(j) A tariff must comply with the *Rules* and all *applicable regulatory instruments*.

6.19~~.~~ Data Required for Distribution Service Pricing

6.19.1 Forecast use of networks by Distribution Customers and ~~Embedded Generators~~ Distribution Connected Resource Providers

Any information required by *Distribution Network Service Providers* must be provided by *Service Applicants* as part of the *connection* and access requirements set out in Chapter 5.

Part J Billing and Settlements

6.20 Billing and Settlements Process

This rule describes the manner in which *Distribution Customers*~~, and *Embedded Generators*~~ and *Distribution Connected Resource Providers* are billed by *Distribution Network Service Providers* for *distribution services* and to pass through *system strength charges* and how payments for *distribution services* and pass through of *system strength charges* are settled.

6.20.1 Billing for distribution services

(a) A *Distribution Network Service Provider* must bill *Distribution Network Users* for *distribution services* as follows:

(1) *Distribution Connected Resource Providers~~Embedded Generators~~*:

(i) by applying the charge for *entry service* as a fixed annual charge to each *Distribution Connected Resource Provider~~Embedded Generator~~*; and

(ii) by applying any other charge the *Distribution Network Service Provider* makes consistently with the *Rules* and the applicable distribution determination.

(2) *Distribution Customers*:

The charges to *Distribution Customers* must be determined according to use of the *distribution network* as determined in accordance with a *metrology procedure* or, in the absence of a *metrology procedure* allowing such a determination to be made, by *meter* or by agreement

between the *Distribution Customer* and the *Distribution Network Service Provider* by applying one or more of the following measures:

(i) demand-based prices to the *Distribution Customer's* metered or agreed demand for *distribution services*;

(ii) energy-based prices to the *Distribution Customer's* metered or agreed energy consumption or export;

(iii) the *Distribution Customer* charge determined under this clause as a fixed periodic charge to each *Distribution Customer*;

(iv) a fixed periodic charge, a prepayment or other charge determined by agreement with the *Distribution Customer*;

(v) any other measure the *Distribution Network Service Provider* is authorised to apply by the applicable distribution determination.

(b) Subject to paragraph (c), where a *Distribution Customer* (other than a *Market Customer* or *Small Resource~~Market Small Generation~~ Aggregator*) incurs *distribution service charges*, the *Distribution Network Service Provider* must bill the *Market Customer* or *Small Resource~~Market Small Generation~~ Aggregator* from or to whom the *Distribution Customer* purchases or sells electricity directly or indirectly for such *distribution services* in accordance with paragraph (a)(2).

(c) If a *Distribution Customer* and the *Market Customer* or *Small Resource~~Market Small Generation~~ Aggregator* from or to whom the *Distribution Customer* purchases or sells electricity agree, the *Distribution Network Service Provider* may bill the *Distribution Customer* directly for *distribution services* used by that *Distribution Customer* in accordance with paragraph (a)(2).

(d) *Distribution Network Service Providers* must:

(1) calculate *transmission service* charges and *distribution service* charges for all *connection points* in their *distribution network*; and

(2) pay to *Transmission Network Service Providers* the *transmission service* charges incurred in respect of use of a *transmission network* at each *connection point* on the relevant *transmission network*.

(e) Charges for *distribution services* based on metered kW, kWh, kVA, or kVAh for:

(1) *Distribution Connected Resource Providers* that are *Market Participants~~Embedded Generators~~ that are ~~Market Generators~~; and*

~~(1A) *Embedded Integrated Resource Providers;*~~

(2) *Market Customers* and *Small Resource~~Market Small Generation~~ Aggregators*;

(3) ~~*First Tier Customers* and *Second Tier Customers*; and~~**[Deleted]**

(3A) *Non-Registered Customers*;

must be calculated by the *Distribution Network Service Provider* from:

(4) *settlements ready data* obtained from *AEMO's metering database*, for those *Distribution Connected Resource Providers*~~*Embedded Generators*~~, *Market Customers* and *Non-Registered Customers*~~, *First-Tier Customers* and *Second-Tier Customers*~~ with *connection points* that have a type 1, 2 or 3 *metering installation*; and

(5) *metering data*, in accordance with a *metrology procedure* that allows the *Distribution Network Service Provider* to use *energy data* for this purpose, or otherwise *settlements ready data* obtained from *AEMO's metering database*, for those ~~*Embedded Generators*, , *Market Small Generation Aggregators*~~ *Distribution Connected Resource Providers, Small Resource Aggregators, Market Customers* and *Non-Registered Customers*~~, *First-Tier Customers* and *Second-Tier Customers*~~ with *connection points* that have a type 4, 4A, 5, 6 or 7 *metering installation*.

(f) Charges for *distribution services* based on metered kW, kWh, kVA or kVAh for:

(1) *Distribution Connected Resource Providers*~~*Embedded Generators*~~ that are not *Market Participants*~~*Generators*~~; and

(2) [**Deleted**]

(3) *franchise customers*,

must be calculated by the *Distribution Network Service Provider* using data that is consistent with the *metering data* used by the relevant *Local Retailer* in determining *energy settlements*.

(g) The *Distribution Network Service Provider* may bill the relevant *Local Retailer* for *distribution services* used by *franchise customers*.

(h) Where the billing for a *Distribution Customer* for a particular *financial year* is based on quantities which are undefined until after the commencement of the *financial year*, charges must be estimated from the previous year's billing quantities with a reconciliation to be made when the actual billing quantities are known.

(i) Where the previous year's billing quantities are unavailable or no longer suitable, nominated quantities may be used as agreed between the parties.

Part K Prudential requirements, capital contributions and prepayments

6.21 Distribution Network Service Provider Prudential Requirements

This clause sets out the arrangements by which *Distribution Network Service Providers* may minimise financial risks associated with investment in *network* assets and provides for adoption of cost-reflective payment options in conjunction with the use of average distribution prices. The clause also prevents *Distribution Network Service Providers* from receiving income twice for the same assets through prudential requirements and *distribution service* prices.

6.21.1 Prudential requirements for distribution network service

(a) A *Distribution Network Service Provider* may require a *Distribution Connected Resource Provider* ~~an *Embedded Generator*~~ or *Distribution Customer* that requires a new *connection* or a modification in service for an existing *connection* to establish prudential requirements for *connection service* and/or *distribution use of system service*.

(b) Prudential requirements for *connection service* and/or *distribution use of system service* are a matter for negotiation between the *Distribution Network Service Provider* and the *Distribution Connected Resource Provider* ~~*Embedded Generator*~~ or *Distribution Customer* and the terms agreed must be set out in the *connection agreement* between the *Distribution Network Service Provider* and the *Distribution Connected Resource Provider* ~~*Embedded Generator*~~ or *Distribution Customer*.

(c) The *connection agreement* may include one or more of the following provisions:

(1) the conditions under which and the time frame within which other *Distribution Network Users* who use that part of the *distribution network* contribute to refunding all or part of the payments;

(2) the conditions under which financial arrangements may be terminated; and

(3) the conditions applying in the event of default by the *Distribution Customer*~~, or *Embedded Generator*~~ or *Distribution Connected Resource Provider*.

(d) The prudential requirements may incorporate, but are not limited to, one or more of the following arrangements:

(1) financial capital contributions;

(2) non-cash contributions;

(3) *distribution service* charge prepayments;

(4) guaranteed minimum *distribution service* charges for an agreed period;

(5) guaranteed minimum *distribution service* quantities for an agreed period;

(6) provision for financial guarantees for *distribution service* charges.

6.21.3 Treatment of past prepayments and capital contributions

(a) Payments made by *Distribution Customers* and *Generators* ~~*Embedded Generators*~~ for *distribution service* prior to 13 December 1998 must be made in accordance with any contractual arrangements with the relevant *Distribution Network Service Providers* applicable at that time.

(b) Where contractual arrangements referred to in paragraph (a) are not in place, past *distribution service* prepayments or capital contributions may be incorporated in the capital structure of the *Distribution Network Service Provider's* business.

(c) The *AER* may intervene in and resolve any dispute under this clause which cannot be resolved between the relevant *Distribution Network Service Provider* and *Distribution Customer* or *Generator*~~*Embedded Generator*~~.

Part L Dispute resolution

6.22 Dispute Resolution

6.22.2 Determination of dispute

(a) In determining an access dispute about *terms and conditions of access* to a *direct control service*, the *AER* must apply:

(1) in relation to price, the *Distribution Network Service Provider's approved pricing proposal* and the *Distribution Network Service Provider's tariff structure statement* or, in respect of the *Distribution Network Service Provider's transmission standard control services* in respect of which the AER has made a determination under clause 6.25(b) that pricing in respect of those services should be regulated under Part J of Chapter 6A through the application of rule 6.26, the *Distribution Network Service Provider's* approved *pricing methodology*;

(2) in relation to other terms and conditions, Chapters 4, 5, this Chapter 6 and Chapter 7 and any other *applicable regulatory instrument*; and

(3) in relation to all *terms and conditions of access* (including price) the decisions of *AEMO* or the *AER* where those decisions relate to those terms and conditions and are made under Chapters 4, 5, this Chapter 6 and Chapter 7.

(b) In determining an access dispute about the *terms and conditions of access* to a *direct control service*, the *AER* may:

(1) have regard to other matters the *AER* considers relevant; and

(2) hear evidence or receive submissions from *AEMO* about *power system security* and from *Distribution Network Users* who may be adversely affected.

Note:

Section 130 of the *NEL* requires the *AER*, in making an access determination, to give effect to a network revenue or pricing determination applicable to the services that are the subject of the dispute even though the determination may not have been in force when the dispute arose.

(b1) Subject to paragraphs (a) and (b), in determining an access dispute about the *terms and conditions of access* to a *direct control service* for a *Distribution Network User* other than a *retail customer*, the *AER* must apply the principles in clause 6.7.1 as if the *direct control service* were a *negotiated distribution service* for the purposes of that clause.

(c) In determining an access dispute about *terms and conditions of access* to a *negotiated distribution service*, the *AER* must apply:

(1) in relation to price (including *access charges*), the *Negotiated Distribution Service Criteria* that are applicable to the dispute in accordance with the relevant distribution determination; and

(2) in relation to other terms and conditions, the *Negotiated Distribution Service Criteria* that are applicable to the dispute and Chapters 4, 5, this Chapter 6 and Chapter 7 of the *Rules*; and

(3) in relation to all *terms and conditions of access* (including price) the decisions of *AEMO* or the *AER* where those decisions relate to those terms and conditions and are made under Chapters 4, 5, this Chapter 6 and Chapter 7 of the *Rules*;

and must have regard:

(4) to the relevant *negotiating framework* prepared by the *Distribution Network Service Provider* and approved by the *AER*.

(d) In determining an access dispute about the *terms and conditions of access* to a *negotiated distribution service*, the *AER* may:

(1) have regard to other matters the *AER* considers relevant; and

(2) hear evidence or receive submissions from *AEMO* and *Distribution Network Users* notified and consulted under the *Distribution Network Service Provider's negotiating framework*.

(e) In determining an access dispute about *access charges*, or involving *access charges*, the *AER* must give effect to the following principle:

Access charges should be based on the costs reasonably incurred by the *Distribution Network Service Provider* in providing *distribution network user access* and, where they consist of compensation referred to in clauses 5.3AA(f)(4)(ii) and (iii), on the revenue that is likely to be foregone and the costs that are likely to be incurred by a person referred to in those provisions where an event referred to in those provisions occurs.

Part M Separate disclosure of transmission and distribution charges

6.23 Separate disclosure of transmission and distribution charges

(a) A *Distribution Customer*:

(1) with a *maximum demand*~~*load*~~ greater than 10MW or electricity consumption greater than 40GWh per annum; or

(2) with metering equipment capable of capturing relevant *transmission* and *distribution system* usage data,

may make a request (a **TUOS/DUOS disclosure request**) to a *Distribution Network Service Provider* to provide the *Distribution Customer* with a statement (a **TUOS/DUOS disclosure statement**) identifying the separate components of the *designated pricing proposal charges* and *distribution use of system* charges comprised in the charges for electricity supplied to the *Distribution Customer's connection points*.

(b) Within 10 *business days* of receipt of a TUOS/DUOS disclosure request, a *Distribution Network Service Provider* must notify the *Distribution Customer* of the estimated charge (including details of how the charge is calculated) for providing the TUOS/DUOS disclosure statement. The charge must be no greater than the reasonable costs directly incurred by the *Distribution Network Service Provider* in preparing the statement for the *Distribution Customer*.

(c) If the *Distribution Customer* advises the *Distribution Network Service Provider* within 20 *business days* of receipt of the notice referred to in paragraph (b) that it still requires the requested TUOS/DUOS disclosure statement, the *Distribution Network Service Provider* must prepare the statement and provide it to the *Distribution Customer* within 20 *business days* of being so advised. The *TUOS/DUOS* disclosure statement must include detailed information on the method used to determine the *distribution use of system* charges and the allocation of the *designated pricing proposal charges* to the *Distribution Customer* for electricity supplied to its *connection points*. The information must be sufficient to allow the *Distribution Customer* to assess the impact on its *network* charges of a change in its *network* use.

(d) The TUOS/DUOS disclosure statement must also separately identify the amounts that have been allocated to the *Distribution Customer's connection points* under Part J of Chapter 6A in respect of each of the *categories of prescribed transmission services*, where the *Distribution Customer* requests this information.

(e) Where the *Distribution Customer* requests the information referred to in paragraph (d), the *Distribution Network Service Provider* must separately identify the component of the charge notified under paragraph (b) that relates to the provision of the additional information.

(f) Each *Distribution Network Service Provider* must publish information annually disclosing the *designated pricing proposal charges* and *distribution use of system* charges for each of the classes of *Distribution Customers* identified for this purpose by the *Distribution Network Service Provider*, or as required by the *AER*.

Part O Network service provider performance reports

6.27A Annual DER network service provider performance report

(a) The *AER* must prepare and *publish* a *network service provider performance report*, the purpose of which is to provide information about the performance of each *Distribution Network Service Provider* in providing *distribution services* for *supply* from ~~*embedded generating units*~~ *distribution connected units* into the *distribution network* over a 12 month period.

(b) A report under paragraph (a) may include information about such matters as the *AER* considers appropriate, which may include information about:

(1) the relative performance of each *Distribution Network Service Provider* in providing the *distribution services*;

(2) the use of *static zero export limits*;

(3) the impact of *system limitations* on availability or use of the *distribution services*; and

(4) performance relative to *export tariff* offerings.

(c) Clause 8.7.4 applies in respect of the preparation of a report under paragraph (a).

(d) The *AER* must *publish* a report under paragraph (a) at least every 12 months.

(e) A report under paragraph (a) may be published with another *network service provider performance report* published by the *AER*.

CHAPTER 6B

6B. Retail markets

Part A Retail support

Division 1 Application and definitions

6B.A1.1 Application of this Part

This Part:

(a) applies to a *Distribution Network Service Provider* and a *retailer* or a *Small Resource*~~*Market Small Generation*~~ *Aggregator* who have *shared customers*; and

(b) applies (to the exclusion of Part J of Chapter 6) to a *Market Customer* who is a *retailer* and to ~~or~~ a *Small Resource*~~*Market Small Generation*~~ *Aggregator*; and

(c) prevails over any inconsistent provisions in a distribution determination.

6B.A1.2 Definitions

In this Part:

customer connection service has the same meaning as in the *NERL*.

date of issue of a *statement of charges* means the date on which the *Distribution Network Service Provider* sends the statement to the *retailer* or a *Small Resource*~~*Market Small Generation*~~ *Aggregator*.

default rate means the *bank bill rate* (as in force from time to time) plus two percentage points per annum.

due date for payment means 10 *business days* from the *date of issue* specified on a *statement of charges*.

network charges means charges that a *Distribution Network Service Provider* is entitled to claim for *customer connection services* in respect of *shared customers* under the *Rules*.

retail billing period means a calendar month or any other period agreed between a *Distribution Network Service Provider* and a *retailer* or a *Small Resource* ~~*Market Small Generation*~~ *Aggregator*.

retailer, except where used in this Division 1, includes a *Small Resource*~~*Market Small Generation*~~ *Aggregator*.

shared customer:

(a) in relation to a *Distribution Network Service Provider* and a *retailer*, has the same meaning as in the *NERL*; and

(b) in relation to a *Distribution Network Service Provider* and a *Small Resource Aggregator* ~~*Market Small Generation Aggregator*~~, means a person who is an ~~*MSGA*~~ *SRA customer* of the *Small Resource*~~*Market Small Generation*~~ *Aggregator* and whose *small generating unit* or *small bidirectional unit* is *connected* to the *Distribution Network Service Provider's distribution system*.

statement of charges —see clause 6B.A2.4.

CHAPTER 7

7. Metering

Part B Roles and Responsibilities

7.4 Qualification and Registration of Metering Providers, Metering Data Providers and Embedded Network Managers

7.4.1 Qualifications and registration of Metering Providers

(a) **[Not used]**

(a1) A *Metering Provider* is a person who:

(1) meets the requirements set out in Schedule 7.2; and

(2) is accredited by and registered by *AEMO* in that capacity in accordance with the qualification process established under clause S7.2.1(b).

(b) Any person may apply to *AEMO* for accreditation and registration as a *Metering Provider*.

(c) *AEMO* must include requirements for accreditation of *Metering Providers* in the *service level procedures*. The adoption of the requirements by *Metering Providers* is to be included in the qualification process in accordance with clause S7.2.1(b). The requirements must include a dispute resolution process.

(d) A *Metering Provider* must comply with the provisions of the *Rules* and procedures authorised under the *Rules* that are expressed to apply to *Metering Providers* relevant to their category of registration.

(e) A *Market Generator*~~,~~ or *Integrated Resource Provider* which is involved in the trading of *energy* must not be registered as a *Metering Provider* for *connection points* in respect of which the *metering data* relates to its own use of *energy*.

(f) Except as otherwise specified in paragraph (g), a *Market Customer* or *Small Resource Aggregator* must not be registered as a *Metering Provider* at any *connection point*.

(g) If a *Market Participant* is a *Market Customer* and also a *Network Service Provider* then the *Market Participant* may be registered as a *Metering Provider* for that *connection point* notwithstanding paragraph (f), providing that at the *connection points* on the *transmission network*, the *Market Participant* must regard the *Transmission Network Service Provider* with which it has entered into a *connection agreement* as the *Local Network Service Provider*.

7.4.2 Qualifications and registration of Metering Data Providers

(a) A *Metering Data Provider* is a person who:

(1) meets the requirements set out in Schedule 7.3; and

(2) is accredited by and registered by *AEMO* in that capacity in accordance with the qualification process established under clause S7.3.1(c).

(b) Any person may apply to *AEMO* for accreditation and registration as a *Metering Data Provider*.

(c) **[Not used]**

(c1) *AEMO* must include requirements for accreditation of *Metering Data Providers* in the *service level procedures*. The adoption of the requirements by *Metering Data Providers* is to be included in the qualification process in accordance with clause S7.3.1(c). The requirements must include a dispute resolution process.

(d) A *Metering Data Provider* must comply with the provisions of the *Rules* and procedures authorised under the *Rules* that are expressed to apply to *Metering Data Providers* relevant to their category of registration.

(e) A *Market Generator* or *Integrated Resource Provider* which is involved in the trading of *energy* must not be registered as a *Metering Data Provider* for *connection points* in respect of which the *metering data* relates to its own use of *energy*.

(f) Except as otherwise specified in paragraph (g), a *Market Customer* or *Small Resource Aggregator* must not be registered as a *Metering Data Provider* at any *connection point*.

(g) If a *Market Participant* is a *Market Customer* and also a *Network Service Provider* then the *Market Participant* may be registered as a *Metering Data Provider* for that *connection point* notwithstanding paragraph (f).

Part C Appointment of Metering Coordinator

7.6 Appointment of Metering Coordinator

7.6.2 Persons who may appoint Metering Coordinators

(a) A *Metering Coordinator* may only be appointed:

(1) with respect to a *connection point* or proposed *connection point* on a *transmission network*, by the *Market Participant* which is *financially responsible* at the *connection point*;

(2) with respect to a *connection point* (other than the *connection point* of a *small customer* or *large customer*) that connects, or is proposed to *connect*, a *generating system* or *integrated resource system* to a *distribution network*, by:

(i) the *Market Participant* which is *financially responsible* at the *connection point*; or

(ii) a *Non-Market Generator* or *Non-Market Integrated Resource Provider* who owns, controls or operates the *generating system* or *integrated resource system* that is connected to the *distribution network* at the *connection point*; or

(iii) a person who owns, controls or operates the *generating system* or *integrated resource system* that is connected to the *distribution network* at the *connection point* and is exempt from the

requirement to register as a *Generator* or *Integrated Resource Provider* under clause 2.1A.2(a)~~clause 2.2.1(c)~~; and

(2A) with respect to a *connection point* or proposed *connection point* that is on a *distribution network* and which connects that *distribution network* to an adjacent *distribution network* (other than an *embedded network*) by the *Distribution Network Service Provider* responsible for appointing the *Metering Coordinator* at that *connection point* as determined by agreement between the two *Distribution Network Service Providers* related to that *connection point*.

(3) with respect to any other *connection point*, by:

(i) the *Market Participant* which is *financially responsible* at the *connection point*; or

(ii) the *large customer* whose premises are supplied at the *connection point*.

(b) A person making an appointment under paragraph (a) must do so in accordance with the *Rules* and procedures authorised under the *Rules*.

(c) The *Market Settlement and Transfer Solution Procedures* must specify that a *Metering Coordinator* at a *connection point* is responsible for the *metering installation*:

(1) where the change in the *Metering Coordinator* at a *connection point* is effected due to a change in the *financially responsible Market Participant* at that *connection point*, on the day that the ~~*market load* at the~~ *connection point* transfers to the new *financially responsible Market Participant*; and

(2) otherwise, on any other day.

Part D Metering installation

7.8 Metering installation arrangements

7.8.2 Metering installation components

(a) A *Metering Provider* must, in accordance with the *Rules* and procedures authorised under the *Rules*, ensure that a *metering installation* (other than a type 7 *metering installation*):

(1) contains a device that has either a visible or an equivalently accessible display of the cumulative total *energy* measured by that *metering installation* (at a minimum);

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) is accurate in accordance with clause 7.8.8;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(3) in the case of *metering installations* types 1, 2, 3, or 4, has *electronic data transfer* facilities from the *metering installation* to the *metering data services database*;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(4) includes a *communications interface* to meet the requirements of clause 7.3.2(e)(4);

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(5) is secure in accordance with rule 7.15;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(6) records *energy data* in a manner that enables *metering data* to be collated in accordance with clause 7.10.5;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(7) is capable of separately recording *energy data* for *energy* flows in each direction where bi-directional *active energy* flows occur or could occur;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(8) has a *measurement element* for *active energy* and if required in accordance with Schedule 7.4 a *measurement element* for *reactive energy*, with both measurements to be recorded;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(9) includes facilities for storing *interval energy data* for a period of at least 35 *days* if the *metering installation* is registered as a type 1, 2, 3 or 4 *metering installation*;

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(10) includes facilities for storing *interval energy data* for a period of at least 200 *days* or such other period as specified in the *metrology procedure* if the *metering installation* is registered as a type 4A or type 5 *metering installation*; and

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(11) in the case of a type 6 *metering installation*, includes facilities capable of continuously recording, the total accumulated *energy* supplied through it by a visible display in accordance with subparagraph (1), over a period of at least 12 months.

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(a1) *AEMO* may exempt a *Metering Provider* at a *connection point* from complying with the data storage requirements under subparagraph (a)(9) for:

(1) types 1, 2, and 3 *metering installations*; and

(2) Type 4 *metering installations* referred to in clause 7.8.2(b1)

installed prior to 1 July 2021. *AEMO* may only grant an exemption under this clause where it is reasonably satisfied that the *Metering Provider* will be able to otherwise satisfy the requirements of Chapter 7.

(a2) *AEMO* must establish, maintain and *publish* a procedure setting out the requirements for applying for an exemption under paragraph (a1).

(b) A *metering installation* may consist of combinations of:

(1) a *current transformer*;

(2) a *voltage transformer*;

(3) secure and protected wiring from the *current transformer* and the *voltage transformer* to the *meter*;

(4) *communications interface* equipment such as a modem, isolation requirements, telephone service, radio transmitter and data link equipment;

(5) auxiliary electricity supply to the *meter*;

(6) an alarm circuit and monitoring facility;

(7) a facility to keep the *metering installation* secure from interference;

(8) test links and fusing;

(9) summation equipment; and

(10) several *metering points* to derive the *metering data* for a *connection point*.

(b1) Any type 4 *metering installation* must be capable of recording and providing, and configured to record and provide, *trading interval energy data*.~~at a:~~

~~(1) *transmission network connection point*; or~~

~~(2) *distribution network connection point* where the relevant *financially responsible Market Participant* is a *Market Generator* or *Small Generation Aggregator*,~~

~~must be capable of recording and providing, and configured to record and provide, *trading interval energy data*.~~

(c) Subject to paragraph (ea), the *financially responsible Market Participant* at a *connection point* must:

(1) apply to the *Local Network Service Provider* for a *NMI*; and

(2) provide the *Metering Coordinator* with the *NMI* for the *metering installation* within 5 *business days* of receiving the *NMI* from the *Local Network Service Provider*.

(d) The *Local Network Service Provider* must:

(1) issue a unique *NMI* for each *metering installation* on its *network* to the *financially responsible Market Participant*; and

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(2) register the *NMI* with *AEMO* in accordance with procedures from time to time specified by *AEMO*.

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(e) The *Metering Coordinator* must ensure that *AEMO* is provided with the relevant details of the *metering installation* as specified in Schedule 7.1 within 10 *business days* of receiving the *NMI* under subparagraph (c)(2).

(ea) An *Embedded Network Manager* at a *child connection point* on an *embedded network* for which it is the *Embedded Network Manager* must:

(1) apply to *AEMO* for a *NMI* for a *metering installation* at a *child connection point*;

(2) provide the *Metering Coordinator*, *financially responsible Market Participant* and the *Exempt Embedded Network Service Provider* with the *NMI* for the *metering installation* within *5 business days* of receiving the *NMI* from *AEMO*; and

(3) register the *NMI* with *AEMO* in accordance with procedures from time to time specified by *AEMO*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(eb) The obligation in paragraph (ea) does not apply to the extent a *metering installation* at a *child connection point* already has a *NMI*.

(ec) *AEMO* must issue for each *metering installation* at a *child connection point* a unique *NMI* to the *Embedded Network Manager*.

Requirements for metering installations for non-market generating units and non-market bidirectional units

(f) In addition to the requirements in paragraphs (a) to (e), the *Metering Coordinator* at a *connection point* for a *non-market generating unit* or *non-market bidirectional unit* must ensure that the *metering installation*:

(1) where payments for the purchase of electricity *generated* by that unit are based on different rates according to the time of the day, is capable of recording *interval energy data*;

(2) where a *current transformer*, a *voltage transformer* or a *measurement element* for *reactive energy* is installed, meets the requirements in Schedule 7.4 for the type of *metering installation* appropriate to that *connection point*;

(3) for units with a *nameplate rating* greater than 1 MW, meets:

(i) the accuracy requirements specified in Schedule 7.4; and

(ii) the measurement requirements in subparagraph (a)(8);

(4) in relation to new accumulation *metering* equipment for units with a *nameplate rating* equal to or less than 1 MW, meets the minimum standards for *active energy* class 1.0 watt hour or 2.0 watt hour *meters* in accordance with clause S7.4.6.1(f);

(5) for units with a *nameplate rating* of equal to or less than 1 MW that are capable of recording *interval energy data*, meets the minimum standards of accuracy for the *active energy meter* in accordance with Schedule 7.4 for a type 3 or 4 *metering installation* which is based on projected annual *sent out generation*~~sent out annual *energy* volumes~~; and

(6) if reasonably required by the *Distribution Network Service Provider* (where such a request must be in writing and with reasons), after taking into account the size of the *production unit*~~*generating unit*~~, its proposed role and its location in the *network*, has the *active energy* and *reactive energy* measured where the unit has a *nameplate rating* of less than 1 MW.

Requirements for metering installations for small resource connection points~~a small generating unit classified as a market generating unit~~

(g) In addition to the requirements for *metering installations* for *non-market generating units* and *non-market bidirectional units* in paragraph (f), the *Metering Coordinator* for a *small resource connection point* ~~*small generating*~~

~~*unit* classified as a *market generating unit*~~ must ensure that a *metering installation*:

(1) is classified as a type 1, 2, 3 or 4 *metering installation*; and

(2) is capable of recording *interval energy data* relevant to *settlements*.

7.8.9 Meter churn

(a) Any alteration or replacement of a *metering installation* under this Chapter 7 must be managed in accordance with the *meter churn procedures*.

(b) A *Metering Coordinator* may arrange to alter a type 5 or 6 *metering installation* in accordance with paragraph (a) to make it capable of *remote acquisition* where:

(1) the alteration of the *metering installation* is reasonably required to address operational difficulties as defined in paragraph (d); or

(2) the *Metering Coordinator* is the *Local Network Service Provider* and the alteration of the *metering installation* is reasonably required to enable the *Local Network Service Provider* to meet its obligations to provide a safe, reliable and secure *network*.

(c) An alteration of a *metering installation* by a *Metering Coordinator* in accordance with paragraph (b) does not alter the classification of that installation to a type 4 or 4A *metering installation*.

(d) For the purposes of subparagraph (b)(1), operational difficulties arise where the *metering installation* is difficult or unsafe to access because:

(1) the *metering installation* is on a remote property;

(2) the *metering installation* is within a secure facility;

(3) the *metering installation* is in close proximity to hazardous materials; or

(4) accessing or arranging access to the *metering installation* otherwise poses a risk to the safety and security of persons or property.

(e) **[deleted]**

(f) *AEMO* must establish, maintain and *publish* procedures for the *Metering Coordinator*, *Metering Provider*, *Metering Data Provider* and *financially responsible Market Participant* to consider in managing the *meter* churn resulting from an alteration or replacement of a *metering installation* under paragraph (a) (the '*meter churn procedures*').

(g) The *meter churn procedures* must include provisions that enable the installation of a new or replacement *metering installation* at a *connection point* as soon as practicable after the transfer of a ~~*market load* at that~~ *connection point* to a different *financially responsible Market Participant* has been effected by *AEMO*.

Part E Metering Data

7.10 Metering Data Services

7.10.2 Data management and storage

(a) *Metering Data Providers* must:

(1) retain *metering data* for all relevant *metering installations* in the *metering data services database*:

(i) online in an accessible format for at least 13 months;

(ii) following the retention under subparagraph (1)(i), in an accessible format for an overall period of not less than 7 years; and

(2) archive in an accessible format for a period of 7 years:

(i) *metering data* in its original form collected from the *metering installation*;

(ii) records of each substitution to *metering data* in respect of a *metering installation*; and

(3) if required in procedures authorised by *AEMO* under this Chapter 7, provide the persons referred to in clauses 7.15.5(c)(1) to 7.15.5(c)(5a) with access to the *metering data* and *NMI Standing Data* in the *metering data services database*; and

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(4) except for the persons referred to in clauses 7.15.5(c)(1) to 7.15.5(c)(5a), ensure that no other person has access to the *metering data services database*.

Note

This subparagraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) *Metering Data Providers* accredited for type 7 *metering installations* must maintain techniques for determining *calculated metering data* for type 7 *metering installations* ~~that are *market loads* under Schedule 7.4 in accordance with the *metrology procedure*~~.

(c) *Metering Data Providers* must maintain *electronic data transfer* facilities in order to deliver *metering data* from the *metering data services database* to the *metering database* in accordance with the relevant *service level procedures*.

(d) *Check metering data*, where available, and appropriately adjusted for differences in *metering installation* accuracy, where applicable, must be used by the *Metering Data Provider* to validate *metering data*.

(e) If the *Metering Data Provider* becomes aware that the *metering data* that has been delivered into the *metering database* from a *metering data services*

database is incorrect, then the *Metering Data Provider* must provide corrected *metering data* to the persons referred to in clauses 7.15.5(c)(1) to 7.15.5(c)(5a).

(f) *Metering data* may only be altered by a *Metering Data Provider* except in the preparation of *settlements ready data*, in which case *AEMO* may alter the *metering data* in accordance with clause 7.11.2(c).

(g) A *Metering Data Provider* may only alter *metering data* in the *metering data services database* in accordance with the *metrology procedure*.

(h) *Metering Data Providers* must maintain *electronic data transfer* facilities in order to deliver *metering data* from the *metering data services database* in accordance with clause 7.10.3.

(i) The *Metering Data Provider's* rules and protocols for supplying the *metering data services* must be approved by *AEMO* and *AEMO* must not unreasonably withhold such approval.

(j) The *Metering Data Provider* must arrange with the *Metering Coordinator* to obtain the relevant *metering data* if *remote acquisition* becomes unavailable.

7.10.5 Periodic energy metering

(a) The *Metering Data Provider* must, for:

(1) types 1, 2 and 3 *metering installations*; and

(2) types 4, 4A and 5 *metering installations* that are capable of providing *trading interval energy data*,

collate *metering data* relating to:

(3) the amount of *active energy* and;

(4) *reactive energy* (where relevant) passing through a *connection point*,

in *trading intervals* within a *metering data services database* unless it has been agreed between *AEMO*, the *Local Network Service Provider*, *Embedded Network Manager* in relation to *child connection points* and the *financially responsible Market Participant* that *metering data* may be recorded in sub-multiples of a *trading interval*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) For type 6 *metering installations* and types 4, 4A and 5 *metering installations* that are not capable of providing *trading interval energy data*, *metering data* relating to the amount of *active energy* passing through a *connection point* must be converted into *trading intervals* in the *profiling* process undertaken by *AEMO* in accordance with the *metrology procedure* and the *metrology procedure* must specify:

(1) the parameters to be used in preparing the *trading interval metering data* ~~for each *first-tier load* and *market load*~~, including the algorithms;

(2) [**Deleted**]

(3) [**Deleted**]

(4) [**Deleted**]

(5) if required, the method of cost recovery in accordance with clause 7.5.2.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(c) The *Metering Data Provider* must, for type 7 *metering installations*, prepare *metering data* relating to the amount of *active energy* passing through a *connection point* in accordance with clause 7.10.1(a)(4) in *trading intervals* within a *metering data services database*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

7.10.6 Time settings

(a) The *Metering Provider* must set the times of clocks of all *metering installations* with reference to *Eastern Standard Time* to the applicable ~~a~~ standard of accuracy in accordance with Schedule 7.4 ~~relevant to the *load* through the *connection point*~~ when installing, testing and maintaining *metering installations*.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) *AEMO* must ensure that the *metering database* clock is maintained within –1 second and +1 second of *Eastern Standard Time*.

(c) The *Metering Data Provider* must maintain the *metering data services database* clock within –1 second and + 1 second of *Eastern Standard Time*.

(d) The *Metering Data Provider* must:

(1) check the accuracy of the clock of the *metering installation* with reference to *Eastern Standard Time* to a standard of accuracy in accordance with Schedule 7.4 relevant to the *load* through the *connection point* on each occasion that the *metering installation* is accessed;

(2) reset the clock of the *metering installation* so that it is maintained to the required standard of accuracy in accordance with Schedule 7.4 ~~relevant to the *load* through the *connection point*~~ where the clock error of a *metering installation* does not conform to the required standard of accuracy on any occasion that the *metering installation* is accessed; and

(3) notify the *Metering Provider* where the *Metering Data Provider* is unable to reset the clock of the *metering installation* in accordance with subparagraph (2).

7.11 Metering data and database

7.11.3 Changes to energy data or to metering data

(a) The *Metering Coordinator* must ensure that *energy data* held in a *metering installation* is not altered except when the *meter* is reset to zero as part of a repair or reprogramming.

(b) If an on-site test of a *metering installation* requires the injection of current, the *Metering Coordinator* must ensure that:

(1) the *energy data* stored in the *metering installation* is inspected; and

(2) if necessary following the inspection under subparagraph (1), alterations are made to the *metering data*, to ensure that the *metering data* in the *metering data services database* and the *metering database* is not materially different from the *energy* consumed at that *connection point* during the period of the test.

(c) If a *Metering Coordinator* considers alterations are necessary under paragraph (b)(2), the *Metering Coordinator* must:

(1) notify *AEMO* that alteration to the *metering data* is necessary; and

(2) advise the *financially responsible Market Participant* or in respect of a *connection point* where clause 7.6.3A or 7.6.3B applies, the *Network Service Provider* that has appointed the *Metering Coordinator* for that *connection point* of the need to change the *metering data* and the *Metering Coordinator* must arrange for the *Metering Data Provider* to:

(i) alter the *metering data* for the *connection point* held in the *metering data services database* in accordance with the validation, substitution and estimation procedures in the *metrology procedure*; and

(ii) provide the altered *metering data* to the persons who receive that *metering data* under clause 7.10.3(a).

(d) If a test referred to in paragraph (b) is based on actual *energy* consumed at that *connection point*~~*connection point loads*~~, no alteration is required.

Note

This clause is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

Part F Security of metering installation and energy data and baseline data

7.15 Security of metering installation and energy data

7.15.5 Access to energy data

(a) Access to *energy data* recorded by a *metering installation* must only be provided where passwords are allocated in accordance with rule 7.15.

Note

This paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

(b) The *Metering Coordinator* must ensure that access to *energy data* from the *metering installation* is scheduled appropriately to ensure that congestion does not occur.

(c) Except as specified in paragraphs (d) or (e), only the following persons may access or receive *metering data*, *settlements ready data*, *NMI Standing Data*, and data from the *metering register* for a *metering installation*:

(1) *Registered Participants* with a financial interest in the *metering installation* or the *energy* measured by that *metering installation*;

(2) the *Metering Coordinator* appointed in respect of the *connection point* for that *metering installation*, or a person who was previously appointed as the *Metering Coordinator* in respect of that *connection point*, as required in connection with a *Metering Coordinator default event* in accordance with procedures authorised under the *Rules*;

(3) the *Metering Provider* appointed with respect to that *metering installation*;

(4) the *Metering Data Provider* appointed with respect to that *metering installation*, or who was previously appointed with respect to a *metering installation* as required in accordance with the *Rules* and procedures authorised under the *Rules*;

(5) *AEMO* and its authorised agents; and

(5a) in relation to a *metering installation* at a *child connection point*, an *Embedded Network Manager*;

(6) the *AER* or *Jurisdictional Regulators* upon request to *AEMO*.

(d) In addition to the persons listed in paragraph (c), the following persons may access or receive *metering data* in accordance with the *Rules* and procedures authorised under the *Rules*:

(1) a *retail customer* or *customer authorised representative*, upon request by that *retail customer* or its *customer authorised representative* to the *retailer* or *Distribution Network Service Provider* in relation to that *retail customer's metering installation* in accordance with the *metering data provision procedures*;

(2) if a *small customer* has consented to a person accessing the *metering data* from its *small customer metering installation* in accordance with clause 7.15.4(b)(3), to that person;

(3) a *large customer* or a *customer authorised representative*, in relation to *metering data* from the *metering installation* in respect of the *connection point* of the *large customer*;

(4) the *energy ombudsman* in accordance with paragraphs 7.11.1(i) – (k); and

(5) an *Exempt Embedded Network Service Provider* in relation to a *metering installation* at a *child connection point* on its *network*.

(e) In addition to the persons listed in paragraphs (c) and (d), a *retailer* may access and receive *NMI Standing Data*.

(f) Without limiting this clause 7.15.5 or clause 7.13.3:

(1) a *retailer* may access and receive *NMI Standing Data*;

(2) a *customer authorised representative* may receive *metering data*;

(3) a *retailer* or a *Distribution Network Service Provider* may access, receive or provide *metering data* to a *customer authorised representative*;

(4) an *Exempt Embedded Network Service Provider* and its *Embedded Network Manager* may access or receive *metering data*; and

(5) a *Demand Response Service Provider* may access or receive *NMI Standing Data* or *metering data*,

after having first done whatever may be required or otherwise necessary, where relevant, under any applicable privacy legislation (including if appropriate making relevant disclosures or obtaining relevant consents from *retail customers*).

7.15.6 Access to baseline data

(a) *Baseline data* is confidential and must be treated as *confidential information* in accordance with the *Rules*.

(b) For the purposes of clause 8.6.2(c), the *retail customer* for the *connection point* for a *wholesale demand response unit* is deemed to have provided the *baseline data* relating to the *wholesale demand response unit*.

(c) A *Demand Response Service Provider* for a *wholesale demand response unit* must if requested by the *retail customer* at the *connection point* for the *wholesale demand response unit* provide to the *retail customer* the *baseline data* relating to the *wholesale demand response unit*.

(d) *AEMO* must provide *baseline data* and access to *baseline data* in accordance with paragraphs (e) and (f).

(e) A *Demand Response Service Provider* may access and receive *baseline data* relating to its *wholesale demand response units*.

(f) A *retailer* or *Small Resource Aggregator* may access and receive *baseline data* relating to a *wholesale demand response unit* if the *retailer* or *Small Resource Aggregator* is the *financially responsible Market Participant* for the *connection point* for the *wholesale demand response unit*.

Part G Procedures

7.16 Procedures

7.16.3 Requirements of the metrology procedure

(a) *AEMO* must establish, maintain and *publish* the *metrology procedure* that will apply to *metering installations* in accordance with this clause 7.16.3 and this Chapter 7.

(b) The *metrology procedure* must include a minimum period of 3 months between the date when the *metrology procedure* is *published* and the date the *metrology procedure* commences unless the change is made under clause 7.16.7(e) in which case the effective date may be the same date as the date of *publication*.

(c) The *metrology procedure* must include:

(1) information on the devices and processes that are to be used to:

(i) measure, or determine by means other than a device, the flow of electricity in a power conductor;

(ii) convey the measured or determined data under subparagraph (i) to other devices;

(iii) prepare the data using devices or algorithms to form *metering data*; and

(iv) provide access to the *metering data* from a *telecommunications network*;

(2) the requirements for the provision, installation and maintenance of *metering installations*;

(3) the obligations of *Metering Coordinators*, *financially responsible Market Participants*, *Local Network Service Providers*, *Metering Providers*, *Metering Data Providers* and *Embedded Network Managers*;

(4) details on:

(i) the parameters that determine the circumstances when *metering data* must be delivered to *AEMO* for the purposes of Chapter 3 and such parameters must include, but are not limited to, the volume limit per annum below which *AEMO* will not require *metering data* for those purposes;

(ii) the timeframe obligations for the delivery of *metering data* relating to a *metering installation* for the purpose of *settlements*; and

(iii) the performance standards for *metering data* required for the purpose of *settlements*;

(5) subject to clause 7.16.4(d)(2), zero MWh as the specification for the *type 5 accumulation boundary*;

(6) procedures for:

(i) the validation and substitution of *metering data*;

(ii) the estimation of *metering data*;

(iii) the method by which *accumulated metering data* is to be converted by *AEMO* into *trading interval metering data*;

(6A) procedures for the inclusion of *non-contestable unmetered load*~~, which has been classified as a *market load*,~~ in *settlements* including:

(i) the creation of a *NMI* for the *non-contestable unmetered load*;

(ii) the assignment of each *connection point* relating to *non-contestable unmetered load* to a *transmission network connection point* or *virtual transmission node*;

(iii) the methodology for calculating a *load* and *load* profile for *non-contestable unmetered load*; and

(iv) the provision of the estimated volumes of *non-contestable unmetered load* to *AEMO* for inclusion in *settlements*; and

(7) requirements relating to the identification and recording of shared fuse arrangements for multiple *connection points* (**shared fuse arrangements**), including requirements:

(i) for *financially responsible Market Participants* and *Metering Coordinators* to notify the *Local Network Service Provider* of *connection points* with shared fuse arrangements as soon as practicable after becoming aware of the shared fuse arrangements;

(ii) for *Local Network Service Providers* to record all *connection points* with shared fuse arrangements as soon as practicable after becoming aware of the shared fuse arrangements;

(iii) relating to the information to be recorded for all *connection points* with shared fuse arrangements (**shared fuse information**);

(iv) relating to the management of shared fuse information; and

(v) relating to access to shared fuse information; and

(8) other matters in the *Rules* required to be included in the *metrology procedure*.

7.16.5 Additional metrology procedure matters

(a) The *metrology procedure* may:

(1) clarify the operation of the *Rules* in relation to:

(i) *load* profiling;

(ii) the provision and maintenance of *meters*;

(iii) the provision of *metering data services*;

(iv) metrology for a *market connection point* on a ~~*market load* connected to a~~ *network* where the owner or operator of that *network* is not a *Registered Participant*;

(v) the accreditation of *Metering Providers*, *Metering Data Providers* and *Embedded Network Managers*; and

(vi) with respect to the provision, installation and maintenance of *metering installations* and the provision of *metering data services*, the obligations of *Metering Coordinators*, *financially responsible Market Participants*, *Local Network Service Providers*, *AEMO*, *Metering Providers* and *Metering Data Providers*;

(2) specify in detail:

(i) the accuracy of *metering installations*;

(ii) inspection and testing standards;

(iii) *Metering Provider*, *Metering Data Provider* and *Embedded Network Manager* capabilities in accordance with Schedules 7.2, 7.3 and 7.7 respectively, and accreditation standards;

(iv) the standards and/or technical requirements for the *metering data services database*; and

(v) the technical standards for *metering* of a *market connection point* on ~~*market load* that is *connected* to~~ a *network* where the operator or owner of that *network* is not a *Registered Participant*;

(3) provide information on the application of the *Rules*, subject to a statement in the procedure that where any inconsistency arises between the *Rules* and the *metrology procedure*, the *Rules* prevail to the extent of that inconsistency;

(4) in relation to type 4A, 5, 6 and 7 *metering installations* specify in what circumstances *metering data* held in the *metering data services database* within the relevant *participating jurisdiction*, can be used by *Distribution Network Service Providers* to calculate charges for *distribution services* for the purposes of clause 6.20.1(e); and

(5) contain information to ensure consistency in practice between the *metrology procedure* and other instruments developed and *published* by *AEMO*, including the practices adopted in the *Market Settlement and Transfer Solution Procedures*.

(b) The *metrology procedure* may not include information relating to consumer protection.

Schedule 7.1 Metering register

S7.1.2 Metering register information

Metering information to be contained in the *metering register* should include, but is not limited to the following:

(a) *Connection* and *metering point* reference details, including:

(1) agreed locations and reference details (eg drawing numbers);

(2) loss compensation calculation details;

(3) site identification names;

(4) details of *Market Participants* and *Local Network Service Providers* associated with the *connection point* and the *Embedded Network Manager* in relation to a *child connection point*;

(5) details of the *Metering Coordinator*; and

(6) transfer date for *metering data* (i.e. to another *Market Customer*).

(b) The identity and characteristics of *metering* equipment (ie *instrument transformers*, *metering installation* and *check metering installation*), including:

(1) serial numbers;

(2) *metering installation* identification name;

(3) *metering installation* types and models;

(4) *instrument transformer* ratios (available and connected);

(5) current test and calibration programme details, test results and references to test certificates;

(6) asset management plan and testing schedule;

(7) calibration tables, where applied to achieve *metering installation* accuracy;

(8) *Metering Provider*(s) and *Metering Data Provider*(s) details;

(9) summation scheme values and multipliers; and

(10) data register coding details.

(c) Data communication details, including:

(1) telephone number(s) for access to *energy data*;

(2) communication equipment type and serial numbers;

(3) communication protocol details or references;

(4) data conversion details;

(5) user identifications and access rights; and

(6) 'write' password (to be contained in a hidden or protected field).

(d) Data validation, substitution and estimation processes agreed between affected parties, including:

(1) algorithms;

(2) data comparison techniques;

(3) processing and alarms (eg *voltage* source limits; phase angle limits);

(4) *check metering* compensation details; and

(5) alternate data sources.

(e) Data processing prior to the *settlement* process.~~, including algorithms for:~~

~~(1) *generation trading interval* 'sent out' calculation; and~~

~~(2) *customer trading interval load* calculation.~~

~~(3) [Deleted]~~

Schedule 7.4 Types and Accuracy of Metering installations

S7.4.3 Accuracy requirements for metering installations

Table S7.4.3.1 Overall Accuracy Requirements of Metering Installation Components

Type	Volume limit per annum per connection point	Maximum allowable overall error (±%) at full load (Item 6) active	reactive	Minimum acceptable class or standard of components	Metering installation clock error (seconds) in reference to EST
1	greater than 1000GWh	0.5	1.0	0.2CT/VT/*meter* Wh 0.5 *meter* varh	±5
2	100 to 1000GWh	1.0	2.0	0.5CT/VT/*meter* Wh 1.0 *meter* varh	±7
3	0.75 to less than 100 GWh	1.5	3.0	0.5CT/VT 1.0 *meter* Wh 2.0 *meter* varh (Item 1)	±10
4	less than 750 MWh (Item 2)	1.5	n/a	Either 0.5 CT and 1.0 *meter* Wh; or whole current general purpose *meter* Wh: • meets the requirements of clause 7.8.2(a)(9); and • meets the requirements of clause 7.10.6(d). (Item 1) For type 4 *metering installations* that do not provide *trading interval energy data*, processes used to convert the *interval metering data*	±20 (Item 2a)

Type	Volume limit per annum per connection point	Maximum allowable overall error (±%) at full load (Item 6) active	reactive	Minimum acceptable class or standard of components	Metering installation clock error (seconds) in reference to EST
				into *trading interval metering data* and *estimated metering data* where necessary are included in the *metrology procedure*.	
4A	less than x MWh Item 3	1.5	3.0	Either 0.5 CT and 1.0 *meter* Wh; or whole current general purpose *meter* Wh: • meets the requirements of clause 7.8.2(a)(10); and • has the capability, if remote access is activated, of providing the services in table S7.5.1.1; and • meets the requirements of clause 7.10.7(d). Processes used to convert the *interval metering data* for type 4A *metering installations* into *trading interval metering data* and *estimated metering data* where necessary are included in the *metrology procedure*.	±20 (Item 2a)
5	less than x MWh (Item 3)	1.5 (Item 3b)	n/a	Either 0.5 CT and 1.0 *meter* Wh; or whole current general purpose *meter* Wh: • meets the requirements of	±20 (Item 3a)

Type	Volume limit per annum per connection point	Maximum allowable overall error (±%) at full load (Item 6) active	reactive	Minimum acceptable class or standard of components	Metering installation clock error (seconds) in reference to EST
				clause 7.8.2(a)(10); and • meets the requirements of clause 7.10.7(d). Processes used to convert the *interval metering data* for type 5 *metering installation* into *trading interval metering data* and *estimated metering data* where necessary are included in the *metrology procedure*.	
6	less than y MWh (Item 4)	2.0 (Item 4b)	n/a	CT or whole current general purpose *meter* Wh recording *accumulated energy data* only. Processes used to convert the *accumulated metering data* into *trading interval metering data* and *estimated metering data* where necessary are included in the *metrology procedure*. (Item 1)	(Item 4a)
7	volume limit not specified (Item 5)	(Item 6)	n/a	No *meter*. The *metering data* is *calculated metering data* determined in accordance with the *metrology procedure*.	n/a

Item 1: (a) For a type 3, 4, 4A and 5 and 6 *metering installation*, whole current *meters* may be used if the *meters* meet the requirements of the relevant

Australian Standards and International Standards which must be identified in the *metrology procedure*.

(b) The *metering installation* types referred to in paragraph (a) must comply with any applicable specifications or guidelines (including any transitional arrangements) specified by the National Measurement Institute under the *National Measurement Act*.

Item 2: *High voltage* customers that require a VT and whose annual consumption is below 750 MWh, must meet the relevant accuracy requirements of Type 3 metering for *active energy* only.

Item 2a: For the purpose of clarification, the clock error for a type 4 and 4A *metering installation* may be relaxed in the *metrology procedure* to accommodate evolving whole current technologies.

Item 3: The following requirements apply in relation to a type 4A and type 5 *metering installation*:

(1) the value of "x" must be determined by each *Minister* and:

(i) the "x" value must be provided to *AEMO*; and

(ii) *AEMO* must record the "x" value in the *metrology procedure*;

(2) the maximum acceptable value of "x" determined under subparagraph (1) must be 750 MWh per annum; and

Item 3a: For the purpose of clarification, the clock error for a type 5 *metering installation* may be relaxed in the *metrology procedure* to accommodate evolving whole current technologies.

Item 3b: The maximum allowable error of a type 5 *metering installation* may be relaxed in the *metrology procedure* to accommodate evolving technologies providing that such relaxation is consistent with any regulations published under the *National Measurement Act.*

Item 4: The following requirements apply in relation to a type 6 *metering installation*:

(1) a *metrology procedure* must include a procedure relating to converting *active energy* into *metering data*;

(2) the value of "y" must be determined by each *Minister* and:

(i) the "y" value must be provided to *AEMO*; and

(ii) *AEMO* must record the "y" value in the *metrology procedure*;

(3) the maximum acceptable value of "y" determined under subparagraph (2) must be 750 MWh per annum;

(4) devices within the *metering installation* may record *accumulated energy data* in pre determined daily time periods where such time periods are contained in the *metrology procedure*.

Item 4a: Any relevant clock errors for a type 6 *metering installation* are to be established in the *metrology procedure*.

Item 4b: The maximum allowable error of a type 6 *metering installation* may be relaxed in the *metrology procedure* providing that such relaxation is consistent with any regulations *published* under the *National Measurement Act*.

Item 5:

(a) A type 7 *metering installation* classification applies where a *metering installation* does not require a *meter* to measure the flow of electricity in a power conductor and accordingly there is a requirement to determine by other means the *metering data* that is deemed to correspond to the flow of electricity in the power conductor.

(b) The condition referred to in paragraph (a) will only be allowed for *connection points* where *AEMO* in consultation with the *Metering Coordinator* determines:

(1) the *load* pattern is predictable;

(2) for the purposes of *settlements*, the *load* pattern can be reasonably calculated by a relevant method set out in the *metrology procedure*; and

(3) it would not be cost effective to meter the *connection point* taking into account:

(i) the small magnitude of the *load*;

(ii) the *connection* arrangements; and

(iii) the geographical and physical location.

(c) The *metrology procedure* must include arrangements for type 7 *metering installations* ~~that have been classified as *market loads*~~.

(d) A *connection point* that meets the condition for classification as a type 7 *metering installation* does not prevent that *connection point* from being subject to metering in the future.

Item 6: The maximum allowable overall error (±%) at different *loads* and *power factors* is set out in Table S7.4.3.2 to Table S7.4.3.6.

Table S7.4.3.2 Type 1 Installation – Annual Energy Throughput greater than 1,000 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	1.0%	1.0%	2.0%	n/a	n/a	1.4%
50	0.5%	0.5%	1.0%	0.7%	1.4%	1.0%
100	0.5%	0.5%	1.0%	n/a	n/a	1.0%

Table S7.4.3.3 Type 2 Installation – Annual Energy Throughput between 100 and 1,000 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	2.0%	2.0%	4.0%	n/a	n/a	2.8%
50	1.0%	1.0%	2.0%	1.5%	3.0%	2.0%
100	1.0%	1.0%	2.0%	n/a	n/a	2.0%

Table S7.4.3.4 Type 3 Installation – Annual Energy Throughput from 0.75 GWh to less than 100 GWh and Type 4A Installation - Annual Energy Throughput less than 0.75 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	2.5%	2.5%	5.0%	n/a	n/a	4.0%
50	1.5%	1.5%	3.0%	2.5%	5.0%	3.0%
100	1.5%	1.5%	3.0%	n/a	n/a	3.0%

Table S7.4.3.5 Type 4 or 5 Installation – Annual Energy Throughput less than 0.75 GWh

% Rated Load	Power Factor		
	Unity	0.866 lagging	0.5 lagging
	active	active	active
10	2.5%	2.5%	n/a
50	1.5%	1.5%	2.5%
100	1.5%	1.5%	n/a

Table S7.4.3.6 Type 6 Installation – Annual Energy Throughput less than 0.75 GWh

% Rated Load	Power Factor		
	Unity	0.866 lagging	0.5 lagging
	active	active	active
10	3.0%	n/a	n/a
50	2.0%	n/a	3.0%
100	2.0%	n/a	n/a

Note:

All measurements in Tables S7.4.3.2 – S7.4.3.6 are to be referred to 25 degrees Celsius.

(a) The method for calculating the overall error is the vector sum of the errors of each component part (that is, a + b + c) where:

a = the error of the *voltage transformer* and wiring;

b = the error of the *current transformer* and wiring; and

c = the error of the *meter*.

(b) If compensation is carried out then the resultant *metering data* error shall be as close as practicable to zero.

CHAPTER 8

8. Administrative Functions

Part B Disputes

8.2 Dispute Resolution

8.2.1 Application and guiding principles

(a) This rule 8.2 applies to any dispute which may arise between two or more *Registered Participants* about:

(1) the application or interpretation of the *Rules*;

(2) the failure of any *Registered Participants* to reach agreement on a matter where the *Rules* require agreement or require the *Registered Participants* to negotiate in good faith with a view to reaching agreement;

(3) **[Deleted]**

(4) the proposed access arrangements or *connection agreements* of an *Intending Participant* or a *Connection Applicant*, for *connection* and access to a *distribution network* or *declared transmission system*;

(5) the payment of moneys under or concerning any obligation under the *Rules*;

(6) any other matter relating to or arising out of the *Rules* to which a contract between two or more *Registered Participants* provides that the dispute resolution procedures under the *Rules* are to apply;

(7) any other matter relating to or arising out of the *Rules* in respect of which two or more *Registered Participants* have agreed in writing that this rule 8.2 should apply; or

(8) any other matter that the *Rules* provide may or must be dealt with under this rule 8.2,

but does not apply to those disputes described in clause 8.2.1(h).

(a1) For the purposes of this rule 8.2 only, "***Registered Participant***" is deemed to include not just *Registered Participants* but also *AEMO*, *Connection Applicants*, *Metering Providers*, *Metering Data Providers*, *Embedded Network Managers* and *NMAS providers* (including *NSCAS preferred tenderers*) who are not otherwise *Registered Participants*, except that this will not be the case where the term "*Registered Participant*":

(1) is used in clauses 8.2.2(b)(4), 8.2.2(d), 8.2.3(a), 8.2.3(b)(5) and 8.2.5(e); or

(2) first occurs in clauses 8.2.3(b), 8.2.3(b)(3), 8.2.3(b)(4) or 8.2.3(c); or

(3) last occurs in clauses 8.2.4(a) or 8.2.9(c).

(b) **[Deleted]**

(c) **[Deleted]**

(d) The dispute resolution regime in this rule 8.2 provides procedures to resolve disputes between parties, not sanctions for breach of the *Rules*. The dispute resolution processes may indicate that a breach of the *Rules* has occurred and the resolution or determination of the dispute may take account of the damage thereby caused to a party. Any action for breach of the *Rules* may only be taken by the *AER* acting in accordance with the *NEL*.

(e) It is intended that the dispute resolution regime set out in or implemented in compliance with the *Rules* and described in detail in this rule 8.2 should to the extent possible:

(1) be guided by the *national electricity objective*;

(2) be simple, quick and inexpensive;

(3) preserve or enhance the relationship between the parties to the dispute;

(4) take account of the skills and knowledge that are required for the relevant procedure;

(5) observe the rules of natural justice;

(6) place emphasis on conflict avoidance; and

(7) encourage resolution of disputes without formal legal representation or reliance on legal procedures.

(f) Except as provided in the *NEL* and clause 8.2.1(g), where any dispute of a kind set out in clause 8.2.1(a) arises, the parties concerned must comply with the procedures set out in clauses 8.2.4 to 8.2.10 and 8.2.12 and, where the dispute is referred to a *DRP*, a determination of the *DRP* is final and binding on the parties.

(g) Notwithstanding clause 8.2.1(f), a party may seek an urgent interlocutory injunction from a court of competent jurisdiction.

(h) Rule 8.2 does not apply to:

(1) a decision by *AEMO* regarding an exemption under clause ~~2.2.1(c)~~2.1A.2;

(2) a decision by *AEMO* under clause 2.2.2 not to approve the classification of:

(i) a *generating unit* as a *scheduled generating unit*;

(ii) a *bidirectional unit* as a *scheduled bidirectional unit*;

(iii) a *bidirectional unit* as a *scheduled generating unit* and a *scheduled load*; or

(iv) a *bidirectional unit* as a *semi-scheduled generating unit* and a *scheduled bidirectional unit*;

(3) a decision by *AEMO* under clause 2.2.3 not to approve the classification of a *generating unit* as a *non-scheduled generating unit* or the classification of a *bidirectional unit* as a *non-scheduled bidirectional unit*;

(3A) a decision by *AEMO* under clause 2.2.5 or clause 2.2.5B (as applicable) not to approve classification as a *non-market generating unit* or *non-market bidirectional unit*;

(4) a decision by *AEMO* under clause 2.9.2(c) or clause 2.9B(g);

(5) a decision by *AEMO* to reject a notice from a *Market Customer* under clause 2.10.1(d) or from a *Small Resource Aggregator* under clause 2.10.1(d1);

(5A) a decision by *AEMO* with regard to the preparation or publication of a budget;

(5B) the formulation by *AEMO* of its revenue methodology or an amendment to its revenue methodology;

~~(5C) a decision by *AEMO* to reject a notice from a *Market Small Generation Aggregator* under clause 2.10.1(d1);~~

(6) a determination by *AEMO* under clause 3.3.8 of the minimum amount of *credit support* a *Market Participant* must provide to *AEMO* for the relevant time period, as determined by *AEMO* in accordance with clause 3.3.8;

(7) a decision by *AEMO* under clause 3.8.3 to refuse an application for aggregation;

(8) a decision by *AEMO* under clause 3.15.11 to reject a *reallocation request*;

(9) a decision by *AEMO* to issue a notice under clause 4.11.1(d);

(10) a decision by *AEMO* under clause 7.2.1(b) to refuse to permit a *Market Participant* to participate in the *market* in respect of a *connection point*;

(11) a decision by *AEMO* whether or not to deregister a *Metering Provider*, *Metering Data Provider* or *Embedded Network Manager* under clause 7.4.4(d) or to suspend a *Metering Provider*, *Metering Data Provider* or *Embedded Network Manager* from a category of registration under clause 7.4.4(d) or to impose agreed constraints on the continued operation of a *Metering Provider*, *Metering Data Provider* or *Embedded Network Manager*;

(12) a dispute concerning the price of a *SRAS* agreement or a tender conducted by *AEMO* for the acquisition of *SRASs* under clause 3.11.9;

(13) a dispute of a kind referred to in rule 5.16B or 5.17.5;

(14) a *transmission services access dispute* and *DNA services access dispute* to which rule 5.5 applies;

(14A) a decision by a *Co-ordinating Network Service Provider* with regard to the provision of an estimate of the *modified load export charge* payable to each *Transmission Network Service Provider* as referred to in clause 6A.29A.2.

(15) a *distribution services access dispute* to which Part L of Chapter 6 applies;

(16) a decision by *AEMO* under clause 2.2.7 not to approve the classification of a *semi-scheduled generating unit*; or

(17) a decision by *AEMO* regarding an exemption under clause 2.4A.1(b); or

(18) a decision by *AEMO* regarding an exemption under clause 7.8.4(a).

Part C Registered Participants' confidentiality obligations

8.6 Confidentiality

8.6.2 Exceptions

This rule 8.6 does not prevent:

(a) (**public domain**): the disclosure, use or reproduction of information if the relevant information is at the time generally and publicly available other than as a result of breach of confidence by the *Registered Participant* who wishes to disclose, use or reproduce the information or any person to whom the *Registered Participant* has disclosed the information;

(b) (**employees and advisers**): the disclosure of information by a *Registered Participant* or the *Registered Participant's Disclosees* to:

(1) an employee or officer of the *Registered Participant* or a *related body corporate* of the *Registered Participant*; or

(2) a legal or other professional adviser, auditor or other consultant (in this clause 8.6.2(b) called **Consultants**) of the *Registered Participant*,

which require the information for the purposes of the *Rules*, or for the purpose of advising the *Registered Participant* or the *Registered Participant's Disclosee* in relation thereto;

(b1) (**service providers**): the disclosure of *NMI Standing Data* or the provision of means to gain electronic access to that data by a *Customer* or *Integrated Resource Provider* or the *Customer's* or *Integrated Resource Provider's Disclosees* to a person who requires the *NMI Standing Data* for the purposes of providing services in connection with the *Customer's* or *Integrated Resource Provider's* sale of electricity to end users.

(c) (**consent**): the disclosure, use or reproduction of information with the consent of the person or persons who provided the relevant information under the *Rules*;

(d) (**law**): the disclosure, use or reproduction of information to the extent required by law or by a lawful requirement of:

(1) any government or governmental body, authority or agency having jurisdiction over a *Registered Participant* or its *related bodies corporate*; or

(2) any stock exchange having jurisdiction over a *Registered Participant* or its *related bodies corporate*;

(d1) **[Deleted]**

(e) (**disputes**): the disclosure, use or reproduction of information if required in connection with legal proceedings, arbitration, expert determination or other dispute resolution mechanism relating to the *Rules*, or for the purpose of advising a person in relation thereto;

(f) (**trivial**): the disclosure, use or reproduction of information which is trivial in nature;

(g) (**safety**): the disclosure of information if required to protect the safety of personnel or equipment;

(h) (**potential investment**): the disclosure, use or reproduction of information by or on behalf of a *Registered Participant* to the extent reasonably required in connection with the *Registered Participant's* financing arrangements, investment in that *Registered Participant* or a disposal of that *Registered Participant's* assets;

(i) (**regulator**): the disclosure of information to the *AER*, the *AEMC* or the *ACCC* or any other regulatory authority having jurisdiction over a *Registered Participant*, pursuant to the *Rules* or otherwise;

(j) (**reports**): the disclosure, use or reproduction of information of an historical nature in connection with the preparation and giving of reports under the *Rules*;

(k) (**aggregate sum**): the disclosure, use or reproduction of information as an unidentifiable component of an aggregate sum; and

(l) (**profile**): the publication of a profile.

(m) **[Deleted]**

(n) **[Deleted]**

(o) **[Deleted]**

CHAPTER 9

9. Jurisdictional Derogations and Transitional Arrangements

Part B Jurisdictional Derogations for New South Wales

9.12 Transitional Arrangements for Chapter 2 – Generators, Registered Participants, Registration and Cross Border Networks

9.12.2 Customers

(a) For the purposes of clause 2.3.1A(a)~~, 2.3.1(e) and for the purposes of clause 2.4.2(b) in so far as it relates to *Customers*~~, a person satisfies the requirements of New South Wales for classification of a *connection point* of that person if that person is a retailer or is a wholesale customer (as defined in the *ES Act*).

Part D Jurisdictional Derogations for South Australia

9.26 Transitional Arrangements for Chapter 2 – Registered Participants, Registration and Cross Border Networks

9.26.2 Registration as a Customer

For the purposes of clause ~~2.3.1(e)~~2.3.1A(a), a person may classify its electricity purchased at a *connection point* in South Australia if the person is a *retailer* or a customer pursuant to the Electricity Act and regulations.

Part E Jurisdictional Derogations for Queensland

9.34 Transitional Arrangements for Chapter 2 – Registered Participants and Registration

9.34.4 Registration as a Customer (clause ~~2.3.1~~2.3.1A)

(a) Subject to clause 9.34.4(c), for the purpose of clause ~~2.3.1(e)~~2.3.1A(a), a person satisfies the requirements of Queensland for classification of a *connection point* if that person is:

(1) a customer (other than an excluded customer) in relation to that *connection point*; or

(2) a *retailer* who is authorised to sell electricity to the person connected at that *connection point*; or

(3) an exempt seller; or

(4) a person exempted under the *National Energy Retail Law* (Queensland), from the operation of section 88 of that Act.

(b) For the purpose of clause ~~2.3.1(e)~~2.3.1A(a), a person does not satisfy the requirements of Queensland for classification of its electricity purchased at a *connection point* in Queensland if the electricity is *supplied* through a *transmission system* which does not form part of the *national grid*.

Part F Jurisdictional Derogations for Tasmania

9.44 Transitional Arrangements for Chapter 2 – Registered Participants and Registration – Customers (clause ~~2.3.1(e)~~2.3.1A(a))

For the purposes of clause ~~2.3.1(e)~~2.3.1A(a), ~~and for the purposes of clause 2.4.2(b) in so far as it relates to *Customers*~~, a person satisfies the requirements of Tasmania for classification of a *connection point* of that person if that person is a *retailer* or is a contestable customer within the meaning of the ESI Act in respect of that *connection point*.

CHAPTER 10

10. Glossary

activate

The operation of a *generating unit* (other than a *scheduled generating unit*) or a *bidirectional unit* (other than a *scheduled bidirectional unit*) at an increased *loading level* or reduction in demand (other than a *scheduled load*) undertaken in response to a request by *AEMO* in accordance with an *unscheduled reserve contract*.

active power capability

The maximum rate at which *active energy* may be transferred from a *generating unit* or a *bidirectional unit* to a *connection point* as specified or proposed to be specified in a *connection agreement* (as the case may be).

adjusted consumed energy

The *adjusted consumed energy* determined in accordance with clause 3.15.4.

adjusted gross energy

The *adjusted gross energy* determined in accordance with clause 3.15.4.

~~***adjusted gross energy***~~

~~The *energy* adjusted in accordance with clause 3.15.4.~~

adjusted sent out energy

The *adjusted sent out energy* determined in accordance with clause 3.15.4.

adverse system strength impact

An adverse impact, assessed in accordance with the *system strength impact assessment guidelines*, on the ability under different operating conditions of:

(a) the *power system* to maintain system stability in accordance with clause S5.1a.3; or

(b) a *generating system*, *integrated resource system*, ~~or~~ *market network service facility* or *inverter based load* forming part of the *power system* to maintain stable operation including following any *credible contingency event* or *protected event*,

so as to maintain the power system in a *secure operating state*.

AEMO intervention event

An event where *AEMO* intervenes in the *market* under the *Rules* by:

(a) issuing a *direction* in accordance with clause 4.8.9; or

(b) exercising the *reliability and emergency reserve trader* in accordance with rule 3.20 by:

(1) *dispatching scheduled generating units*, *scheduled bidirectional units*, *wholesale demand response units*, *scheduled network services* or *scheduled loads* in accordance with a *scheduled reserve contract*; or

(2) *activating* *unscheduled reserves* available ~~*loads or generating units*~~ under an *unscheduled reserve contract*.

affected load

A *scheduled load* or *scheduled bidirectional unit* in respect of which a *Market Customer* or *Integrated Resource Provider* is an *Affected Load Participant*.

Affected Load Participant

A person who satisfies paragraph (a) or (b), to the extent provided for in the paragraph:

(a) In respect of a particular *direction* in an *intervention price trading interval*, a *Market Customer* in respect of its *scheduled load*, or an *Integrated Resource Provider* in respect of its *scheduled bidirectional unit*, where:

(1) the *scheduled load* or *scheduled bidirectional unit* was not the subject of that *direction*; and

(2) the *dispatched load* quantity of the *scheduled load* or *scheduled bidirectional unit* was affected by that *direction*,

but to avoid doubt, if the *Market Customer* or *Integrated Resource Provider* was given the *direction*, it is only an *Affected Load Participant* in respect of those *scheduled loads* or *scheduled bidirectional units* that satisfy subparagraphs (a)(1) and (a)(2).

(b) In relation to the exercise of the *RERT* under rule 3.20, a *Market Customer* in respect of its *scheduled load*, or an *Integrated Resource Provider* in respect of its *scheduled bidirectional unit*, where:

(1) the *scheduled load* or *scheduled bidirectional unit* was not *dispatched* under a *scheduled reserve contract* and the *dispatched load* quantity of the *scheduled load* or *scheduled bidirectional unit* was affected by the *dispatch* of other *scheduled reserve* under a *scheduled reserve contract*; or

(2) the *dispatched load* quantity of the *scheduled load* or *scheduled bidirectional unit* was affected by the *activation* of *unscheduled reserves* available under an *unscheduled reserve contract*.

Affected Participant

A person who satisfies any of paragraphs (a) to (d), to the extent provided for in the paragraph:

(a) In respect of a particular *direction* in an *intervention price trading interval*, a *Scheduled Generator* in respect of its *scheduled generating unit*, an *Integrated Resource Provider* in respect of its *scheduled generating unit* or its *scheduled bidirectional unit* or a *Scheduled Network Service Provider* in respect of its *scheduled network service*, where:

(1) the *scheduled generating unit*, *scheduled bidirectional unit* or *scheduled network service* was not the subject of the *direction*; and

(2) the *dispatched generation* quantity of the *scheduled generating unit* or *scheduled bidirectional unit*, or the *dispatched network service* quantity

of the *scheduled network service* (as applicable) was affected by that *direction*,

but to avoid doubt, if the *Scheduled Generator, Scheduled Integrated Resource Provider* or *Scheduled Network Service Provider* was given the *direction,* it is only an *Affected Participant* in respect of those *scheduled generating units*, *scheduled bidirectional units* or *scheduled network services* that satisfy subparagraphs (a)(1) and (a)(2).

(b) In respect of a particular *direction* in an *intervention price trading interval*, an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units for the *intervention price trading interval*, as a result of the *direction.*

(c) In relation to the exercise of the *RERT* under rule 3.20, a *Scheduled Generator* in respect of its s*cheduled generating unit*, an *Integrated Resource Provider* in respect of its s*cheduled generating unit* or its *scheduled bidirectional unit* or a *Scheduled Network Service Provider* in respect of its *scheduled network service*, where:

(1) the *scheduled generating unit, scheduled bidirectional unit* or *scheduled network service* was not *dispatched* under a *scheduled reserve contract* and the *dispatched generation* quantity of the *scheduled generating unit* or *scheduled bidirectional unit* or the *dispatched network service* quantity of the *scheduled network service* (as applicable) was affected by the *dispatch* of other *scheduled reserves* under a *scheduled reserve contract*; or

(2) the *dispatched generation* quantity of the *scheduled generating unit* or *scheduled bidirectional unit* or the *dispatched network service* quantity of the *scheduled network service* (as applicable) was affected by the *activation* of *unscheduled reserves* available under an *unscheduled reserve contract*.

(d) In relation to the exercise of the *RERT* under rule 3.20, an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units for the *intervention price trading interval*, as a result of the *dispatch* of *scheduled reserves* under a *scheduled reserve contract* or the *activation* of *unscheduled reserves* available under an *unscheduled reserve contract*.

~~***Affected Participant***~~

~~(a) In respect of a particular *direction* in an *intervention price trading interval*:~~

~~(1) A *Scheduled Generator*, or *Scheduled Network Service Provider*:~~

~~(i) which was not the subject of the *direction*, that had its *dispatched* quantity for other *generating units* or other services affected by that *direction*; or~~

~~(ii) which was the subject of the *direction*, that had its *dispatched* quantity for other *generating units* or other services which were not the subject of that *direction* affected by that *direction*,~~

however, the *Scheduled Generator*, or *Scheduled Network Service Provider* is only an *Affected Participant* in respect of those *generating units* and services which were not the subject of that *direction*; or

(2) an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units for the *intervention price trading interval*, as a result of the *direction*; and

(b) in relation to the exercise of the *RERT* under rule 3.20:

(1) a *Scheduled Generator* or *Scheduled Network Service Provider*:

(i) whose *plant* or *scheduled network service* was not *dispatched* under a *scheduled reserve contract*, that had its *dispatched* quantity affected by the *dispatch* of *plant* or *scheduled network service* under that *scheduled reserve contract*; and

(ii) who was not the subject of *activation* under an *unscheduled reserve contract*, that had its *dispatched* quantity affected by the *activation* of *generating units* or *loads* under that *unscheduled reserve contract*;

(2) a *Scheduled Generator* or *Scheduled Network Service Provider* whose *plant* or *scheduled network service* was *dispatched* under a *scheduled reserve contract*, that had its *dispatched* quantity for other *generating units* or other services which were not *dispatched* under the *scheduled reserve contract* affected by that *dispatch* of *plant* or *scheduled network service* under that *scheduled reserve contract*, however, the *Scheduled Generator* or *Scheduled Network Service Provider* is only an *Affected Participant* in respect of those *generating units* and services which were not *dispatched* under that *scheduled reserve contract*; or

(3) an *eligible person* entitled to receive an amount from *AEMO* pursuant to clause 3.18.1(b)(1) where there has been a change in flow of a *directional interconnector*, for which the *eligible person* holds units for the *intervention price trading interval*, as a result of the *dispatch* of *plant* or *scheduled network service* under a *scheduled reserve contract* or the *activation* of *generating units* or *loads* under an *unscheduled reserve contract*.

affected network service

A *scheduled network service* in respect of which a *Scheduled Network Service Provider* is an *Affected Participant*.

affected production unit

A *scheduled generating unit* or *scheduled bidirectional unit* in respect of which a *Scheduled Generator* or an *Integrated Resource Provider* is an *Affected Participant*.

AGC (automatic generation control system)

The system into which the *loading levels* from economic *dispatch* will be entered for *generating units* and *scheduled bidirectional units* operating on automatic generation control in accordance with clause 3.8.21(d).

~~***ancillary service generating unit***~~

~~A *generating unit* which has been classified in accordance with Chapter 2 as an *ancillary service generating unit*.~~

~~***ancillary service load***~~

~~A *market load* or *load* which has been classified in accordance with Chapter 2 as an *ancillary service load*.~~

Ancillary Service Provider

A person who has, in accordance with Chapter 2, classified a *generating unit, bidirectional unit* or other *connected plant* as an *ancillary service unit*.

~~***Ancillary Service Provider***~~

~~A person (including a *Demand Response Service Provider)* who engages in the activity of owning, controlling or operating a *generating unit*, *load* or *market load* classified in accordance with Chapter 2 as an *ancillary service generating unit* or *ancillary service load*, as the case may be.~~

ancillary service unit

A *generating unit, bidirectional unit* or other *connected plant* that has been classified in accordance with Chapter 2 as an *ancillary service unit*.

asynchronous bidirectional unit

A *bidirectional unit* that is not a *synchronous bidirectional unit.*

asynchronous generating unit

A *generating unit* that is not a *synchronous generating unit*.

asynchronous production unit

A *production unit* that is not a *synchronous production unit.*

auxiliary load

Electricity consumption used for the operation of a *production unit* but excluding electricity consumption used to create the source of energy converted by the *production unit* to produce electrical power.

Note:

Auxiliary load does not include electricity consumption used to charge a *production unit* or to pump water for a pumped hydro *production unit*.

available capacity

(a) The total MW capacity available for *dispatch* by a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled bidirectional unit* or *scheduled load* (i.e. maximum plant availability) or, in relation to a specified *price band*, the MW capacity within that *price band* available for *dispatch* (i.e. availability at each *price band*).

(b) For a *wholesale demand response unit*, subject to clauses 3.8.2A(b), (c), (d) and (e):

(1) the total MW capacity available for *dispatch* by the *wholesale demand response unit* (i.e. maximum plant availability); and

(2) in relation to a specified *price band*, the MW capacity within that *price band* available for *dispatch* (i.e. availability at each *price band*).

basic micro ~~EG~~ DER connection service

Has (in the context of Chapter 5A) the meaning given in clause 5A.A.1.

~~***bid and offer validation data***~~

~~Data submitted by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to *AEMO* in relation to their *scheduled loads*, *scheduled generating units*, *semi-scheduled generating units*, *wholesale demand response units* and *scheduled market network services* in accordance with schedule 3.1.~~

bid validation data

Data submitted by *Market Participants* to *AEMO* in relation to their *scheduled resources* and *ancillary service units* in accordance with schedule 3.1.

bidirectional unit

(a) Subject to paragraphs (b) and (c), a *production unit* that also consumes electricity.

Note

Consumption of electricity includes the use of electricity to charge a *production unit* or to pump water for a pumped hydro *production unit.*

(b) For paragraph (a), disregard *auxiliary load*.

(c) A *bidirectional unit* within the meaning of paragraph (a) of this definition, that has been classified as a *scheduled generating unit* under clause 2.2.2(b2), is taken for the purposes of the *Rules* (except rules 2.1A and 2.1B and clauses 2.2.2(a) to (b4) or as otherwise provided in the *Rules*) to be a *generating unit* (and not a *bidirectional unit*).

Note

Clause 2.2.2(b)(2) provides for the classification of a *bidirectional unit* that is not capable of transitioning linearly from consuming to producing electricity and vice versa. In general terms, these units are *bidirectional units* for registration and classification purposes and otherwise, are *generating units* and *scheduled loads*. Unless the system the unit is part of would satisfy the definition of *integrated resource system* for other reasons, in general terms the system will be an *integrated resource system* for registration and classification purposes and otherwise, a *generating system*.

billed but unpaid charges

For a *Distribution Network Service Provider*, *network charges* that have been billed to a *failed retailer* or a *failed* ~~*Market Small Generation*~~*Small Resource Aggregator* by the *Distribution Network Service Provider*, but that the *failed retailer* or *failed* ~~*Market Small Generation*~~*Small Resource Aggregator* has not yet paid (whether before or after the relevant due date for payment).

black start capability

A capability that allows a ~~*generating unit,*~~ *production unit, facility* or a combination of *facilities* following *disconnection* from the *power system*, to be able to deliver electricity to either:

(a) a *connection point*; or

(b) a suitable point in the *network* from which *supply* can be made available to other *production units*~~*generating units*~~,

without taking *supply* from any part of the *power system* following *disconnection*.

capacity reserve

At any time, the amount of surplus or unused generating capacity indicated by the relevant *Generators* and *Integrated Resource Providers* as being available in the relevant timeframe minus the capacity requirement to meet the current forecast *load* demand, taking into account the known or historical levels of demand management.

central dispatch

The process managed by *AEMO* for the *dispatch* of *scheduled resources* and *market ancillary services* in accordance with rule 3.8.

~~***central dispatch***~~

~~The process managed by *AEMO* for the *dispatch* of *scheduled generating units*, *semi-scheduled generating units*, *wholesale demand response units*, *scheduled loads*, *scheduled network services* and *market ancillary services* in accordance with rule 3.8.~~

child connection point

The agreed point of *supply* between an *embedded network* and an electrical installation, *production unit*~~*generating unit*~~, or other *network connected* to that *embedded network*, for which a *Market Participant* is, or proposes to be, *financially responsible*.

connection service

An *entry service* (being a service provided to serve a *Generator* or *Integrated Resource Provider* or a group of *Generators* or *Integrated Resource Providers*, or a *Network Service Provider* or a group of *Network Service Providers*, at the same *connection point*) or an *exit service* (being a service provided to serve a *Transmission Customer* or *Distribution Customer* or a group of *Transmission Customers* or *Distribution Customers*, or a *Network Service Provider* or a group of *Network Service Providers*, at the same *connection point*).

Note:

In the context of Chapter 5A and Part DA of Chapter 6, the above definition has been displaced by a definition specifically applicable to that Chapter. See clause 5A.A.1.

constrained off

In respect of a *production unit*~~*generating unit*~~, the state where, due to a *constraint* on a *network*, the *loading level* ~~output~~ of that *production unit* ~~*generating unit*~~ is limited below the level to which it would otherwise have been *dispatched* by *AEMO* on the basis of its ~~*dispatch offer*~~*dispatch bid*.

constrained on

(a) In *respect* of a *production unit*~~*generating unit*~~, the state where, due to a *constraint* on a *network* or in order to provide *inertia network services* under an *inertia services agreement* or *system strength services* under a *system strength services agreement*, the *loading level*~~output~~ of that *production unit*

~~*generating unit*~~ is limited above the level to which it would otherwise have been *dispatched* by *AEMO* on the basis of its *dispatch bid* ~~*dispatch offer*~~.

(b) In respect of a *wholesale demand response unit*, the state where, due to a *constraint* on a *network*, the *loading level* of that *wholesale demand response unit* is limited above the level to which it would otherwise have been *dispatched* by *AEMO* on the basis of its *dispatch bid*.

constraint*, *constrained

A limitation on the capability of a *network*, *load*, a *generating unit*, a *bidirectional unit* or a *wholesale demand response unit* such that it is unacceptable to either transfer, consume or generate the level of electrical power, or provide the level of *wholesale demand response*, that would occur if the limitation was removed.

continuous uninterrupted operation

In respect of a *generating system*, ~~or~~ *generating unit*, *integrated resource system* or *bidirectional unit* operating immediately prior to a *power system* disturbance:

(a) not *disconnecting* from the *power system* except under its *performance standards* established under clauses S5.2.5.8 and S5.2.5.9;

(b) during the disturbance contributing active and reactive current as required by its *performance standards* established under clause S5.2.5.5;

(c) after clearance of any electrical fault that caused the disturbance, only substantially varying its *active power* and *reactive power* as required or permitted by its *performance standards* established under clauses S5.2.5.5, S5.2.5.11, S5.2.5.13 and S5.2.5.14; and

(d) not exacerbating or prolonging the disturbance or causing a subsequent disturbance for other *connected plant*, except as required or permitted by its *performance standards*,

with all essential auxiliary and *reactive plant* remaining in service.

control system

Means of monitoring and controlling the operation of the *power system* or equipment including *production units* ~~*generating units*~~ *connected* to a *transmission network* or *distribution network*.

Cost Recovery Market Participant

A person who is registered by *AEMO* under Chapter 2 as a *Generator*, *Integrated Resource Provider*~~,~~ or *Customer*.

coupled production unit

A *production unit* with separate *plant* for the production of electricity, each of a different *plant* type (for example, *intermittent* and non-*intermittent*) and capable of separate operation but that share equipment (such as an inverter) essential to the functioning of each.

Customer

A person who classifies one or more *connection points* as *market connection points* under Chapter 2 and is registered by *AEMO* as a *Customer* under Chapter 2.

~~***Customer***~~

~~A person who:~~

~~1. engages in the activity of purchasing electricity *supplied* through a *transmission system* or *distribution system* to a *connection point*; and~~

~~2. is registered by *AEMO* as a *Customer* under Chapter 2.~~

~~***customer energy***~~

~~Has the meaning given in clauses 3.15.6A(a0) and 3.15.8(a0).~~

dedicated connection asset

The apparatus, equipment, *plant* and buildings that:

(a) are used for the purpose of *connecting* a person at a *connection point* to a *transmission network* and are used exclusively by that person;

(b) include power lines less than 30 kilometres in route length;

(c) can be electrically isolated from the *transmission network* without affecting the provision of *shared transmission services* to other persons; and

(d) are not:

(1) *network connection assets*;

(2) part of a *generating system* or *integrated resource system*;

(3) part of a *distribution system*;

(4) part of a *transmission system* for which a *Market Network Service Provider* is registered under Chapter 2;

(5) part of *Transmission Customer's facility* that utilises electrical *energy*;

(6) part of the *declared transmission system* of an *adoptive jurisdiction*; or

(7) *designated network assets*.

Note

At any time a person who owns, controls or operates a *dedicated connection asset* may elect for that *dedicated connection asset* to be a *designated network asset* under clause 11.139.4

default bid

A *dispatch bid* in respect of a *scheduled resource*, or a *market ancillary service bid* in respect of an *ancillary service unit*, to apply from a specified future *trading day*.

~~***default dispatch bid***~~

~~A *dispatch bid* made pursuant to clause 3.8.9.~~

~~***default dispatch offer***~~

~~A *dispatch offer* made pursuant to clause 3.8.9.~~

Demand Response Service Provider

A person who has classified ~~offers and provides *load* as~~ either or both:

(a) a *connection point* ~~*wholesale demand response* in respect of~~ as a *wholesale demand response unit*; and

(b) ~~a~~ *connected plant* as an *ancillary service unit*~~*market ancillary service* in respect of *ancillary service load*~~,

and who is registered by *AEMO* as a *Demand Response Service Provider* under Chapter 2. The relevant person does not need to be the *Market Customer* for the relevant ~~*load*~~*connection point*.

DER generation information

Standing data in relation to a *small generating unit* or *small bidirectional unit*.

DER Technical Standards

means the requirements for ~~*embedded generating units*~~ *distribution connected units* under *Australian Standard* AS4777.2:2020 as in force from time to time.

de-synchronising / de-synchronisation

The act of *disconnection* of a *production unit* ~~*generating unit*~~ from the *connection point* with the *power system*, normally under controlled circumstances.

Directed Participant

A *Market Participant* the subject of a *direction.*

~~***Directed Participant***~~

~~*A Scheduled Generator, Semi-Scheduled Generator, Market Generator, Demand Response Service Provider* in respect of its *ancillary service load, Scheduled Network Service Provider* or *Market Customer* the subject of a *direction.*~~

directed resource

A *scheduled resource* (other than a *wholesale demand response unit*), *ancillary service unit*, *market generating unit* or *market bidirectional unit* in relation to which a *Directed Participant* is given a *direction.*

dispatch

The act of initiating or enabling all or part of the response specified in a *dispatch bid*~~, *dispatch offer*~~ or *market ancillary service bid*~~*market ancillary service offer*~~ in accordance with rule 3.8, or a *direction* or operation of capacity the subject of a *reserve contract* or an instruction under an *ancillary services agreement* or to *enable* an *inertia network service* or *system strength service* as appropriate.

dispatch bid

A notice submitted by a *Market Participant* to *AEMO* relating to the *dispatch* of a *scheduled resource* ~~*a scheduled load*~~ in accordance with clause 3.8.6, 3.8.6A or 3.8.7 or a *wholesale demand response dispatch bid*.

distribution connected bidirectional unit

A *bidirectional unit connected* within a *distribution system* and not having direct access to the *transmission network.*

distribution connected generating unit

A *generating unit connected* within a *distribution system* and not having direct access to the *transmission network.*

Distribution Connected Resource Provider

A *Generator* or *Integrated Resource Provider* who owns, operates or controls a *distribution connected unit.*

distribution connected unit

A *distribution connected generating unit* or a *distribution connected bidirectional unit*.

distribution connected unit operator

A person who owns, controls or operates a *distribution connected unit*.

dispatch bid price

The price submitted by a *Market Participant* for a *price band* and a *trading interval* in a *dispatch bid*.

dispatch inflexibility profile

Data which may be provided to *AEMO* by *Market Participants*, in accordance with clause 3.8.19, to specify *dispatch inflexibilities* in respect of *scheduled resources* ~~*scheduled loads, wholesale demand response units* or *scheduled generating units* which are not slow start *generating units*~~.

~~***dispatch offer***~~

~~A *generation dispatch offer* or a *network dispatch offer.*~~

~~***dispatch offer price***~~

~~The price submitted by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Scheduled Network Service Provider* for a *price band* and a *trading interval* in a *dispatch offer.*~~

~~***dispatchable unit identifier***~~

~~A unique reference label allocated by *AEMO* for each scheduled *generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled load*, and *scheduled network service.*~~

dispatchable unit identifier

A unique reference label allocated by *AEMO* for each *scheduled resource* and *ancillary service unit*.

dispatched load

The *load* which has been *dispatched* as part of *central dispatch*, but not including *dispatched wholesale demand response* or in relation to a *bidirectional unit*, *dispatched generation*.

dispatched network service

The *scheduled network service* which has been *dispatched* as part of *central dispatch*.

Distribution Network User

A *Distribution Customer* or a *Distribution Connected Resource Provider.* ~~or an *Embedded Generator.*~~

distribution network user access

The *power transfer capability* of the *distribution network* in respect of:

(a) *generating units* or a group of *generating units*; ~~and~~

(b) *network elements*~~,~~; and

(c) *bidirectional units* or a group of *bidirectional units*~~;~~,

at a *connection point* which has been negotiated in accordance with rule 5.3AA.

distribution service end user

An *electricity consumer*, *micro* ~~*embedded generator*~~*resource operator* or *non-registered* ~~*embedded generator*~~*DER provider* (other than a *non-registered* ~~*embedded generator*~~*DER provider* who has made an election under clause 5A.A.2(c) for *connection* under Chapter 5).

~~***embedded generating unit***~~

~~*A generating unit connected within a distribution system and not having direct access to the transmission network.*~~

~~***embedded generating unit operator***~~

~~A person that owns, controls or operates an *embedded generating unit*.~~

~~Embedded Generator~~

~~A *Generator* who owns, operates or controls an *embedded generating unit*.~~

enable

A *market ancillary service* is enabled when *AEMO* has selected the relevant ~~*generating unit* or *load*~~*ancillary service unit* for the provision of the *market ancillary service* and has notified the relevant *Market Participant* accordingly.

An *inertia network service* is enabled when *AEMO* has selected the relevant *inertia network service* and the service is providing *inertia* to an *inertia sub-network*.

An activity approved by *AEMO* under clause 5.20B.5(a) is enabled when *AEMO* has selected the relevant activity and the activity is performing and available in accordance with any conditions of that approval.

A *system strength service* is enabled when *AEMO* has selected the relevant *system strength service* and the service is contributing to the *three phase fault level* at the relevant *system strength node*.

enablement limit

In relation to any ~~*market ancillary service offer*~~*market ancillary service bid*, the level of associated *generation* or consumption ~~*load*~~ (in MW) above or below which no response is specified as being available.

energise

The act of operation of switching equipment or the start-up of a *production unit*~~*generating unit*~~, which results in there being a non-zero *voltage* beyond a *connection point* or part of the *transmission network* or *distribution network*.

energy constrained scheduled bidirectional unit

A *scheduled bidirectional unit* in respect of which the amount of electricity it is capable of producing or consuming on a *trading day* is less than the amount of electricity it would produce or consume on that *trading day* if it were *dispatched* to its full nominated availability for the whole *trading day*.

energy constrained scheduled generating unit

A *scheduled generating unit* in respect of which the amount of electricity it is capable of producing ~~*supplying*~~ on a *trading day* is less than the amount of electricity it would produce~~*supply*~~ on that *trading day* if it were *dispatched* to its full nominated availability for the whole *trading day*.

energy constrained scheduled load

A *scheduled load* in respect of which the amount of electricity it is capable of consuming~~can take~~ in a *trading day*, if *normally off*, or it can *off-load*, if *normally on*, is *constrained*.

energy constraint

A limitation on the ability of a *production unit* ~~*generating unit*~~ or group of *production units* ~~*generating units*~~ to generate *active power* due to the restrictions in the availability of fuel, stored energy or other necessary expendable resources such as, but not limited to, gas, coal, or water for operating turbines or for cooling.

energy support arrangement

A contractual arrangement between a *Generator*, *Integrated Resource Provider* or *Network Service Provider* on the one hand, and a customer or *participating jurisdiction* on the other, under which *facilities* not subject to an *ancillary services agreement* for the provision of *SRASs* are used to assist *supply* to a customer during a *major supply disruption* affecting that customer, or customers generally in the *participating jurisdictions*, as the case may be.

entry service

A service provided to serve a *Generator* or *Integrated Resource Provider* or a group of *Generators* or *Integrated Resource Providers*, or a *Network Service Provider* or a group of *Network Service Providers*, at the same *connection point*.

excitation control system

In relation to a *production unit*~~*generating unit*~~, the automatic *control system* that provides the field excitation for the generator of the *production unit* ~~*generating unit*~~ (including excitation limiting devices and any *power system* stabiliser).

expected closure year

Has the meaning given in clause 2.1B.3(a)~~clause 2.2.1(e)(2A)~~.

export tariff

A tariff for *distribution services* that includes a *charging parameter* relating to *supply* from ~~*embedded generating units*~~ *distribution connected units* into the *distribution network*.

facilities

A generic term associated with the apparatus, equipment, buildings and necessary associated supporting resources provided at, typically:

(a) a *power station, generating system* or *integrated resource system*;

~~(a) a *power station* or *generating unit*;~~

(b) a *substation* or *power station switchyard*;

(c) a *control centre* (being a *AEMO control centre*, or a *distribution* or *transmission network control centre*);

(d) facilities providing an *exit service*.

failed ~~Market Small Generation~~Small Resource Aggregator

A ~~*Market Small Generation*~~*Small Resource Aggregator* in respect of whom an *insolvency official* has been appointed.

financially responsible

In relation to a *market connection point*, a term which is used to describe the *Market Participant* which has done one of the following:

(a) classified the *market connection point* as one of its *market connection points*;

(b) classified a *generating unit connected* at the *market connection point* as a *market generating unit*;

(c) classified a *bidirectional unit connected* at the *market connection point* as a *market bidirectional unit*; or

(d) classified the *network services* at the *market connection point* as a *market network service*.

~~***financially responsible***~~

~~In relation to any *market connection point*, a term which is used to describe the Market *Participant* which has either:~~

~~1. classified the *connection point* as one of its *market loads*;~~

~~2. classified the *generating unit connected* at that *connection point* as a *market generating unit*; or~~

~~3. classified the *network services* at that *connection point* as a *market network service*.~~

~~***First-Tier Customer***~~

~~A *Customer* which has classified any *load* as a *first-tier load* in accordance with Chapter 2.~~

~~***first-tier load***~~

~~Electricity purchased at a *connection point* directly and in its entirety by a *franchise customer* from the *Local Retailer* and which is classified as a *first-tier load* in accordance with Chapter 2.~~

frequency response mode

The mode of operation of a *production unit* ~~*generating unit*~~ which allows automatic changes to the generated power when the *frequency* of the *power system* changes.

GELF parameters

Variable parameters specific to a *Generator Energy Limitation Framework* (*GELF*) which are defined in the *EAAP guidelines* and supplement the *GELF*, and are submitted by a *Scheduled Generator* or *Scheduled Integrated Resource Provider* and updated in accordance with rule 3.7C for the purpose of the *EAAP*.

general system strength impact

In relation to a new *connection* or an alteration to a *generating system*, *integrated resource system* or other *connected plant*, the amount equal to its *adverse system strength impact* as well as any additional amount by which it reduces the *available fault level* at the *connection point* for the new *connection* or *connected plant*, assessed in accordance with the *system strength impact assessment guidelines*.

generated

In relation to a *production unit*~~*generating unit*~~, the amount of electricity produced by the *production unit* ~~*generating unit*~~ as measured at its terminals.

generating system

(a) Subject to paragraph (b), for the purposes of the *Rules*, a system comprising one or more *generating units*, other than an *integrated resource system*.

(b) For the purposes of clause 2.1B.1(c)~~(3)~~~~clause 2.2.1(e)(3)~~, clause 2.1B.2(b)(4), clause 4.9.2, Chapter 5 and a *jurisdictional derogation* from Chapter 5, a system comprising one or more *generating units*, other than an *integrated resource system*, and includes auxiliary or *reactive plant* that is located on the *Generator's* side of the *connection point* and is necessary for the *generating system* to meet its *performance standards*.

(c) For the purposes of the *Rules* (except rules 2.1A, 2.1B and 2.2 and except as otherwise provided under the *Rules*), a reference to a *generating unit* in paragraph (a) or (b) of this definition is taken to include a *bidirectional unit* that has been classified as a *scheduled generating unit* as provided for in clause 2.2.2(b2).

Note

In relation to paragraph (c), refer to the note to *bidirectional unit*.

generating unit

(a) ~~The plant used in the production of electricity and all related equipment essential to its functioning as a single entity~~Subject to paragraph (b), a *production unit* that is not a *bidirectional unit*.

(b) A *bidirectional unit* within the meaning of paragraph (a) of the definition of *bidirectional unit*, that has been classified as a *scheduled generating unit* under clause 2.2.2(b2), is taken for the purposes of the *Rules* (except rules 2.1A and 2.1B and clauses 2.2.2(a) to (b4) and except as otherwise provided in the *Rules*) to be a *generating unit* (and not a *bidirectional unit*).

Note

In relation to paragraph (b), refer to the note to *bidirectional unit*.

~~***generating unit minimum ramp rate requirement***~~

~~(a) in relation to a *generating unit* that has not been aggregated in accordance with clause 3.8.3, the lower of 3MW/minute or 3% of the maximum *generation* provided in accordance with clause 3.13.3(b); or~~

~~(b) in relation to a *generating unit* that has been aggregated in accordance with clause 3.8.3, the lower of 3 MW/minute or 3% of the maximum *generation* provided in accordance with clause 3.13.3(b1),~~

~~expressed as MW/minute rounded down to the nearest whole number except where this would result in the nearest whole number being zero, in which case the generating unit minimum ramp rate requirement is 1 MW/minute.~~

generation

According to context:

(a) The production of electrical power by converting another form of energy in a *production unit*~~*generating unit*~~.

(b) The amount of electrical power (measured in MW) produced by a *production unit* and measured at its terminals.

(c) The amount of electrical power (measured in MW) at a defined instant at a *connection point*, or aggregated over a defined set of *connection points*.

generation centre

A geographically concentrated area containing *facilities* ~~a *generating unit* or *generating units*~~ with significant combined generating capability.

~~***generation dispatch offer***~~

~~A notice submitted by a *Scheduled Generator* or *Semi-Scheduled Generator* to *AEMO* relating to the *dispatch* of a *scheduled generating unit* or a *semi-scheduled generating unit* in accordance with clause 3.8.6.~~

generation shedding

Disconnecting, or reducing the transfer of *active power* to the *power system* from, one or more ~~*generating systems* or *generating units*~~sources of *generation*.

Generator

A person who engages in the activity of owning, controlling or operating a *generating system* that is *connected* to, or who otherwise *supplies* electricity to, a *transmission system* or *distribution system* and who is registered by *AEMO* ~~as a *Generator*~~ under Chapter 2 as a *Generator* or as an *Integrated Resource Provider*.

For the purposes of Chapter 5, the term includes a person who is required or intends to register in that capacity or ~~is a *non-registered embedded generator*~~ a *non-registered DER provider* who has made an election under clause 5A.A.2(c).

Generator Energy Limitation Framework (GELF)

A description of the *energy constraints* that affect the ability of a *scheduled generating unit* or *scheduled bidirectional unit* to generate electricity prepared in accordance with the *EAAP guidelines*.

Generator transmission use of system, Generator transmission use of system service

A service provided to a *Generator* or (in relation to its production of electricity) an *Integrated Resource Provider* for:

(a) [**Deleted**]

(b) use of a *transmission investment* for the conveyance of electricity that can be reasonably allocated to a *Generator* or (in relation to its production of electricity) an *Integrated Resource Provider* on a locational basis.

inertia

Contribution to the capability of the *power system* to resist changes in *frequency* by means of an inertial response from a *generating unit*, *bidirectional unit*, *network element* or other equipment that is electro-magnetically coupled with the *power system* and *synchronised* to the *frequency* of the *power system*.

~~***inertia generating unit***~~

~~A *generating unit* registered with *AEMO* under clause 5.20B.6(b).~~

inertia unit

A *generating unit* or *bidirectional unit* registered with *AEMO* under clause 5.20B.6(b).

inflexible, ***inflexibility***

In respect of a *scheduled resource* for a *trading interval* means that the *scheduled resource* is only able to be *dispatched* in the *trading interval* at a fixed *loading level* specified in accordance with clause 3.8.19(a).~~In respect of a *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled load* or *scheduled network service* for a *trading interval* means that the *scheduled generating unit*, *semi-scheduled generating unit*, *wholesale demand response unit*, *scheduled load* or *scheduled network service* is only able to be *dispatched* in the *trading interval* at a fixed *loading level* specified in accordance with clause 3.8.19(a).~~

Integrated Resource Provider

A person who is registered by *AEMO* as an *Integrated Resource Provider* under Chapter 2.

For the purposes of Chapter 5, the term includes a person who is required or intends to register in that capacity or a *non-registered DER provider* who has made an election under clause 5A.A.2(c).

integrated resource system

(a) Subject to the remaining paragraphs of this definition, any of the following:

(1) a system comprising one or more *bidirectional units* (and which may also comprise one or more *generating units* or other *connected plant* that is not part of a *bidirectional unit*); and

(2) a system comprising one or more *generating units* where the *connection point* for the system is used to *supply* electricity for consumption on the system side of the *connection point*.

(b) For the purposes of paragraph (a)(2), disregard consumption to the extent it is *auxiliary load*.

(c) For the purposes of clause 2.1B.2(b)(4), clause 4.9.2 and Chapter 5, an *integrated resource system* includes auxiliary or *reactive plant* that is located on the *Integrated Resource Provider's* side of the *connection point* and is necessary for the *integrated resource system* to meet its *performance standards*.

(d) For the purposes of the *Rules* (except rules 2.1A and 2.1B and except as otherwise provided in the *Rules*) a *bidirectional unit* that has been classified as a *scheduled generating unit* as provided for in clause 2.2.2(b2) is taken to be a *generating unit* (and not a *bidirectional unit*) under paragraph (a) of this definition.

Note

In relation to paragraph (d), refer to the note to *bidirectional unit*.

intending load

A proposed purchase of electricity at a *connection point* (the location of which may be undefined) which is classified as an *intending load* in accordance with Chapter 2.

intermediary

A person who is registered by *AEMO* as a *Generator*, *Integrated Resource Provider* or a *Network Service Provider* instead of another person who, in the absence of an exemption under clause 2.9.3, would be required to be registered as such under the *Rules*.

intermittent

A description of a *production unit*~~*generating unit*~~ whose output is not readily predictable, including, without limitation, solar generators, wave turbine generators, wind turbine generators and hydro-generators without any material storage capability relative to the size of the hydro-generator.

inverter based load

Plant (other than a *production unit*)~~*A load*~~ that is supplied by power electronics, including inverters, and potentially susceptible to inverter control instability, and that is classified as an *inverter based load* applying criteria specified in the *system strength impact assessment guidelines.*

inverter based resource

Any of the following, alone or in combination:

(a) *a*~~*A*~~*synchronous generating unit*~~*s*~~;

(b) *asynchronous bidirectional unit*; and

(c) *inverter based load*.

key connection information

The following information in respect of a proposed *connection*, or modification of an existing *connection*, of *generating plant* to the *national grid*:

(a) name, ABN and ACN of the proponent of the *connection*;

(b) type of *plant* in respect of each relevant *generating unit* (e.g. gas turbine *generating unit*) or *bidirectional unit*;

(c) site location or preferred site location;

(d) maximum power *generation* of whole *plant*;

(e) forecast completion date of the proposed *connection*; and

(f) technology of each relevant *generating unit* or *bidirectional unit* (e.g. *synchronous generating unit*, induction generator, photovoltaic array, etc).

load

According to context:

(a) the amount of electrical power (in MW) *supplied* from a *network* at a defined instant to a *connection point*, or aggregated over a defined set of *connection points*; or

(b) a *connection point* or defined set of *connection points* at which electrical power is delivered to a person or to another *network*.

~~***load***~~

~~A *connection point* or defined set of *connection points* at which electrical power is delivered to a person or to another *network* or the amount of electrical power delivered at a defined instant at a *connection point*, or aggregated over a defined set of *connection points*.~~

loading level

The level of output, consumption or power flow (in MW) of a *generating unit*, *bidirectional unit*, *load* or *scheduled network service*.

For a *wholesale demand response unit*, the level of *baseline deviation* (in MW) of the *wholesale demand response unit*.

loading price

The price specified for a *price band* and a *trading interval* in a *dispatch bid*~~*dispatch offer*~~, in accordance with clause 3.8.6, for the *dispatch* of a *scheduled generating unit* at a level above its *self-dispatch level*.

~~***market ancillary service offer***~~

~~A notice submitted by an *Ancillary Service Provider* to *AEMO* in respect of a *market ancillary service* in accordance with clause 3.8.7A.~~

market ancillary service bid

A notice submitted by an *Ancillary Service Provider* to *AEMO* in respect of a *market ancillary service* in accordance with clause 3.8.7A.

market bidirectional unit

A *bidirectional unit* that has been classified as such in accordance with Chapter 2.

market connection point

A *connection point*:

(a) classified in accordance with Chapter 2 as a *market connection point*;

(b) which connects any *market generating unit* to the *national grid*;

(c) which connects any *market bidirectional unit* to the *national grid*; or

(d) where the *network service connected* at that *connection point* is a *market network service*.

~~***market connection point***~~

~~A *connection point* where any load is classified in accordance with Chapter 2 as a *market load* or which connects any *market generating unit* to the *national grid*, or where the *network service connected* at that *connection point* is a *market network service*.~~

Market Customer

A *Customer* in relation to the *connection points* it has classified as *market connection points* under Chapter 2.

An *Integrated Resource Provider* in relation to the *connection points* it has classified as *market connection points* under clause 2.3.4(b).

~~***Market Customer***~~

~~A *Customer* who has classified any of its *loads* as a *market load* and who is also registered by *AEMO* as a *Market Customer* under Chapter 2.~~

market generating unit

A *generating unit* that has been classified as such in accordance with Chapter 2.

~~***market generating unit***~~

~~A *generating unit* whose *sent out generation* is not purchased in its entirety by the *Local Retailer* or by a *Customer* located at the same *connection point* and which has been classified as such in accordance with Chapter 2.~~

Market Generator

A *Generator* or *Integrated Resource Provider* in relation to *generating units* it has classified as *market generating units* in accordance with Chapter 2.

~~***Market Generator***~~

~~A *Generator* who has classified at least one *generating unit* as a *market generating unit* in accordance with Chapter 2 and who is also registered by *AEMO* as a *Market Generator* under Chapter 2.~~

~~***market load***~~

~~A *load* at a *connection point* classified by the person *connected* at that *connection point* or, with the consent of that person, by some other person, as a *market load* in accordance with Chapter 2. There can be more than one *market load* at any one *connection point*.~~

market load

A *market connection point* other than a *connection point* taken to be a *market connection point* of a *Market Participant* under clause 2.3.4(a).

Note

This term is used in the *National Electricity (South Australia) Regulations*.

Market Participant

A *Market Generator*, *Integrated Resource Provider* (other than a *Non-Market Integrated Resource Provider*), *Market Customer*, *Demand Response Service Provider* or *Market Network Service Provider*.

~~***Market Participant***~~

~~A person who is registered by *AEMO* as a *Market Generator, Market Customer, Market Small Generation Aggregator, Demand Response Service Provider* or *Market Network Service Provider* under Chapter 2.~~

~~***Market Small Generation Aggregator***~~

~~A person who:~~

~~(a) has classified one or more *small generating units* as a *market generating unit*; and~~

~~(b) is registered by *AEMO* as a *Market Small Generation Aggregator* under Chapter 2.~~

Market Suspension Compensation Claimant

(a) A *Scheduled Generator*, *Scheduled Integrated Resource Provider* or a *Demand Response Service Provider* who supplied *energy* or *wholesale demand response* during a *market suspension pricing schedule period*:

(1) in a *suspended region*; or

(2) in a *region* where *spot prices* were affected in accordance with clause 3.14.5(f); or

(b) an *Ancillary Service Provider* in a *suspended region*, in respect of an *ancillary service unit* ~~*ancillary service generating unit*~~ which is also a *scheduled resource*~~*scheduled generating unit*~~, who provided *market ancillary services* during a *market suspension pricing schedule period*.

market suspension pricing schedule period

(a) For a *Market Suspension Compensation Claimant* of a type referred to in subparagraph (a)(1) or paragraph (b) of the definition of *Market Suspension Compensation Claimant*, the period starting at the beginning of the first *trading interval* and ending at the end of the final *trading interval* in which:

(1) for *Scheduled Generators* and *Integrated Resource Providers*, the *spot price* for a *trading interval* is set by *AEMO* in accordance with the *market suspension pricing schedule*; or

(2) for *Ancillary Service Providers*, in respect of an *ancillary service unit*~~*ancillary service generating unit*~~, the *ancillary service price* for a *trading interval* is set by *AEMO* in accordance with the *market suspension pricing schedule*.

(b) For a *Market Suspension Compensation Claimant* of a type referred to in subparagraph (a)(2) of the definition of *Market Suspension Compensation Claimant*, includes only those *trading intervals*:

(1) that occur during the period described in paragraph (a) above; and

(2) during which *spot prices* were affected in accordance with clause 3.14.5(f).

micro ~~EG~~ DER connection

Has the meaning given in clause 5A.A.1.

micro ~~embedded generator~~resource operator

A *small customer*, *large customer* or ~~*MSGA*~~ *SRA customer* who operates, or proposes to operate, a *distribution connected unit* ~~an *embedded generating unit*~~ for which a *micro ~~EG~~ DER connection* is appropriate.

minimum ramp rate

For a *scheduled resource*, the amount determined in accordance with clause 3.8.3A(b)(1).

minimum ramp rate requirement

In relation to:

(a) a *generating unit,* means the lower of 3 MW/minute or 3% of the maximum *generation* provided in accordance with clause 3.13.3(b);

(b) a *bidirectional unit*, means in respect of *generation*, the lower of 3 MW/minute or 3% of the maximum *generation* provided in accordance with clause 3.13.3(b) and in respect of consumption means the lower of 3 MW/minute or 3% of the maximum consumption provided in accordance with clause 3.13.3(b),

(c) a *scheduled load*, means the lower of 3 MW/minute or 3% of the maximum consumption provided in accordance with clause 3.13.3(b); or

(d) a *scheduled network service*, means 3 MW/minute,

expressed as MW/minute rounded down to the nearest whole number except where this would result in the nearest whole number being zero, in which case the *minimum ramp rate requirement* is 1 MW/minute.

~~***MSGA customer***~~

~~Has the meaning given in clause 5A.A.1.~~

nameplate rating

The maximum continuous output or consumption in MW of an item of equipment as specified by the manufacturer, or as subsequently modified.

In relation to *bidirectional units*, for the purposes of the *Rules* the *nameplate rating* is measured separately for output and consumption and a *nameplate rating* threshold in the *Rules* will be met or exceeded by:

(a) a *bidirectional unit*, if it is met or exceeded with respect to either output or consumption of the *bidirectional unit* (or both); and

(b) a group of *bidirectional units*, if it is met or exceeded with respect to either the combined *nameplate rating* of the *bidirectional units* for output or the combined *nameplate rating* of the *bidirectional units* for consumption (or both).

negotiated augmentation and extension charges

The charges described in clause 5.3AA(f)(3).

~~***negotiated use of system charges***~~

~~The charges described in clause 5.3AA(f)(3).~~

~~***network dispatch offer***~~

~~An notice submitted by a *Scheduled Network Service Provider* to *AEMO* relating to the *dispatch* of a *scheduled network service* in accordance with clause 3.8.6A.~~

network dispatch bid

A notice submitted by a *Scheduled Network Service Provider* to *AEMO* relating to the *dispatch* of a *scheduled network service* in accordance with clause 3.8.6A.

network support payment

Any of the following payments:

(a) a payment made by a *Transmission Network Service Provider* to:

(1) any *Generator* or *Integrated Resource Provider* providing *network* support services in accordance with rule 5.3A.12; or

(2) any other person providing a *network* support service that is an alternative to *network augmentation*;

(b) an *inertia service payment*; and

(c) a *system strength service payment*.

Network User

A *Generator*, an *Integrated Resource Provider*, a *Transmission Customer*, a *Distribution Customer* or a *Market Network Service Provider*.

non-market bidirectional unit

A *bidirectional unit* which has been classified as such in accordance with Chapter 2.

non-market generating unit

A *generating unit* ~~whose entire output is consumed by a *market load* located at the same *connection point* and~~ which has been classified as such in accordance with Chapter 2.

Non-Market Generator

A *Generator* or *Integrated Resource Provider* who has classified a *generating unit* as a *non-market generating unit* in accordance with Chapter 2.

Non-Market Integrated Resource Provider

An *Integrated Resource Provider* who has classified a *bidirectional unit* as a *non-market bidirectional unit* in accordance with Chapter 2.

Non-Registered Customer

Any person who purchases electricity through a *connection point* with the *national grid* other than from the *spot market*.

~~***Non-Registered Customer***~~

~~A person who:~~

~~1. purchases electricity through a *connection point* with the *national grid* other than from the *spot market*; and~~

~~2. is eligible to be registered by *AEMO* as a *Customer* and to classify the *load* described in (1) as a *first-tier load* or a *second-tier load*, but is not so registered.~~

non-registered ~~embedded generator~~DER provider

~~An *embedded generating unit operator*~~ A *distribution connected unit operator* that is neither a *micro* ~~*embedded generator*~~*resource operator* nor a *Registered Participant.*

non-scheduled bidirectional unit

A *bidirectional unit* classified as such in accordance with Chapter 2.

Non-Scheduled Generator

A *Generator* or *Integrated Resource Provider* in relation to any ~~in respect of which any~~ *generating unit* it has ~~is~~ classified as a *non-scheduled generating unit* in accordance with Chapter 2.

Non-Scheduled Integrated Resource Provider

An *Integrated Resource Provider* in relation to any *bidirectional unit* it has classified as a *non-scheduled bidirectional unit* in accordance with Chapter 2.

non-scheduled integrated resource system

An *integrated resource system* that, to the extent it is comprised of *production units*, is comprised of *non-scheduled bidirectional units*, or *non-scheduled bidirectional units* and *non-scheduled generating units*.

non-scheduled load

Any source of *load* not classified as *scheduled load*.

~~***non-scheduled load***~~

~~A *market load* which is not a *scheduled load*.~~

off-loading price

The price specified for a *price band* and a *trading interval* in a *dispatch bid*~~*dispatch offer*~~, in accordance with clause 3.8.6, for the *off-loading* of a *scheduled generating unit* below its *self-dispatch level*.

PASA availability

The *physical plant capability* (taking ambient weather conditions into account in the manner described in the procedure prepared under clause 3.7.2(g)) of a *scheduled generating unit*, *scheduled bidirectional unit, scheduled load* or

scheduled network service available in a particular period, including any *physical plant capability* that can be made available during that period, on 24 hours' notice.

For a *wholesale demand response unit*, the maximum MW *wholesale demand response* available in a particular period, including any *wholesale demand response* that can be made available during that period, on 24 hours' notice.

performance standards commencement date

For:

(a) *Generators*, *Integrated Resource Providers*, *Customers* and *Network Service Providers* who plan, own, operate or control a *facility* located in a *participating jurisdiction* (other than Tasmania), the *performance standards commencement date* is, in relation to that *facility*, 16 November 2003; and

(b) *Generators*, *Integrated Resource Providers*, *Customers* and *Network Service Providers* who plan, own, operate or control a *facility* located in Tasmania, the *performance standards commencement date* is, in relation to that *facility*, the date that Tasmania becomes a *participating jurisdiction*.

planned network event

An event which has been planned by a *Transmission Network Service Provider*, *AEMO* or a *Market Participant* that is likely to materially affect *network constraints* in relation to a *transmission system*, including but not limited to:

(a) a *network outage*;

(b) the *connection* or *disconnection* of *generating units*, *bidirectional units* or sources of *load*;

(c) the commissioning or decommissioning of a *network* asset or the provision of new or modified *NSCASs*; and

(d) the provision of *NSCASs* under a *network support agreement*.

plant

(a) In relation to a *connection point*, includes all equipment involved in generating, consuming ~~utilising~~ or transmitting electrical *energy*.

(b) In relation to *dispatch bids, scheduled resources*.

~~(b) In relation to *dispatch bids* and *offers*, controllable generating equipment, controllable *loads* and *wholesale demand response units*.~~

(c) In relation to the *statement of opportunities* prepared by *AEMO*, individually controllable generating and bidirectional facilities registered or capable of being registered with *AEMO*.

(d) In relation to the *regulatory investment test for transmission*, any of the definitions of *plant* in paragraphs (a) to (c) relevant to the application of the *regulatory investment test for transmission* to a RIT-T project.

(e) In relation to the *regulatory investment test for distribution*, any of any of the definitions of *plant* in paragraphs (a) to (c) relevant to the application of the *regulatory investment test for distribution* to a RIT-D project.

(f) In relation to a *system strength remediation scheme*, includes all equipment involved in the implementation of the scheme.

(h) In relation to a *market ancillary service*, includes all equipment involved in providing the *market ancillary service*.

plant availability

The *active power capability* of a ~~*generating unit*~~ *production unit* (in MW), based on the availability of its electrical power conversion process and assuming no fuel supply limitations on the *energy* available for input to that electrical power conversion process.

power station

(a) In relation to a *Generator*, a *facility* in which any of that *Generator's generating units* are located.

(b) In relation to an *Integrated Resource Provider*, a *facility* in which any of that *Integrated Resource Provider's production units* are located.

~~***power station***~~

~~In relation to a *Generator*, a *facility* in which any of that *Generator's generating units* are located.~~

price band

A MW quantity specified in a *dispatch bid* or *market ancillary service bid* as being available for *dispatch* at a specified price.

~~***price band***~~

~~A MW quantity specified in a *dispatch bid*, *dispatch offer* or *market ancillary service offer* as being available for *dispatch* at a specified price.~~

production unit

Plant used in the production of electricity and all related equipment essential to its functioning as a single entity.

Note

Generating units and *bidirectional units* are *production units*.

rated active power

(a)~~(1)~~ In relation to a ~~*generating unit*~~ *production unit*, the maximum amount of *active power* that the ~~*generating unit*~~ *production unit* can continuously deliver at the *connection point* when operating at its *nameplate rating*.

(b)~~(2)~~ In relation to a *generating system* or *integrated resource system*, the combined maximum amount of *active power* that its in-service *production units* ~~*generating units*~~ can deliver at the *connection point*, when its in-service ~~*generating units*~~ *production units* are operating at their *nameplate ratings*.

rated maximum demand

(a) In relation to a *bidirectional unit*, the maximum amount of *active power* that the *plant* can continuously consume at the *connection point* when operating at its *nameplate rating*.

(b) In relation to an *integrated resource system*, the combined maximum amount of *active power* that its in-service *bidirectional units* can consume at the

connection point, when its in-service *bidirectional units* are operating at their *nameplate ratings*.

reactive power capability

The maximum rate at which *reactive energy* may be transferred from a ~~*generating unit*~~ *production unit* to a *connection point* as specified or proposed to be specified in a *connection agreement* (as the case may be).

Referred Participant

An *Affected Participant*, *Affected Load Customer* ~~Market Customer~~ or *Ancillary Service Provider* who has a claim referred to an independent expert pursuant to clauses 3.12.2(l) or 3.12.2(m).

rebid

A variation to a bid ~~or offer~~ made in accordance with clause 3.8.22(b).

Registered Participant

A person who is registered by *AEMO* in any one or more of the categories listed in rules ~~2.2~~2.1A to 2.7. However:

(a) in the case of a person who is registered by *AEMO* as a *Trader*, such a person is only a *Registered Participant* for the purposes referred to in rule 2.5A;

(b) in the case of a person who is registered by *AEMO* as a *Metering Coordinator*, such a person is only a *Registered Participant* for the purposes referred to in clause 2.4A.1(d);

(c) as set out in rule 2.11.1A, for the purposes of rule 2.11 only, *Third Party B2B Participants* (other than *Third Party B2B Participants* who are also *Embedded Network Managers*) are also deemed to be *Registered Participants*;

(d) as set out in clause 3.13.3AA, for the purposes of some provisions of clause 3.13.3 only, *project developers* are also deemed to be *Registered Participants*;

(e) as set out in clause 8.2.1(a1) and 8.2A.2(b), for the purposes of some provisions of rule 8.2 only, *AEMO*, *Connection Applicants*, *Metering Providers*, *Metering Data Providers*, *Third Party B2B Participants* and *B2B Change Parties* who are not otherwise *Registered Participants* are also deemed to be *Registered Participants*;

(f) as set out in clause 8.6.1A, for the purposes of Part C of Chapter 8 only, *Metering Providers*, *Metering Data Providers*, *Third Party B2B Participants* and *project developers* who are not otherwise *Registered Participants* are also deemed to be *Registered Participants*; and

(g) as set out in clause 4.8.12(a3), for the purposes of Part C of Chapter 8 only, *Jurisdictional System Security Coordinators* are also deemed to be *Registered Participants*.

regulating duty

In relation to a ~~*generating unit*~~ *production unit*, the duty to have its *generated* output adjusted frequently so that any *power system frequency* variations can be corrected.

releasable user guide

A document associated with a functional block diagram and model source code provided under clause S5.2.4(b) (combined, forming the **model**), that contains sufficient information to enable a *Registered Participant* to use model source code provided under clause 3.13.3(l) to carry out *power system* studies for planning and operational purposes. The information in a releasable user guide must include, but is not limited to:

(1) the **model** parameters and their values;

(2) information about how the **model** parameter values vary with the operating state or output level of the *plant* or with the operating state or output level of any associated *plant*;

(3) instructions relevant to the use and operation of the model source code provided under clause 3.13.3(l);

(4) settings of *protection systems* that are relevant to load flow or dynamic simulation studies;

(5) information provided in accordance with Schedule 5.5 only to the extent that the information is not a part of the **model** or the **model** parameters and that is reasonably necessary to allow modelling of the *generating unit*, *generating system*, *bidirectional unit*, *integrated resource system* or related *plant* in *power system* load flow or dynamic simulation studies;

(6) *connection point* details including its parameters and values, location, network augmentations or modifications and other relevant connection information;

(7) in regards to any relevant *generating unit*, *bidirectional unit*, ~~or~~ *generating system* or *integrated resource system*, the date on which any of the following has occurred or is expected to occur:

(i) an *application to connect* is made under clause 5.3.4(a);

(ii) a *connection agreement* is entered into under clause 5.3.7;

(iii) the *Generator* or *Integrated Resource Provider* submits a proposal to alter a *connected generating system* or a *generating system*, or a *connected integrated resource system* or *integrated resource system*, for which *performance standards* have previously been accepted by *AEMO*, under clause 5.3.9;

(iv) the *Generator* or *Integrated Resource Provider* is notified that the *Network Service Provider* and *AEMO* are satisfied with the proposed alterations to the *generating plant* or other *plant* under clause 5.3.10;

(v) *connection*;

(vi) commencement of commissioning; and

(vii) conclusion of commissioning; and

(8) the date this document was prepared or updated.

response breakpoint

(a) In relation to a ~~*market ancillary service offer*~~*market ancillary service bid* to raise the *frequency* of the *power system*, the level of associated *generation* or ~~*load*~~ consumption (in MW) above which the amount of response specified in the ~~*offer*~~bid reduces with increased *generation* or consumption~~*load*~~ level; and

(b) In relation to a *market ancillary service bid*~~*market ancillary service offer*~~ to lower the *frequency* of the *power system*, the level of associated *generation* or consumption~~*load*~~ (in MW) below which the amount of response specified in the ~~*offer*~~ bid reduces with decreased *generation* or consumption ~~*load*~~ level.

response capability

(a) In relation to a *market ancillary service bid*~~*market ancillary service offer*~~ to raise the *frequency* of the *power system*, the amount of the response in (MW) which is specified in the ~~*offer*~~ bid for every level of associated *generation* or consumption~~*load*~~ below the associated *response breakpoint*; and

(b) In relation to a *market ancillary service bid*~~*market ancillary service offer*~~ to lower the *frequency* of the *power system*, the amount of the response in (MW) which is specified in the ~~*offer*~~ bid for every level of associated *generation* or consumption~~*load*~~ above the associated *response breakpoint*.

retail customer

A person who is one or more of the following:

(a) a *small customer*;

(b) a *large customer*;

(c) a *micro* ~~*embedded generator*~~*resource operator*; or

(d) a *non-registered* ~~*embedded generator*~~*DER provider*, other than a *non-registered* ~~*embedded generator*~~ *DER provider* who has made an election under clause 5A.A.2(c) for *connection* under Chapter 5.

retailer insolvency costs

For a *Distribution Network Service Provider*:

(a) *billed but unpaid charges*;

(b) the actual amount of unbilled *network charges* accrued by a *failed retailer* or *failed* ~~*Market Small Generation*~~*Small Resource Aggregator*; and

(c) other costs that the *Distribution Network Service Provider* has incurred or is likely to incur as a result of a *retailer insolvency event*.

retailer insolvency event

The failure of a *retailer* or a ~~*Market Small Generation*~~*Small Resource Aggregator* during a *regulatory control period*, to pay a *Distribution Network Service Provider* an amount to which the service provider is entitled for the provision of *direct control services*, if:

(a) an *insolvency official* has been appointed in respect of that *retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator*; and

(b) the *Distribution Network Service Provider* is not entitled to payment of that amount in full under the terms of any *credit support* provided in respect of that *retailer* or ~~*Market Small Generation*~~*Small Resource Aggregator*.

scheduled bidirectional unit

(a) A *bidirectional unit* that has been classified as such in accordance with Chapter 2.

(b) For the purposes of Chapter 3 (except clause 3.8.3A(b)(1)(iv)) and rule 4.9, two or more *bidirectional units* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

Scheduled Generator

A *Generator* or *Integrated Resource Provider* in relation to any *generating unit* it has classified as a *scheduled generating unit* in accordance with Chapter 2.

Scheduled Integrated Resource Provider

An *Integrated Resource Provider* in relation to any *bidirectional unit* it has classified as a *scheduled bidirectional unit* in accordance with Chapter 2.

~~***Scheduled Generator***~~

~~A *Generator* in respect of which any *generating unit* is classified as a *scheduled generating unit* in accordance with Chapter 2.~~

scheduled integrated resource system

An *integrated resource system* that, to the extent it is comprised of *production units*, is comprised of *scheduled bidirectional units* or a combination of *scheduled bidirectional units* and other *plant*.

scheduled load

(a) ~~*A market load*~~ *Plant* which has been classified by *AEMO* in accordance with Chapter 2 as a *scheduled load*. ~~at the *Market Customer's* request. Under Chapter 3, a *Market Customer* may submit *dispatch bids* in relation to *scheduled loads*.~~

(b) For the purposes of Chapter 3 (except clause 3.8.3A(b)(1)(ii)) and rule 4.9, two or more *scheduled loads* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

~~***scheduled plant***~~

~~In respect of a *Registered Participant*, a *scheduled generating unit*, a *semi-scheduled generating unit*, an *ancillary service load*, a *scheduled network service* or a *scheduled load* classified by or in respect to that *Registered Participant* in accordance with Chapter 2.~~

scheduled reserve

The amount of surplus or unused capacity:

(a) of *scheduled generating units*;

(a1) of *scheduled bidirectional units*;

(b) of *scheduled network services*;

(c) of *wholesale demand response units*; or

(d) arising out of the ability to reduce *scheduled loads*.

scheduled resource

According to context:

(a) a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled bidirectional unit*, a *wholesale demand response unit*, a *scheduled network service* or a *scheduled load*; or

(b) in respect of a *Registered Participant*, a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled bidirectional unit*, a *wholesale demand response unit*, a *scheduled network service* or a *scheduled load* classified by or in respect to that *Registered Participant* in accordance with Chapter 2.

~~***Second-Tier Customer***~~

~~A *Customer* which has classified any *load* as a *second-tier load* in accordance with Chapter 2.~~

~~***second-tier load***~~

~~Electricity purchased at a *connection point* in its entirety other than directly from the *Local Retailer* by a *franchise customer* or from the *spot market* and which is classified as a *second-tier load* in accordance with Chapter 2.~~

self-dispatch level

The level of *generation* in MW, as specified in a *dispatch bid*~~*dispatch offer*~~ for a *generating unit* and a *trading interval*, which is the level at which that *generating unit* must be *dispatched* by *AEMO* in that *trading interval* unless otherwise *dispatched* in accordance with clause 3.8 or unless required to operate under a *direction* issued by *AEMO* in accordance with clause 4.8.9.

Semi-Scheduled Generator

A *Generator* or *Integrated Resource Provider* in respect of which any *generating unit* or *bidirectional unit* that is a *coupled production unit* is classified as a *semi-scheduled generating unit* in accordance with Chapter 2.

sent out generation

In relation to a ~~*generating unit*~~*production unit*, the amount of electricity *supplied* to the *transmission network* or *distribution network* at its *connection point*.

short circuit ratio

For a *connection point* for *plant*, the synchronous *three phase fault level* (expressed in MVA) at the *connection point* for the *plant* divided by:

(a) in the case of a *generating system*, its *rated active power* (expressed in MW);

(b) in the case of a *market network service facility*, its rated *power transfer capability* (expressed in MW); ~~and~~

(c) in the case of an i*nverter based load*, its *maximum demand* at the *connection point* (expressed in MW)~~.~~; and

(d) in the case of an *integrated resource system*, its *rated active power* (expressed in MW),

to avoid doubt, in each case excluding any *fault current contribution* from the *plant* side of the *connection point* when calculating the *three phase fault level.*

For the purpose of clauses S5.2.5.15(b), S5.3.11(b) and S5.3a.7(b), the *short circuit ratio* must be assessed in accordance with the methodology prescribed in the *system strength impact assessment guidelines*.

small bidirectional unit

A *bidirectional unit*:

(a) with a *nameplate rating* that is less than 5 MW; and

(b) that is incorporated in an *integrated resource system* in relation to which *AEMO* has given an exemption under clause 2.1A.2 from the requirement to register as an *Integrated Resource Provider*.

small generating unit

A *generating unit*:

(a) with a *nameplate rating* that is less than 30MW; and

(b) that is incorporated in a *generating system* or an *integrated resource system* in relation to which ~~which is owned, controlled or operated by a person that~~ *AEMO* has given an exemption under clause 2.1A.2 ~~exempted~~ from the requirement to register as a *Generator* or *Integrated Resource Provider* ~~in respect of that *generating unit* in accordance with clause 2.2.1(c)~~.

~~***Small Generation Aggregator***~~

~~A person who:~~

~~(a) intends to supply, or supplies, electricity from one or more *small generating units* that are connected to a *transmission system* or *distribution system*; and~~

~~(b) is registered by *AEMO* as a *Small Generation Aggregator* under Chapter 2.~~

Small Resource Aggregator

An *Integrated Resource Provider* who has classified a *small resource connection point* as one of its *market connection points* in accordance with clause 2.2.8.

small resource connection point

A *connection point* that *connects* one or more *small generating units* or *small bidirectional units* (or any combination) to the *national grid*, where the only *supply* to the *connection point* is:

(a) for use by a *small bidirectional unit connected* at the *connection point*; or

(b) *auxiliary load* of a *small generating unit* or *small bidirectional unit connected* at the *connection point*.

SRA customer

Has the meaning given in clause 5A.A.1.

SRAS (system restart ancillary service)

A service provided by *plant* or *facilities* with:

(a) *black start capability*; or

(b) the capabilities described in the *SRAS Guideline* to supply one or more services to sustain the stable *energisation of generation* and *transmission*,

sufficient to facilitate the restoration and maintenance of *power system security* and the restart of *production units* ~~*generating units*~~ following a *major supply disruption*.

statement of opportunities

A statement prepared by *AEMO* to provide information to assist ~~*Scheduled Generators, Semi-Scheduled Generators,*~~ *Transmission Network Service Providers* and *Market Participants* in making an assessment of the future need for electricity generating or demand management capacity or augmentation of the *power system*.

supplementary carbon dioxide equivalent intensity indicator

Any indicators relating to a subset of *scheduled generating units*, ~~and~~ *market generating units*, *scheduled bidirectional units* and *market bidirectional units* published by *AEMO* in accordance with clause 3.13.14(h).

supply scarcity mechanism

Means each of the following:

(a) exercising the *RERT* in accordance with rule 3.20 by:

(1) *dispatching* ~~*scheduled generating units, wholesale demand response units, scheduled network services* or *scheduled loads*~~*scheduled resources* in accordance with any *scheduled reserve contract*; or

(2) *activating* ~~*loads* or *generating units*~~ *unscheduled reserves* under any *unscheduled reserve contract*;

(b) issuing a *direction* in accordance with clause 4.8.9;

(c) issuing a *clause 4.8.9 instruction* in accordance with clause 4.8.9.

switchyard

The *connection point* of a ~~*generating unit*~~ *production unit* into the *network*, generally involving the ability to *connect* the ~~*generating unit*~~ *production unit* to one or more outgoing *network* circuits.

synchronise

The act of *synchronising* a ~~*generating unit*~~*production unit* or a *scheduled network service* to the *power system*.

synchronising

To electrically *connect* a ~~*generating unit*~~*production unit* or a *scheduled network service* to the *power system*.

synchronous bidirectional unit

A *bidirectional unit* that is a *synchronous production unit*.

synchronous generating unit

A *generating unit* that is a *synchronous production unit*.~~The alternating current generators of most thermal and hydro (water) driven power turbines which operate at the equivalent speed of the *frequency* of the *power system* in its *satisfactory operating state*.~~

synchronous generator voltage control

The automatic *voltage control system* of a ~~*generating unit* of the *synchronous generator* category~~ *production unit* which changes the output *voltage* of the ~~*generating unit*~~ *production unit* through the adjustment of the generator rotor current and effectively changes the *reactive power* level~~output~~ from that ~~*generating unit*~~ *production unit*.

synchronous production unit

A *production unit* comprising alternating current generators which operate at a speed which is synchronised to the *frequency* of the *power system*.

system strength connection point

A *connection point* for a *connection* or an alteration to a *generating system*, *integrated resource system* or other *connected plant* in respect of which an election is made under clause 5.3.4B(b1) to pay the *system strength charge*.

system strength connection works

Investment in a *transmission system* or *distribution system* in order to remedy or avoid a *general system strength impact* arising from establishing a *connection* or from alteration to a *generating system*, *integrated resource system* or other *connected plant*.

~~***system strength generating unit***~~

~~A *generating unit* registered with *AEMO* under clause 5.20C.4(b).~~

system strength impact assessment

Power system studies to assess the *general system strength impact* of a *connection* or alteration to a *generating system*, *integrated resource system* or other *connected plant*.

system strength production unit

A *production unit* registered with *AEMO* under clause 5.20C.4(b).

tap-changing transformer

A *transformer* with the capability to allow internal adjustment of output *voltages* which can be automatically or manually initiated and which is used as a major component in the control of the *voltage* of *transmission* and *distribution networks* in conjunction with the operation of *reactive plant*. The *connection point* of a ~~*generating unit*~~ *production unit* may have an associated tap-changing transformer, usually provided by the *Generator* or *Integrated Resource Provider*.

Transmission Customer

Each of the following:

(a) a~~A~~ *Customer*;~~,~~

(b) a *Market Customer*;

(c) a *Non-Registered Customer*;

(d) an~~,~~ *Integrated Resource Provider* in relation to *supply* from a *transmission network* to an *integrated resource system*; and~~or~~

(e) a *Distribution Network Service Provider*.

having a *connection point* with a *transmission network*.

Transmission Network User

In relation to a *transmission network*, a *Transmission Customer* and:

(a) a *Generator* whose *generating unit*; ~~and~~

(b) a *Network Service Provider* whose *network*; and~~,~~

(c) an *Integrated Resource Provider* whose *production unit*,

is *connected* to the *transmission network*.

unscheduled reserve

The amount of surplus or unused capacity:

(a) of *generating units* (other than *scheduled generating units*); ~~or~~

(a1) of *bidirectional units* (other than *scheduled bidirectional units*); or

(b) arising out of the ability to reduce demand (other than a *scheduled load* or *wholesale demand response unit*).

very fast lower service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of very rapidly (more rapidly than the *fast lower service*) controlling the level of *generation* or consumption~~*load*~~ associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to arrest a rise in that *frequency*.

very fast raise service

The service of providing, in accordance with the requirements of the *market ancillary service specification*, the capability of very rapidly (more rapidly than the *fast raise service*) controlling the level of *generation* or consumption~~*load*~~ associated with a particular *facility* in response to the locally sensed *frequency* of the *power system* in order to arrest a fall in that *frequency*.

wholesale demand response

Means a *baseline deviation* achieved by (as applicable to a *wholesale demand response unit*):

(a) reducing the consumption of electricity; or

(b) increasing the export of electricity; or

(c) reducing the consumption of electricity and starting to export electricity,

at the *connection point*~~*connection point* of the *wholesale demand response unit*~~ in response to a *dispatch instruction* but only to the extent:

(d) resulting from *wholesale demand response activity*; and

(e) there is no *baseline deviation offset*.

wholesale demand response unit

(a) A ~~*load*~~ *connection point* which has been classified in accordance with Chapter 2 as a *wholesale demand response unit*.

(b) For the purposes of Chapter 3 (except clause 3.8.2A and rule 3.15) and rule 4.9, two or more *wholesale demand response unit*s referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

CHAPTER 11

11. Savings and Transitional Rules

Part ZZZZQ Access, pricing and incentive arrangements for distributed energy resources

11.141 Rules consequential on the making of the National Electricity Amendment (Access, pricing and incentive arrangements for distributed energy resources) Rule 2021

11.141.12 Export tariffs subject to basic export level

(a) A *Distribution Network Service Provider* must not charge a *retail customer* for *distribution services* provided for or in relation to *supply* from a *distribution connected unit* ~~an embedded generating unit~~ into the *distribution network* where the use of the *distribution services*:

(1) does not exceed the basic export level applicable to the *export tariff* to which the *retail customer* is assigned; and

(2) occurs during the tariff transition period for the *Distribution Network Service Provider*.

(b) Paragraph (a) does not preclude charges for the provision of *connection services*.

11.141.13 Basic export levels to be specified in tariff structure statements

(a) For the purposes of new clause 6.18.1A(a), a *tariff structure statement* of a *Distribution Network Service Provider* that will apply during the tariff transition period for the *Distribution Network Service Provider* must include, in addition to the elements in new clause 6.18.1A(a):

(1) for each proposed *export tariff*, the basic export level or the manner in which the basic export level will be determined; and

(2) the eligibility conditions applicable to each proposed *export tariff*.

(b) In assessing provisions in a *Distribution Network Service Provider's* proposed *tariff structure statement* relating to basic export levels, the *AER* must have regard to the following principles:

(1) basic export levels must be set having regard to:

(i) the capacity of a *distribution network* (or part of a *distribution network*) to accept *supply* from *distribution connected units* ~~embedded generating units~~ to the extent the *AER* considers that the capacity arises from the provision of *distribution services* for *supply* to *retail customers* in that *distribution network* (or part) with minimal or no further investment; and

(ii) forecast use of *distribution services* relating to *supply* from *distribution connected units* ~~embedded generating units~~ in the *distribution network* (or relevant part);

(2) a basic export level may be specified by reference to any one or more of the following measures:

(i) the capacity to *supply* into the *distribution network* at a *connection point*;

(ii) the quantity of *supply* into the *distribution network* at a *connection point*; or

(iii) any other measure the *Distribution Network Service Provider* is authorised to apply by the applicable distribution determination;

(3) a different basic export level may apply to different *export tariffs* of a *Distribution Network Service Provider*; and

(4) which basic export level applies to a particular *export tariff* or group of *export tariffs* may be determined according to *tariff class*, *connection point* voltage, the location of a *connection point* in the *distribution network* or any other measure.

11.141.14 Basic export level guidelines

(a) The *AER* must develop guidelines about methodologies for determining basic export levels and related matters (**basic export level guidelines**).

(b) In developing the basic export level guidelines, the *AER* must have regard to:

(1) historical and geographical differences between *networks*;

(2) different levels of demand between *networks* for *distribution services* relating to *supply* from *distribution connected units*~~*embedded generating units*~~;

(3) inter jurisdictional differences related to regulatory control mechanisms, classification of services and other relevant matters;

(4) the *network pricing objective* and the pricing principles in new clause 6.18.5; and

(5) any other matters the *AER* considers relevant.

(c) The basic export level guidelines form part of the *Export Tariff Guidelines* and are subject to new clause 6.2.8 and clause 11.141.5.

(d) The *AER* must *publish* the basic export level guidelines as part of:

(1) the initial *Export Tariff Guidelines* made under clause 11.141.5; and

(2) any amendment to or replacement of the *Export Tariff Guidelines* in effect prior to the expiry of this clause.

(e) This clause expires at the end of the last of the tariff transition periods of all *Distribution Network Service Providers*.

Part ZZZZS Efficient management of system strength on the power system

11.143 Rules consequential on the making of the National Electricity Amendment (Efficient management of system strength on the power system) Rule 2021

11.143.11 Application of the Amending Rule to Existing Connection Agreements

(a) The Amending Rule is neither intended to, nor to be read or construed as having, the effect of:

(1) altering the terms of an Existing Connection Agreement;

(2) altering the contractual rights or obligations of any of the parties under an Existing Connection Agreement; or

(3) relieving the parties under any such Existing Connection Agreement of their contractual obligations under such an agreement.

(b) Subject to paragraph (c), if, after the commencement date, a party to ~~*Generator* who has entered into~~ an Existing Connection Agreement is required, in accordance with the *Rules*, to amend any of the *performance standards* set out in that Existing Connection Agreement, then new Chapter 5 applies for the purposes of amending such *performance standards*.

(c) Notwithstanding any other provision of the *Rules*, new clause S5.2.5.15 and new clause S5.2.5.16 do not apply to a ~~*Generator*~~ party to an Existing Connection Agreement who, after the commencement date, proposes to alter its *plant connected* under the terms of that Existing Connection Agreement ~~*generating system*~~ and has advised *AEMO* in accordance with clause 5.3.9, unless *AEMO*, the person ~~*Generator*~~ and the relevant *Network Service Provider* agree to apply new clause 5.2.5.15 or new clause 5.2.5.16.

(d) The Amending Rule is neither intended to have, nor is it to be read or construed as having, the effect of changing the application of clause 11.6.11 (if applicable) in relation to *connection services* provided under an Existing Connection Agreement.

Part ZZZZU Integrating energy storage systems into the NEM

11.145 Rules consequential on the making of the National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021

11.145.1 Definitions

(a) In this rule 11.145:

access standards commencement date means the date of commencement of Schedule 3 of the *National Electricity Amendment (Efficient management of system strength on the power system) Rule 2021*.

Amending Rule means the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021*.

commencement date means the date of commencement of Schedule 7 of the Amending Rule.

early implementation period means the period commencing on 31 March 2023 and ending on the effective date.

effective date means the date of commencement of Schedules 1 to 6 of the Amending Rule.

existing application to connect has the meaning given in clause 11.145.11(a)(1).

existing connection agreement means a *connection agreement* entered into before the effective date.

existing connection enquiry has the meaning given in clause 11.145.10(a)(1).

Existing Non-Customer Load Participant means a person who immediately before the commencement date, is the *financially responsible Market Participant* for a *scheduled load* but is not a *Market Customer* in respect of that *scheduled load*.

Existing IRS Participant means a *Registered Participant* who:

(1) immediately before the commencement date, is a *Registered Participant* in respect of a transitioning generating system; or

(2) during the transition period, becomes registered as a *Generator* (and may also become registered as a *Customer*), pursuant to an existing registration application, or due to alteration of its *plant*, in respect of a transitioning generating system, and is not a New IRS Participant.

existing registration application means an application for registration as a *Generator* submitted to *AEMO* under Chapter 2 before the commencement date that has not been finally determined by *AEMO* before the commencement date.

market body means each of *AEMO*, the *AER* and the *Reliability Panel*.

new Chapter 2 means Chapter 2 as in force on and from the effective date.

new Chapter 5 means Chapter 5 as in force on and from the effective date.

new Chapter 10 means Chapter 10 as in force on and from the effective date.

new clause 5.3.12 means clause 5.3.12 as in force on and from the date of commencement of Schedule 3 of the *National Electricity Amendment (Efficient management of system strength on the power system) Rule 2021.*

New IRS Participant means a person who, during the transition period becomes registered as a *Generator* in respect of an *integrated resource system* (as defined under the new rules), either:

(1) pursuant to a new registration application; or

(2) pursuant to an existing registration application, where, before the person becomes registered as a *Generator* in respect of the *integrated resource system*, *AEMO* and the person agree that the person is a New IRS Participant for the purposes of this rule 11.145.

new registration application means an application for registration as a *Generator* submitted to *AEMO* under Chapter 2 during the transition period.

new rule 2.9B means rule 2.9B as in force on and from the effective date.

new rules means the *Rules* as in force on and from the effective date.

old Chapter 2 means Chapter 2 as in force immediately prior to the effective date.

old Chapter 5 means Chapter 5 as in force immediately prior to the effective date.

old Chapter 10 means Chapter 10 as in force immediately prior to the effective date.

old rules means the *Rules* as in force prior to the effective date.

registration grace period means the period commencing on the effective date and ending 6 months after the effective date.

transition period means the period commencing on the commencement date and ending immediately before the effective date.

transitioning generating system means a *generating system* (as defined under the old rules) in relation to which there is also a *scheduled load* classification (whether for the system or a part of the system, its *connection point* or for consumption of electricity used by or in relation to the system).

(b) Subject to paragraphs (c) and (d), italicised terms used in this rule 11.145 have the same meaning as in new Chapter 10.

(c) The following terms used in this rule 11.145 have the same meaning as in old Chapter 10: *ancillary service generating unit, ancillary service load, Market Small Generation Aggregator*, *Small Generation Aggregator*, *market load.*

(d) In this rule 11.145, except where otherwise provided, the terms *bidirectional unit, integrated resource system, generating unit* and *generating system* have meanings they have for the purposes of rules 2.1A. 2.1B and 2.3 of new Chapter 2.

11.145.2 Transfer of registration for Existing IRS Participants and Existing Non-Customer Load Participants

(a) During the registration grace period, an Existing IRS Participant:

(1) is not required to comply with clause 2.1A.1(b) of the new rules in relation to its transitioning generating system; and

(2) must comply with clause 2.1A.1(a) of the new rules in relation to the transitioning generating system as if the transitioning generating system were a *generating system* (as defined under the new rules).

(b) On and from the end of the registration grace period, an Existing IRS Participant must comply with clause 2.1A.1(b) of the new rules in relation to its transitioning generating system.

(c) An Existing IRS Participant must, in respect of its transitioning generating system:

(1) no later than three months before the end of the registration grace period, apply to *AEMO* under new Chapter 2 to register as an *Integrated Resource Provider* in relation to the transitioning generating system; and

(2) classify each *bidirectional unit* or *generating unit* comprised in its transitioning generating system in accordance with rule 2.2 of the new rules and subject to *AEMO's* approvals as required by the new rules.

[For information purposes only - Note

The AEMC proposes to recommend that clause 11.145.2(c) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(d) Subject to paragraph (e), an Existing Non-Customer Load Participant must, in respect of its *scheduled load*:

(1) no later than three months before the end of the registration grace period, apply to *AEMO* under new Chapter 2 to register as a *Customer* or as an *Integrated Resource Provider*; and

(2) take such other steps under new Chapter 2 as may be necessary for the *plant* comprising the *scheduled load* to be classified, no later than the end of the registration grace period, as a *scheduled load* in respect of which the Existing Non-Customer Load Participant is the *Market Customer*.

[For information purposes only - Note

The AEMC proposes to recommend that clause 11.145.2(d) be classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. This note is for information purposes only and the AEMC does not guarantee the accuracy of this note over time.]

(e) Paragraph (d) does not apply to a person who is both an Existing IRS Participant and an Existing Non-Customer Load Participant in relation to a *scheduled load*, if the person has applied in accordance with paragraph (c) to classify the *scheduled load* through its classification of its transitioning generating system.

(f) A person who immediately before the effective date is registered with *AEMO* as a *Generator* under old Chapter 2 in relation to a *generating system* (as defined under the old rules) that is an *integrated resource system* (as defined under the new rules) and is not a transitioning generating system may:

(1) before the end of the registration grace period, apply to *AEMO* under new Chapter 2 to register as an *Integrated Resource Provider* in relation to its *integrated resource system*; and

(2) classify any *bidirectional unit* or *generating unit* comprised in its *integrated resource system* in accordance with rule 2.2 of the new rules and subject to *AEMO's* approvals as required by the new rules.

(g) Clause 2.9 of the new rules applies to an application made in accordance with paragraph (c), (d) or (f) subject to the following:

(1) *AEMO* must not charge a fee for an application made in accordance with paragraph (c), (d) or (f);

(2) clause 2.1B.2(b)(4) of the new rules does not apply to an application under paragraph (c) or (f) (such that the applicant is not required to satisfy *AEMO* under clause 2.1B(2)(b)(4) of the new rules, and *AEMO* is not required to be reasonably satisfied for the purposes of clause 2.9.2(b)(1) of the new rules, that the *integrated resource system* will be capable of meeting or exceeding its *performance standards*); and

(3) *AEMO* is not required to be satisfied of the matters in clause 2.9.2(b)(2) or (3) of the new rules in relation to the application.

(h) Upon registration as an *Integrated Resource Provider* in respect of an *integrated resource system* pursuant to an application made in accordance with paragraph (c) or (f):

(1) the relevant *Registered Participant* ceases to be registered as a *Generator*, and where applicable as a *Customer,* in relation to the relevant *integrated resource system*; and

(2) the approved classifications of the *bidirectional units* and *generating units* and (where applicable) other *plant* comprised in its *integrated resource system,* as provided for in accordance with paragraph (c)(2) or (f)(2) as applicable, take effect.

(i) Registrations and applications made in accordance with paragraph (d) take effect in accordance with new Chapter 2.

11.145.3 Registration transition for New IRS Participants

(a) This clause applies to a New IRS Participant in respect of a *generating system* (as defined under the old rules) that is or will be an *integrated resource system* (as defined under the new rules).

(b) In addition to the requirements in clause 2.2.1(e) (as in force during the transition period), to be eligible for registration as a *Generator* during the transition period in relation to a system to which this clause applies, the applicant must obtain the approval of *AEMO* to classify in accordance with new rule 2.2, with effect from the effective date:

(1) any *bidirectional unit* that forms part of the *integrated resource system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(i) a *scheduled bidirectional unit* or a *non-scheduled bidirectional unit* or other applicable scheduling classification or classifications; and

(ii) a *market bidirectional unit* or a *non-market bidirectional unit* or other applicable market participation classification; and

(2) any *generating unit* that forms part of the *integrated resource system* that the person owns, operates or controls, or from which it otherwise sources electricity, as:

(i) a *scheduled generating unit,* a *semi-scheduled generating unit* or a *non-scheduled generating unit*; and

(ii) a *market generating unit* or a *non-market generating unit*.

(c) On and from the effective date, subject to the *Rules*:

(1) a New IRS Participant ceases to be to be registered with *AEMO* as a *Generator* and where applicable, a *Customer*, in relation to its *integrated resource system* and instead is taken to be registered as an *Integrated Resource Provider* in relation to the *integrated resource system*;

(2) the approved classifications of the *bidirectional units* and *generating units* and (where applicable) other *plant* comprised in the New IRS Participant's *integrated resource system* in accordance with paragraph (b) take effect; and

(3) the *performance standards* applicable to the *integrated resource system* immediately before the effective date continue to apply.

11.145.4 Small Generation Aggregators to become Small Resource Aggregators

(a) On and from the effective date, a person who immediately before the effective date is registered with *AEMO* as a *Small Generation Aggregator* is taken:

(1) to be registered with *AEMO* as an *Integrated Resource Provider*;

(2) to have classified under clause 2.2.8(a) of new Chapter 2 as one of its *market connection points* each of the *connection points* for the *small generating units* for which it was the *Small Generation Aggregator* immediately prior to the effective date; and

(3) to be a *Small Resource Aggregator* in respect of each of the *market connection points* referred to in subparagraph (2).

(b) A *generating unit* that is a *small generating unit* immediately before the effective date continues to be a *small generating unit* on and from the effective date.

11.145.5 Effect of a change in registration category and updating the register

(a) A change of registration category or classification pursuant to clause 11.145.2, 11.145.3 or 11.145.4 does not affect:

(1) any rights or liabilities of a *Registered Participant* or *AEMO* under the *Rules* or excuse any failure to comply with the *Rules* arising, or in respect of any period, prior to the change taking effect; or

(2) any *performance standards* applicable in respect of an *integrated resource system* under the old rules, which subject to the *Rules*, continue to apply in respect of the *integrated resource system*.

(b) *AEMO* must, promptly after the effective date, amend its register of *Registered Participants* to take into account changes in registration and classification pursuant to clause 11.145.3 or 11.145.4 and notify the relevant *Registered Participant* of the changes.

11.145.6 Continuing registrations, classifications and exemptions

(a) Subject to clauses 11.145.2 and 11.145.3, a person who immediately before the effective date is registered with *AEMO* as a *Generator* under old Chapter 2 in relation to a *generating system* (as defined under old Chapter 10 and to avoid doubt excluding a transitioning generating system):

(1) continues to be registered as a *Generator* under new Chapter 2 on and from the effective date; and

(2) subject to paragraphs (b) and (c), where the *generating system* (as defined under the old rules) is an *integrated resource system* (as defined under the new rules), in being so registered, is taken to comply with clause 2.1A.1 of new Chapter 2.

(b) A person is not eligible to classify as *scheduled load* any *plant* that shares a *connection point* with an *integrated resource system* referred to in subparagraph (a)(2) or with any *production unit* forming part of the *integrated resource system*, unless that person is registered in relation to the *integrated resource system* as an *Integrated Resource Provider*.

(c) Subparagraph (a)(2) ceases to apply in relation to an *integrated resource system* referred to in subparagraph (a)(2) where, after the effective date, the *Registered Participant* for the *integrated resource system* is required, in accordance with the *Rules*, to amend any of the *performance standards* applicable to the *integrated resource system*.

(d) Subject to clauses 11.145.2 and 11.145.3, a *generating unit* that immediately before the effective date is classified under old Chapter 2 continues to have the same classification under new Chapter 2 on and from the effective date.

(e) Despite clause 2.2.5(a) of the new rules, a *generating unit* that immediately before the effective date is classified as a *non-market generating unit* under old Chapter 2 continues to be classified as a *non-market generating unit* under new Chapter 2.

(f) Subject to clauses 11.145.2 and 11.145.3, a person who immediately before the effective date is registered with *AEMO* as a *Customer* under old Chapter 2 continues to be registered as a *Customer* under new Chapter 2.

(g) The *connection point* for a *load* that immediately before the effective date is a *market load* of a *Market Participant* under the old rules is taken to be classified on and from the effective date as a *market connection point* of the *Market Participant* classified under clause 2.3.4(b) or (i) of the new rules, as applicable to the *connection point*.

(h) Subject to clauses 11.145.2 and 11.145.3, a *load, connection point* or *connected plant* that immediately before the effective date is a *scheduled load* of a *Market Participant* under the old rules is taken to be classified on and from the effective date as a *scheduled load* of the *Market Participant* under clause 2.3.4A of the new rules with respect to the relevant *connected plant*.

(i) In relation to a *generating unit* that immediately before the effective date is classified as an *ancillary service generating unit* under clause 2.2.6 of the old rules:

(1) the *generating unit* is taken on and from the effective date to be classified as an *ancillary service unit* under clause 2.3D.1 of the new rules; and

(2) any conditions imposed by *AEMO* under clause 2.2.6(f) of the old rules in relation to the classification under clause 2.2.6 of the old rules are taken on and from the effective date to be conditions imposed by *AEMO* under clause 2.3D.1(f) of the new rules in relation to the *ancillary service unit*.

(j) In relation to a *load* that immediately before the effective date is classified as an *ancillary service load* under clause 2.3.5 of the old rules:

(1) the *connected plant* at the *connection point* for the *load* the subject of the classification is taken on and from the effective date to be classified as an *ancillary service unit* under clause 2.3D.1 of the new rules; and

(2) any conditions imposed by *AEMO* under clause 2.3.5(f) of the old rules in relation to the classification under clause 2.3.5 of the old rules are taken on and from the effective date to be conditions imposed by *AEMO* under clause 2.3D.1(f) of the new rules in relation to the *ancillary service unit*.

(k) A *Market Participant* who immediately before the effective date is an *Ancillary Service Provider* under the old rules continues on and from the effective date to be an *Ancillary Service Provider* under the new rules.

(l) A person who immediately before the effective date is registered with *AEMO* as a *Demand Response Service Provider* under old Chapter 2 continues on and from the effective date to be registered as a *Demand Response Service Provider* under new Chapter 2.

(m) A *qualifying load* that immediately before the effective date is classified as a *wholesale demand response unit* under old rule 2.3.6 continues on and from the effective date to be classified as a *wholesale demand response unit* under clause 2.3.6 of the new rules.

(n) A person exempt under clause 2.2.1(c) of old Chapter 2 immediately before the effective date is taken, on and from the effective date, to be exempt under

clause 2.1A.2(a) of new Chapter 2 to the same extent, and on the same conditions, as the exemption under clause 2.2.1(c) of old Chapter 2.

(o) Registrations, classifications and exemptions referred to in this clause are subject to new Chapter 2 on and from the effective date as if the registration or classification had been made under new Chapter 2.

11.145.7 Applications under Chapter 2 lodged before the effective date

(a) This clause applies to any application (including an application for registration or classification) submitted to *AEMO* under old Chapter 2 before the effective date that has not been finally determined by *AEMO* before the effective date.

(b) On and from the effective date an application to which this clause applies is subject to new Chapter 2.

11.145.8 Generating units registered with AEMO for services

(a) A *generating unit* that immediately before the effective date is a *system strength generating unit* under the old rules is taken, on and from the effective date, to be a *system strength production unit* under the new rules.

(b) A *generating unit* that immediately before the effective date is an *inertia generating unit* under the old rules is taken, on and from the effective date, to be an *inertia unit* under the new rules.

11.145.9 Amendments to documents published under the Rules

(a) By the effective date each market body must review and where the market body considers it necessary or desirable amend and publish procedures, guidelines and other documents published by the market body under the *Rules* to take into account the Amending Rule.

(b) In amending the documents referred to in paragraph (a), the market body must follow the process for amending those documents (if any) specified in the *Rules.*

(c) A market body may make minor or administrative amendments to the documents referred to in paragraph (a) without following the process for amending those documents (if any) specified in the *Rules.*

(d) Amendments made in accordance with paragraph (a) must take effect on and from the effective date or any earlier time specified by the relevant market body.

11.145.10 Application of the Amending Rule to existing connection enquiries

(a) This clause applies where, before the effective date, a *Connection Applicant* has, in respect of *plant* that the *Connection Applicant* proposes to *connect*:

(1) made a *connection* enquiry in accordance with clauses 5.3.2 or 5.3A.5 (**existing connection enquiry**); and

(2) not made an *application to connect* to a *Network Service Provider*.

(b) On and from the effective date:

(1) new Chapter 5 applies for the purposes of determining the *access standards* that apply to the *plant* that the *Connection Applicant* proposes to *connec*t;

(2) the existing connection enquiry will be taken to be a *connection* enquiry under the new Chapter 5 with respect to the proposed *plant*; and

(3) the *Network Service Provider* must:

(i) within 10 *business days* after the effective date, use its reasonable endeavours to provide written notification to a *Connection Applicant* to which this clause applies that the existing connection enquiry will be treated as a *connection* enquiry under new Chapter 5; and

(ii) within 20 *business days* after providing the written notification in subparagraph (3)(i), in consultation with *AEMO* and where necessary, provide each *Connection Applicant* notified under subparagraph (3)(i) with:

(A) any further information required under clause 5.3.3 of new Chapter 5 relevant to the proposed *plant*; and

(B) written notice of any further information or data to be provided by the *Connection Applicant* to the *Network Service Provider*,

to enable the *Connection Applicant* to submit an *application to connect* in accordance with new Chapter 5 with respect to the proposed *plant*.

(c) Where the *Network Service Provider* has charged the *Connection Applicant* any fees or charges with respect to the existing connection enquiry, the *Network Service Provider* must not charge the *Connection Applicant* any additional fees or charges on or from the effective date with respect to such existing connection enquiry, except to the extent necessary to cover the reasonable costs of work required to notify the *Connection Applicant* and provide any relevant information under subparagraph (b)(3)(ii). For the avoidance of doubt, this clause does not preclude a *Network Service Provider* recovering an application fee from the *Connection Applicant* under clauses 5.3.4(b) or 5.3A.9.

11.145.11 Application of the Amending Rule to existing applications to connect

(a) This clause applies where, before the effective date, a *Connection Applicant* has, in respect of *plant* that the *Connection Applicant* proposes to *connect*:

(1) made an *application to connect* to a *Network Service Provider* (**existing application to connect**); and

(2) not received an offer to *connect* from the relevant *Network Service Provider* in respect of the existing application to connect.

(b) On and from the effective date:

(1) new Chapter 5 applies for the purposes of determining the *access standards* that apply to the *plant* that the *Connection Applicant* proposes to *connect*;

(2) the existing application to connect will be taken to be an *application to connect* under new Chapter 5 with respect to the proposed *plant*; and

(3) the *Network Service Provider* must:

(i) within 10 *business days* after the effective date, use its reasonable endeavours to provide written notification to a *Connection Applicant* to which this clause applies that the existing application to connect will be treated as an *application to connect* under new Chapter 5; and

(ii) within 20 *business days* after providing the written notification in subparagraph (3)(i), in consultation with *AEMO* and where necessary, provide each *Connection Applicant* notified under subparagraph (3)(i) (with a copy to be provided to *AEMO*) with:

(A) any further information required under clause 5.3.3 or clause 5.3A.5 of new Chapter 5 relevant to the proposed *plant*, including for each technical requirement, written details of the *automatic access standards*, *minimum access standards* and *negotiated access standards* that are *AEMO advisory matters*; and

(B) written notice of any further information to be provided by the *Connection Applicant* (which may include information required to be provided under clauses 5.2.5(d) and (e), clauses 5.2.5A(d) and (e) and Schedule 5.5),

necessary for the *Network Service Provider* to prepare an offer to *connect* in accordance with new Chapter 5 with respect to the proposed *plant*.

(c) Where the *Network Service Provider* has charged the *Connection Applicant* any fees or charges with respect to the existing application to connect, the *Network Service Provider* must not charge the *Connection Applicant* any additional fees or charges on or from the effective date with respect to such existing application to connect, except to the extent necessary to cover the reasonable costs of work required for the *Network Service Provider* to prepare an offer to *connect* in accordance with new Chapter 5, including the requirements to notify the *Connection Applicant* and provide any relevant information under subparagraph (b)(3).

(d) A *Network Service Provider* to which this clause applies may extend the period referred to in clause 5.3.6(a) to reasonably allow for any additional time taken in excess of the period allowed in the *preliminary program* that is necessary to take account of the differences in *access standards* between old Chapter 5 and new Chapter 5.

11.145.12 Application of the Amending Rule to existing offers to connect

(a) This clause applies where, before the effective date, a *Connection Applicant,* other than a *Connection Applicant* to whom clause 11.145.13 applies:

(1) has received an offer to *connect* from the relevant *Network Service Provider* in respect of an *application to connect*; and

(2) has not entered into a *connection agreement* with the relevant *Network Service Provider* in respect of that *application to connect*.

(b) On and from the effective date, old Chapter 5 applies for the purposes of determining the *access standards* that apply to the *plant* that the *Connection Applicant* proposes to *connect* under that offer to *connect.*

11.145.13 Early application of the new access standards to certain plant

(a) This clause applies where:

(1) on or after the access standards commencement date, a *Connection Applicant*, in respect of *plant* that the *Connection Applicant* proposes to *connect,* makes a *connection* enquiry in accordance with clauses 5.3.2 or 5.3A.5; and

(2) the *plant* is or will be an *integrated resource system* comprising one or more *bidirectional units* (as defined under the new rules) that is a *generating unit* (as defined under the old rules).

(b) This clause also applies where:

(1) a *Registered Participant* proposes to alter *connected plant* and clause 5.3.9 or new clause 5.3.12 applies in relation to a proposed alteration;

(2) the *Registered Participant's* submission under clause 5.3.9 or new clause 5.3.12 in relation to the proposed alteration is made on or after the access standards commencement date; and

(3) the *connected plant* is or will be an *integrated resource system* comprising one or more *bidirectional units*.

(c) Where this clause applies, Schedule 5.2 of the new rules applies for the purposes of determining the *access standards* that apply to the *plant* or in relation to the alteration to the *connected plant* and for the purposes of applying the schedule:

(1) the *plant* will be taken to be an *integrated resource system*;

(2) any *generating unit* (as defined under the old rules) that is a *bidirectional unit* will be taken to be a *bidirectional unit*; and

(3) the *Connection Applicant* or *Registered Participant* (as applicable) will be taken to be, or to be proposed to be, an *Integrated Resource Provider* in relation to the *integrated resource system.*

11.145.14 Application of the Amending Rule to existing connection agreements

(a) None of the provisions in the Amending Rule or the changes in registration or classification provided for in this rule 11.145 are intended to have, nor should they be read or construed as having, the effect of:

(1) altering the terms of an existing connection agreement;

(2) altering the contractual rights or obligations of any of the parties under an existing connection agreement including the nature of, or standards

of performance applicable to, any service provided under the agreement;

(3) relieving the parties under any such existing connection agreement of their contractual obligations under such an agreement; or

(4) requiring the reclassification of a *negotiated transmission service* provided under such an agreement as a *prescribed transmission service*, or of a *prescribed transmission service* provided under such an agreement as a *negotiated transmission service*.

(b) If, after the effective date, a *Registered Participant* who has entered into an existing connection agreement is required, in accordance with the *Rules*, to amend any of the *performance standards* set out in that existing connection agreement, new Chapter 5 applies for the purposes of amending such *performance standards*.

(c) The Amending Rule is neither intended to have, nor is it to be read or construed as having, the effect of changing the application of clause 11.143.11(c) (if applicable) in relation to *plant* the subject of that clause.

11.145.15 Provision of ancillary services by Market Small Generation Aggregators

(a) During the early implementation period, a *Market Small Generation Aggregator* in respect of a *small generating unit* (as defined under the old rules) it has classified as a *market generating unit* (as defined under the old rules):

(1) is taken, for the purposes of clause 2.3.5 (as in force during the early implementation period) to be a *Market Customer* in respect of the *connection point* for that *generating unit*;

(2) may apply to *AEMO* for approval to classify the *connection point* for the *generating unit* as an *ancillary service load* under and in accordance with clause 2.3.5 (as in force during the early implementation period) as if the *Market Small Generation Aggregator* were a *Market Customer*; and

(3) may apply to *AEMO* for approval to aggregate two or more *connection points* that have been classified as *ancillary service loads* pursuant to subparagraph (2) under clause 3.8.3(a1) (as in force during the early implementation period) as if the *Market Small Generation Aggregator* were a *Market Customer*.

(b) If an application referred to in subparagraph (a)(2) is approved and subject to the *Rules*:

(1) the relevant *Market Small Generation Aggregator* will be taken to be an *Ancillary Service Provider* and the *connection point* for the *small generating unit* will be an *ancillary service load* for the purpose of the *Rules*;

(2) clause 11.145.6(j) applies in relation to the *small generating unit*; and

(3) clause 11.145.6(k) applies to the *Market Small Generation Aggregator* including in its capacity as a *Small Resource Aggregator* pursuant to clause 11.145.4.

11.145.16 Early implementation of aggregated dispatch conformance

(a) This clause applies to a *generating system* that comprises more than one of the following (each a **scheduled resource**), and where *AEMO* gives separate *dispatch instructions* for each: a *scheduled generating unit*, a *semi-scheduled generating unit* and a *scheduled load*.

(b) During the early implementation period, a *Generator* for a *generating system* to which this clause applies may, in accordance with the *power system operating procedure* made under paragraph (d), comply in aggregate (**aggregated dispatch conformance**) with the *dispatch instructions* for a *trading interval* for two or more of the scheduled resources comprised in the *generating system*, excluding any scheduled resource for which resource level compliance has been specified in accordance with paragraph (c).

(c) During the early implementation period, *AEMO* may specify in a *dispatch instruction* for a scheduled resource in a *generating system* that the scheduled resource the subject of the *dispatch instruction* is required to operate in accordance with that *dispatch instruction* (**resource level compliance**) where a *network constraint* would be violated if the scheduled resource were to operate other than in accordance with the *dispatch instruction*, due to technical characteristics of the scheduled resource.

(d) By 31 March 2023, *AEMO* must make, as a *power system operating procedure*, a procedure setting out:

(1) for the purposes of paragraph (b), permitted forms of aggregated dispatch conformance by one or more scheduled resources comprised in a *generating system*; and

(2) arrangements for *AEMO* to specify when resource level compliance is required for the purposes of paragraph (c).