National Electricity Rules

Status Information

This is an indicative, consolidated version of the National Electricity Rules as amended by the draft rule for the *National Electricity Amendment (Five minute settlement) Rule 2017*. It includes a mark-up of amendments made to relevant extracts of Chapters 3, 4, 6, 7, 9 and 10 of the National Electricity Rules. This indicative consolidation is based on version 96 of the National Electricity Rules (and for Chapter 7, the National Electricity Rules as amended by the:

- *National Electricity Amendment (Expanding Competition in metering and related services) Rule 2015 No.12*
- *National Electricity Amendment (Embedded Networks) Rule 2015 No.13*
- *National Electricity Amendment (Meter Replacement Processes) Rule 2016 No.2*
- *National Electricity Amendment (Updating the electricity B2B framework) Rule 2016 No. 6*

which will all commence on 1 December 2017 .

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(2) *publish* annually performance indicators to monitor *AEMO's* performance in respect of its *market* management functions.

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*;

(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 *spot prices* and *ancillary service prices* at each *regional reference node* for each *trading interval*;

~~(c1) the determination and publication of *ancillary service prices* at each *regional reference node* for each *dispatch interval*~~ **[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.

3.2.3 Power system operations

(a) Subject to Chapter 4, *AEMO* must manage the day to day operation of the *power system*, using its reasonable endeavours to maintain *power system security* in accordance with this Chapter.

(b) *AEMO* must perform *projected assessment of system adequacy processes* (*PASA*) in accordance with rule 3.7, *publish* the details of these assessments in accordance with rule 3.13 and implement an escalating series of *market* interventions in accordance with this Chapter to maintain *power system security*.

3.2.4 Non-market ancillary services function

(a) *AEMO* must determine the *market's* requirements for *non-market ancillary services* in accordance with rule 3.11.

3.4 Spot Market

3.4.1 Establishment of spot market

(a) *AEMO* must establish and operate a *spot market* as a mechanism for:

(1) balancing electricity *supply* and demand;

(2) acquiring *market ancillary services*; and

(3) for each *trading interval*, setting a *spot price* for electricity at each *regional reference node* and *market connection point*, ~~for each *trading interval* and~~ *ancillary service prices* at each *regional reference node* ~~for each *dispatch interval*~~.

(b) *AEMO* must determine and *publish* in accordance with rule 3.9:

(1) a *spot price* for *energy*; ~~to apply at each *regional reference node* in each *trading interval*;~~ and

(2) *ancillary service prices*, ~~to apply at each *regional reference node* for each *dispatch interval*.~~

to apply at each *regional reference node* for each *trading interval*.

3.4.2 ~~Trading day and trading interval~~[Deleted]

~~(a) A *trading interval* is a 30 minute period ending on the hour or on the half hour.~~

~~(b) A *trading interval* is identified by the *time* at which it ends.~~

~~(c) The *trading day* in the *spot market* will be the 24 hour period commencing at 4.00 am *Eastern Standard Time*.~~

3.4.3 Spot market operations timetable

(a) *AEMO* must operate the *spot market* according to the *timetable* which must be approved by the *AEMC* and *published* by *AEMO* following compliance with the *Rules consultation procedures*.

(b) If *AEMO* wishes to change the *timetable* at any time, it may do so following compliance with the *Rules consultation procedures*.

(c) If *AEMO* amends the *timetable* in accordance with paragraph (b), *AEMO* must:

(1) *publish* the amended *timetable*; and

(2) operate the *spot market* according to the *timetable* as amended.

(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*.

(g) *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 ~~*trading interval*~~*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* except for pumped storage *loads*,

which must subsequently be adjusted in accordance with *dispatch bids* for *scheduled load*;

(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 ~~*trading interval*~~*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 load* or *scheduled network service* for each *30-minute period*~~*trading interval*~~ under expected *market* conditions;

(2) *PASA availability* of each *scheduled generating unit*, *scheduled load* or *scheduled network service* for each *30-minute period*~~*trading interval*~~; and

(3) [**Deleted**]

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

(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* process must do so to the extent specified by *AEMO*.

(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 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) *AEMO* must prepare and *publish* the following information for each ~~*trading interval*~~*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*, 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 (excluding the relevant aggregated MW allowance referred to in subparagraph (4B)) for each *region*;

(4AA) 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 can be *generated* continuously, calculated by adding the following categories:

(i) the *available capacity* of *scheduled generating units* that are able to operate at the availability as notified to 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*; and

(4A) aggregate *generating unit PASA availability* (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* 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

(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 these *Rules*.

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*, *scheduled loads*, *scheduled network services* 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 *dispatched load* based on *dispatch bids* less the combined cost of *dispatched generation* based on *generation dispatch offers*, *dispatched network services* based on *network dispatch offers*, and *dispatched market ancillary services* based on *market ancillary service offers* subject to:

(1) *dispatch offers*, *dispatch bids* and *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*, *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;

(11) ensuring that as far as reasonably practical, in relation to a *AEMO intervention event*:

(A) the number of *Affected Participants*; and

(B) the effect on *interconnector* flows,

is minimised; and

(12) 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*, *scheduled network service* or *scheduled load* in each ~~*dispatch interval*~~*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 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:

(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); 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 load* or *scheduled network service* in accordance with clause 3.13.3(b).

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.)

3.8.4 Notification of scheduled capacity

All *Scheduled Generators* and *Market Participants* with *scheduled generating units*, *scheduled network services* and/or *scheduled loads* must inform *AEMO* of their available capacity as follows in accordance with the *timetable*:

(a) *Scheduled Generators* and *Market Participants* must notify *AEMO* of the available capacity of each *scheduled generating unit*, *scheduled network service* and/or *scheduled load* for each *trading interval* of the *trading day*;

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.)

(b) subsequent *changes* may only be made to the information provided under clause 3.8.4(c), (d) and (e) in accordance with clause 3.8.22;

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.)

(c) for *Scheduled Generators*, two *days* ahead of each *trading day*:

(1) a MW capacity profile that specifies the MW available for each of the ~~48~~ 288 *trading intervals* in the *trading day*;

(2) estimated *commitment* or *decommitment* times;

(3) daily *energy* availability for *energy constrained generating units*; and

(4) an up *ramp rate* and a down *ramp rate*;

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) 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 ~~48~~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 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.)

(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 ~~48~~288 *trading intervals* in the *trading day*; and

(2) an up *ramp rate* and a down *ramp rate*.

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.)

3.8.5 Submission timing

(a) To be valid for inclusion in the *central dispatch* process, a *dispatch bid* or *dispatch offer* or *market ancillary service offer* must be submitted according to the *timetable*.

(b) Subject to clause 3.8.22, changes to the:

(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 offers* to *AEMO* must be made using the *electronic communication system* unless otherwise approved by *AEMO*.

3.8.6 Generating unit offers for dispatch

Scheduled Generator

(a) A *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 ~~48~~ 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 offer*; and

(iii) an up *ramp rate* and a down *ramp rate*;

(3) where the offer 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 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 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*.

(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*.

(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 *generating unit's sent out generation* with the *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

(g) A *Semi-Scheduled Generator's dispatch offer* may contain up to 10 *price bands* and must specify for each of the ~~48~~ 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*.

Semi-Scheduled and Scheduled Generators

(h) A *dispatch offer* of a *Semi-Scheduled Generator* or *Scheduled Generator* 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*;

(2) prices specified for each *price band* specified in the *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* (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 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 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 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 offers for dispatch

The following requirements apply to a *network dispatch offer* to provide *scheduled network services*:

(a) the *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 *network dispatch offer* must specify for each of the ~~48~~ 288 *trading intervals* in the *trading day*:

(1) an incremental power delivery range for each *price band* specified in the *network dispatch offer*; and

(2) an up *ramp rate* and a down *ramp rate*;

(c) the *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 *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

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 Bids for scheduled load

The following requirements apply to a *dispatch bid* for *scheduled loads*:

(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 ~~48~~ 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 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 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 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 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 services offers

The following requirements apply to all *market ancillary service offers* for each type of *market ancillary service*:

(a) the *market ancillary service offer* may contain up to 10 *price bands*;

(b) the *market ancillary service offer* must specify for each of the ~~48~~ 288 *trading intervals* in the *trading day* an incremental MW amount for each *price band* specified in the *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;*

(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 generating units*, *semi-scheduled generating 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 ~~*dispatch interval*~~*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

During times of *supply* scarcity, *AEMO* must use its reasonable endeavours to ensure that the actions set out below occur in the following sequence:

(a) subject to:

(g) *AEMO* must use reasonable endeavours not to issue a *dispatch instruction* which is inconsistent with a *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,

~~one trading *interval*~~ 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 clause 3.8.20(b), *AEMO* must determine the *pre-dispatch schedule* ~~for each *trading interval*~~ on the basis of:

(1) *dispatch bids*, *dispatch offers* and *market ancillary service offers* submitted for th~~at~~e relevant *trading interval* or *trading intervals*;

(2) *AEMO's* forecast *power system load* for each *region* for the~~at~~ 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) In determining the *pre-dispatch schedule AEMO* shall not take account of any *dispatch inflexibility profile* submitted in accordance with clause 3.8.19.

(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*, *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*) 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 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) 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), ~~T~~the following *pre-dispatch* outputs relating specifically to a *generating 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 ~~*half hourly*~~*trading interval* or *30-minute period loading level* (as applicable) for each scheduled entity;

(3) scheduled provision of *ancillary services*;

(4) scheduled *constraints* for the provision of *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* to maximise the joint value of *energy* and *ancillary services pre-dispatch* outputs of a *scheduled generating unit* or *semi-scheduled generating unit*, due to the *generating unit* operating outside its *enablement limit*, *AEMO* must notify the *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) A *dispatch interval* is to be five minutes in duration.~~**[Deleted]**

(b) The *dispatch algorithm* is to be run by *AEMO* for each ~~*dispatch interval*~~*trading interval*. If the *dispatch algorithm* is not successfully run for any ~~*dispatch interval*~~*trading interval* then the values of the last successful run of the *dispatch algorithm* must be used for that ~~*dispatch interval*~~*trading interval*.

(c) *Central dispatch* results in the setting of ~~*dispatch prices*~~*spot prices* and *ancillary services prices* for each ~~*dispatch interval*~~*trading interval* ~~and *spot prices* for each *trading interval*~~ in accordance with rule 3.9.

(d) Where possible, *dispatch instructions* will be issued electronically via the *automatic generation control system* 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 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 *automatic generation control 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*, *scheduled generating unit* or *semi-scheduled generating unit*, 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 ~~*dispatch interval*~~*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* for the relevant subsequent ~~*dispatch intervals*~~*trading intervals*.

(k) A *scheduled load* or *generating unit* whose *dispatch* is *constrained* in any ~~*dispatch interval*~~*trading interval* due to a *dispatch inflexibility profile* submitted under clause 3.8.19 cannot be used as the basis for setting the ~~*dispatch price*~~*spot price* in that ~~*dispatch interval*~~*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* to maximise the joint value of *energy* and *ancillary services* due to the relevant *generating unit* operating outside its *enablement limit*, *AEMO* must notify the *Scheduled Generator* or *Semi-Scheduled Generator* operating the relevant *generating unit* electronically 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 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, 3.8.19(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*, *dispatch inflexibilities* and *ramp rates* of *generating units*, *scheduled network services* 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*.

Notes

Clause 1.9 applies to records made under paragraph (ca).

This AEMC will be recommending to the COAG Energy Council that this clause be classified as a civil penalty provision under 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 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 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 or *rebid* are based.

(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 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).

(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* into operation or increasing or decreasing the *loading level* of any *generating units*, or by adjusting the *loading level* of any *load*) prior to ~~:~~

~~(i)~~ 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).~~; or~~

~~(ii) the commencement of any *dispatch interval* within that *trading interval*.~~

~~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 a rebidding civil penalty provision for the purposes of the National Electricity Law. (See clause 6(2) of the National Electricity (South Australia) Regulations.)

3.8.23 Failure to conform to dispatch instructions

(a) If a *scheduled generating 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 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 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 *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 *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or

(2) *AEMO* must advise the relevant *Market Participant* that the *ancillary service generating unit* or *ancillary service load* 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 generating unit* or *ancillary service load* and the relevant *Market Participant* must ensure that the *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* when *AEMO* is reasonably satisfied (as a result of a test or otherwise) that the *ancillary service generating unit* or *ancillary service load* 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* had been lodged with *AEMO* and was, or could have reasonably been, applied in the circumstances applicable to that *scheduled load*.

3.8.24 Scheduling errors

(a) A *scheduling error* is any one of the following circumstances:

(1) the *dispute resolution panel* determines under rule 8.2 that *AEMO* has failed to follow the *central dispatch* process set out in this rule 3.8; or

(2) *AEMO* declares that it failed to follow the *central dispatch* process set out in this rule 3.8; or

(3) *AEMO* determines under clause 3.9.2B(d) that a ~~*dispatch interval*~~*trading interval* contained a manifestly incorrect input.

(b) *Spot prices* and *ancillary service prices* will not be adjusted due to the occurrence of a *scheduling error* except where the *scheduling error* arises through the application of clause 3.9.2B.

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) a *dispatch price* at a *regional reference node* is determined by the *central dispatch* process for each *dispatch interval*;~~ **[Deleted]**

(2) a *spot price* at a *regional reference node* is ~~the time-weighted average of the *dispatch prices*~~determined by the *central dispatch* process at that *regional reference node* ~~in a~~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 ~~every~~ each ~~*dispatch interval*~~*trading interval*;

(3) ~~*dispatch prices*~~*spot prices* determine *dispatch* such that a *generating unit* or *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*, will not be used in the calculation of the ~~*dispatch price*~~*spot price* ~~in~~ for the relevant ~~*dispatch interval*~~*trading interval*;

(3B) *ancillary service generating units* and *ancillary service loads* 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 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* ~~in~~ for the relevant ~~*dispatch interval*~~*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*, will not be used in the calculation of the *ancillary service price* for that *market ancillary service* ~~in~~ for the relevant ~~*dispatch interval*~~*trading interval*;

(4) *network losses*, *network constraints*, the availability of *scheduled network services* and *network dispatch offers* are taken into account in the determination of *dispatch* and consequently affect ~~*dispatch prices,*~~ *spot prices* and (apart from *network losses*) *ancillary services prices*;

(5) where the *energy* output of a *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 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 ~~*dispatch price*~~*spot price* ~~for *energy*~~ ~~in~~ for the relevant ~~*dispatch interval*~~*trading interval*;

(5A) *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 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* ~~and *dispatch 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* which is the *spot price* at the *regional reference node* 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 ~~*dispatch price*~~*spot price* for each *regional reference node* for a ~~*dispatch interval*~~*trading interval* in accordance with clause 3.8.21(b), provided that if *AEMO* fails to run the *dispatch algorithm* to determine ~~*dispatch prices*~~*spot prices* for any ~~*dispatch interval*~~*trading interval* then the ~~*dispatch price*~~*spot price* for that ~~*dispatch interval*~~*trading interval* is the last ~~*dispatch price*~~*spot price* determined by the *dispatch algorithm* prior to the relevant ~~*dispatch interval*~~*trading interval*.

(d) The ~~*dispatch price*~~*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) provided that if *AEMO* has made a declaration that the *market* is suspended under clause 3.14.3, then the *spot price* for any *trading interval* during the period during which the *spot market* is suspended must be determined in accordance with clause 3.14.5.

(e) Notwithstanding clauses 3.9.2(c) or (d), for any ~~*dispatch interval*~~*trading interval* if:

(1) the ~~*dispatch price*~~*spot price* for that ~~*dispatch interval*~~*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 ~~*dispatch interval*~~*trading interval* to *Network Service Providers* or *Market Participants* to shed *load*, then *AEMO* must set the ~~*dispatch price*~~*spot price* at that *region's regional reference node* to equal the *market price cap*;

(2) *AEMO* has declared a ~~*dispatch interval*~~*trading interval* to be an ~~*intervention price dispatch interval*~~*intervention pricing interval* under clause 3.9.3(a), then subject to clauses 3.9.3(c) and 3.9.3(d) *AEMO* must set the ~~*dispatch price*~~*spot price* in accordance with clause 3.9.3; and

(3) **[Deleted]**

(4) an *administered price period* in accordance with rule 3.14 applies, then *AEMO* must limit the ~~*dispatch price*~~*spot price* in accordance with clause 3.14.2(d1).

(f) **[Deleted]**

(g) **[Deleted]**

(h) **[Deleted]** ~~The *spot price* at a *regional reference node* for a *trading interval* equals the time-weighted average of the *dispatch prices* at the *regional reference node* for each of the *dispatch intervals* in the *trading interval*, provided that if *AEMO* has made a declaration that the *market* is suspended under clause 3.14.3, then the *spot price* in any *trading interval* during the period during which the *spot market* is suspended must be determined in accordance with clause 3.14.5.~~

(i) **[Deleted]**

(j) **[Deleted]**

(k) If a test is being conducted on a *generating unit* or *scheduled load* in accordance with clause 3.11.2 and for the purpose of conducting that test, the *generating unit* or *scheduled load* is excluded from *central dispatch*,

then that *generating unit* or *scheduled load* cannot be used to set the ~~*dispatch price*~~*spot price* ~~for *energy* in~~ for the relevant ~~*dispatch interval*~~*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 ~~*dispatch interval*~~*trading interval* then the *ancillary service price* for that ~~*dispatch interval*~~*trading interval* is the last *ancillary service price* determined by the *dispatch algorithm* prior to the relevant ~~*dispatch interval*~~*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* in accordance with clause 3.11.2 and for the purpose of conducting that test, the *generating unit* or *scheduled load* is excluded from *central dispatch*,

then that *generating unit* or *scheduled load* cannot be used to set *ancillary service prices*.

3.9.2B Pricing where AEMO determines a manifestly incorrect input

(a) For the purposes of this clause:

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 ~~***dispatch interval***~~***trading interval*** means the most recent ~~*dispatch interval*~~ *trading interval* preceding the affected ~~*dispatch interval*~~*trading interval* that is not itself an affected ~~*dispatch interval*~~*trading interval*.

(b) *AEMO* may apply the automated procedures developed in accordance with clause 3.9.2B(h), to identify a ~~*dispatch interval*~~*trading interval* as subject to review ("a ~~***dispatch interval***~~***trading interval*** **subject to review**").

(c) *AEMO* may also determine that a ~~*dispatch interval*~~*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*~~*dispatch interval*~~ immediately preceding it was a *trading interval* ~~*dispatch interval*~~ subject to review.

(d) *AEMO* must determine whether a *trading interval* ~~*dispatch interval*~~ subject to review contained a manifestly incorrect input to the *dispatch algorithm* ("an **affected** ***trading interval***~~***dispatch interval***~~").

(e) Where *AEMO* determines an affected *trading interval*~~*dispatch interval*~~, *AEMO* must :

(1) replace all ~~*dispatch prices*~~*spot prices* and *ancillary service prices* with the corresponding prices for the last correct ~~*dispatch interval*~~*trading interval*~~.~~; ~~and~~

(2) [recalculate, in accordance with clause 3.9.2(h), and adjust the~~all~~ *spot price*~~s~~ ~~relevant to~~for each affected ~~*dispatch interval*~~*trading interval*].

(f) *AEMO* may only carry out the action described in clause 3.9.2B(e) if no more than 30 minutes have elapsed since the publication of the ~~*dispatch prices*~~*spot prices* for the ~~*dispatch interval*~~*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 ~~*dispatch intervals*~~*trading intervals* subject to review under clause 3.9.2B (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 clause 3.9.2B(k) and must include in that report details of all ~~*dispatch intervals*~~*trading intervals* subject to review that were not affected ~~*dispatch intervals*~~*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 ~~*dispatch interval*~~*trading interval* where a *AEMO intervention event* occurs *AEMO* must declare that ~~*dispatch interval*~~*trading interval* to be an ~~*intervention price dispatch interval*~~*intervention pricing interval*.

(b) Subject to paragraphs (c) and (d), *AEMO* must in accordance with the methodology or assumptions *published* pursuant to paragraph (e) set the ~~*dispatch price*~~*spot price* and *ancillary service prices* for an ~~*intervention price dispatch interval*~~*intervention pricing interval* at the value which *AEMO*, in its reasonable opinion, considers would have applied as the ~~*dispatch price*~~*spot price* and *ancillary service price* for that ~~*dispatch interval*~~*trading interval* in the relevant *region* had the *AEMO intervention event* not occurred.

(c) *AEMO* may continue to set ~~*dispatch prices*~~*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 ~~*dispatch interval*~~*trading interval* after the first ~~*dispatch interval*~~*trading interval* in which the *AEMO intervention event* occurred; or

(2) if applicable, the second ~~*dispatch interval*~~*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 ~~*dispatch prices*~~*spot prices* and *ancillary service prices* pursuant to this clause 3.9.3 as soon as practicable following the *AEMO intervention event*.

(d) *AEMO* must continue to set ~~*dispatch prices*~~*spot prices* pursuant to clause 3.9.2 and *ancillary service prices* pursuant to clause 3.9.2A if a *direction* given to a *Registered Participant* in respect of *plant* at the *regional reference node* would not in *AEMO's* reasonable opinion have avoided the need for any *direction* which constitutes the *AEMO intervention event* to be issued.

(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 ~~*dispatch prices*~~*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*.

3.9.3A Reliability standard and settings review

Reliability standard and settings guidelines

(a) The *Reliability Panel* must develop, publish and may amend from time to time, guidelines (the *reliability standard and settings guidelines*) that set out the principles and assumptions that the *Reliability Panel* will use in conducting the *reliability standard and settings review*.

(b) The *Reliability Panel* must develop and amend the *reliability standard and settings guidelines* in accordance with the *Rules consultation procedures*.

(c) There must be *reliability standard and settings guidelines* in force at all times after the date on which the *Reliability Panel* publishes the first *reliability standard and settings guidelines* under these *Rules*.

in determining whether it has an obligation to publish an *EAAP* under clause 3.7C(d)(2).

(c) *AEMO* must develop and amend the *reliability standard implementation guidelines* in consultation with the *Reliability Panel*, *Registered Participants* and other interested persons in accordance with the *Rules consultation procedures*.

(d) There must be *reliability standard implementation guidelines* in force at all times after the date on which *AEMO* publishes the first *reliability standard implementation guidelines* under these *Rules*.

(e) *AEMO* must review the *reliability standard implementation guidelines* at least once every four years. *AEMO* must conduct the review in consultation with the *Reliability Panel*, *Registered Participants* and other interested persons in accordance with the *Rules consultation procedures*.

3.9.4 Market Price Cap

(a) The *market price cap* is a price cap which is to be applied to ~~*dispatch prices*~~*spot prices*.

(b) The value of the *market price cap* for each *financial year* is the dollar amount per MWh calculated by the *AEMC* under paragraph (c).

Note

The current value of the *market price cap* is set out in a schedule of reliability settings published on the AEMC's website www.aemc.gov.au

(c) By 28 February of each year (commencing 2012), the *AEMC* must calculate the *market price cap* to apply on and from 1 July of that year in accordance with paragraphs (d) and (e) and *publish* its calculation on its website as part of a schedule of *reliability* settings.

(d) Subject to paragraph (e), the *AEMC* must calculate the *market price cap* using the following formula:

$$MPC^{X} = BV^{MPC} \times \frac{(Q_1^c + Q_2^c + Q_3^c + Q_4^c)}{(Q_1^b + Q_2^b + Q_3^b + Q_4^b)}$$

Where:

MPC is the *market price cap* in dollars per MWh;

x is the *financial year* for which the *market price cap* is being calculated;

BV^{MPC} is $12,500/MWh (being the value of the *market price cap* prior to 1 July 2012);

Q1 to Q4 are the values of the Reliability Settings Index for each of the four quarters of years c and b (as the case may be) as at five months before the start of year x;

Reliability Settings Index is the All groups, Australia CPI found at Index Numbers, All groups, Australia, in Tables 1 and 2 of the Consumer Price Index, Australia published by the Australian Bureau of Statistics for the relevant quarter, except where that index ceases to be published or is substantially changed, in which case the Reliability Settings Index will be such other index as is determined by the *AEMC* as suitable;

c is the calendar year commencing 18 months before the start of year x; and

b is calendar year 2010.

(e) If the value calculated by the *AEMC* under paragraph (d) is:

(1) not in whole hundreds of dollars, then the *market price cap* for year x will be the value calculated under paragraph (d) rounded to the nearest $100/MWh;

(2) less than the *market price cap* applied under this clause 3.9.4 for the preceding *financial year* (year x-1), then the *market price cap* for year x will be the value of the *market price cap* for year x-1.

3.9.5 Application of the Market Price Cap

(a) ~~*Dispatch prices*~~*Spot prices* at *regional reference nodes* must not exceed the *market price cap*.

(b) If *central dispatch* and determination of ~~*dispatch prices*~~*spot prices* in accordance with rule 3.8, and clauses 3.9.2 and 3.9.3 would otherwise result in a ~~*dispatch price*~~*spot price* greater than the *market price cap* at any *regional reference node*, then subject to clause 3.9.5(c), the ~~*dispatch price*~~*spot price* at that *regional reference node* must be set to the *market price cap*.

(c) If the ~~*dispatch price*~~ *spot price* at any *regional reference node* is set to the *market price cap* under clause 3.9.2 or clause 3.9.5 then ~~*dispatch prices*~~*spot prices* at all other *regional reference nodes connected* by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must not exceed the *market price cap* divided by the average *loss factor* that applies for *energy* flow in that direction for that ~~*dispatch interval*~~*trading interval* and determined in accordance with clause 3.9.5(d).

(d) *AEMO* must determine the average *loss factors* applicable to clause 3.9.5(c) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.9.6 Market Floor Price

(a) The *market floor price* is a price floor which is to be applied to ~~*dispatch prices*~~*spot prices*.

(b) The value of the *market floor price* is $-1,000/MWh.

(c) **[Deleted]**

(d) **[Deleted]**

(e) **[Deleted]**

3.9.6A Application of the Market Floor Price

(a) ~~*Dispatch prices*~~*Spot prices* at *regional reference nodes* must not be less than the *market floor price*.

(b) If *central dispatch* and determination of ~~*dispatch prices*~~*spot prices* in accordance with rule 3.8, and clauses 3.9.2 and 3.9.3 would otherwise result in a ~~*dispatch price*~~*spot price* less than the *market floor price* at any *regional reference node*, then subject to clause 3.9.6A(c), the ~~*dispatch price*~~*spot price* at that *regional reference node* must be set to the *market floor price*.

(c) If the ~~*dispatch price*~~*spot price* at any *regional reference node* is set to the *market floor price* under clause 3.9.6A then ~~*dispatch prices*~~*spot prices* at all other *regional reference nodes connected* by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow away from that *regional reference node* must be equal to or greater than the *market floor price* multiplied by the average *loss factor* that applies for *energy* flow in that direction for that ~~*dispatch interval*~~*trading interval* and determined in accordance with clause 3.9.6A(d).

(d) *AEMO* must determine the average *loss factors* applicable to clause 3.9.6A(c) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.9.7 Pricing for constrained-on scheduled generating units

(a) In the event that a *network constraint* causes a *scheduled generating unit* to be *constrained-on* in any ~~*dispatch interval*~~*trading interval*, that *scheduled generating unit* must comply with *dispatch instructions* from *AEMO* in accordance with its availability as specified in its *dispatch offer* but may not be taken into account in the determination of the ~~*dispatch price*~~*spot price* in that ~~*dispatch interval*~~*trading interval*.

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.)

(b) A *Scheduled Generator* that is *constrained-on* in accordance with clause 3.9.7(a) is not entitled to receive from *AEMO* any compensation due to its ~~*dispatch price*~~*spot price* being less than its *dispatch offer price*.

3.10 [Deleted]

3.11 Ancillary Services

3.11.1 Introduction

(a) *Ancillary services* are services that are essential to the management of *power system security*, facilitate orderly trading in electricity and ensure that electricity supplies are of acceptable quality.

(b) *Market ancillary services* are *ancillary services* acquired by *AEMO* as part of the *spot market* in accordance with this Chapter 3. The prices for *market ancillary services* are determined using the *dispatch algorithm*.

(c) *Non-market ancillary services* are *ancillary services* not acquired by *AEMO* as part of the spot market, but acquired:

(1) in the case of *SRAS*, by *AEMO* under *ancillary services agreements*, with the prices for *SRAS* being determined in accordance with the relevant *ancillary services agreements*; and

(2) in the case of *NSCAS*:

(i) by *Transmission Network Service Providers* under *connection agreements* or *network support agreements* to meet an *NSCAS* need; and

(ii) in the circumstances contemplated in clause 3.11.3(c), by *AEMO* under *ancillary services agreements* entered into following a call for offers made in accordance with rule 3.11.5 to meet a *NSCAS gap* only for *power system security* and reliability of *supply* of the *transmission network* in accordance with the *power system security standards* and the *reliability standard*,

with the prices for *NSCAS* being determined in accordance with the relevant agreements;

(3) in the case of *NMAS* other than *SRAS* and *NSCAS*, by *Transmission Network Service Providers* under *connection agreements* or *network support agreements* to meet the service standards in accordance with the technical requirements of schedule 5.1 or in *applicable regulatory instruments*, with the prices for those services being determined in accordance with the relevant agreements.

(d) *AEMO* may instruct a person to provide a *non-market ancillary service* under an *ancillary services agreement* or otherwise in accordance with the

(1) 100 *business days* after the end of the *AEMO intervention event* or the end of a series of related *AEMO intervention events* if *AEMO* is not required to appoint an independent expert under clause 3.15.7A or refer a matter to an independent expert under clause 3.12.2(l), 3.12.2(m), 3.15.7B(c) or 3.15.7B(d);

(2) 150 *business days* after the end of the *AEMO intervention event* or the end of a series of related *AEMO intervention events* if *AEMO* is:

(i) required to appoint an independent expert under clause 3.15.7A but is not required to refer a claim or matter to an independent expert under clause 3.12.2(l), 3.12.2(m), 3.15.7B(c) or 3.15.7B(d); or

(ii) required to refer a claim or matter to an independent expert under clause 3.12.2(l), 3.12.2(m), 3.15.7B(c) or 3.15.7B(d) but is not required to appoint an independent expert under clause 3.15.7A; and

(3) 200 *business days* after the end of the *AEMO intervention event* or the end of a series of related *AEMO intervention events* if *AEMO* is required to appoint an independent expert under clause 3.15.7A and refer a claim or matter to an independent expert under clause 3.12.2(l), 3.12.2(m), 3.15.7B(c) or 3.15.7B(d).

(b) Subject to clause 3.12.1(a), *AEMO* must *publish* a timetable that sets a date for each of *AEMO's* and the independent expert's obligations pursuant to clauses 3.12.2, 3.12.3, 3.15.7, 3.15.7A, 3.15.7B, 3.15.8 and 3.15.10C, where required (the *intervention settlement timetable*).

(c) *AEMO* must at least once a month revise and *publish* the *intervention settlement timetable* to reflect any changes to the *intervention settlement timetable*.

3.12.2 Affected Participants and Market Customers entitlements to compensation in relation to AEMO intervention

(a) In respect of each *intervention price trading interval*:

(1) an *Affected Participant* is entitled to receive from *AEMO*, or must pay to *AEMO*, an amount as determined in accordance with this clause 3.12.2 that will put the *Affected Participant* in the position that the *Affected Participant* would have been in regarding the *scheduled generating unit* or *scheduled network service*, as the case may be, had the *AEMO intervention event* not occurred, taking into account solely the items listed in paragraph (j);

(2) a *Market Customer*, other than a *Market Customer* which was the subject of any *direction* that constituted the *AEMO intervention event*, is entitled, in respect of one or more of its *scheduled loads*, to receive an amount calculated by applying the following formula:

DC = ((RRP × LF) - BidP) × QD

where:

DC (in dollars) is the amount the *Market Customer* is entitled to receive in respect of that *scheduled load* for the relevant *intervention price trading interval*;

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;

LF where the *scheduled load's connection point* is a *transmission 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 the relevant *intra-regional loss factor* at the *transmission connection point* to which it is assigned;

BidP (in dollars per MWh) is the price of the highest priced *price band* specified in a *dispatch bid* for the *scheduled load* in the relevant *intervention price trading interval*;

QD (in MWh) is the difference between the amount of electricity consumed by the *scheduled load* during the relevant *intervention price trading interval* determined from the *metering data* and the amount of electricity which *AEMO* reasonably determines would have been consumed by the *scheduled load* if the *AEMO intervention event* had not occurred,

provided that if DC is negative for the relevant *intervention price trading interval*, then the adjustment that the *Market Customer* is entitled to claim in respect of that *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 in accordance with the procedure determined under clause 3.6.2(d1).

(b) In respect of a single *intervention price trading interval*, an *Affected Participant* or *Market Customer* 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~~$1,000.

(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 that its *scheduled network service* or *scheduled generating unit* would have been *dispatched* at had the *AEMO intervention event* not occurred; 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; 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); and

(3) each *Market Customer*, the amount calculated by *AEMO* in accordance with paragraph (a)(2) for that *Market Customer*.

(d) *AEMO* must include in an *Affected Participant's* or *Market Customer's final statement* provided pursuant to clause 3.15.15 for a *billing period* in which one or more *intervention price trading intervals* occurred:

(1) the amount notified by *AEMO* pursuant to paragraph (c) if the absolute value of such amount is greater than ~~$5,000~~$1,000; and

(2) in all other cases no amount in relation to compensation pursuant to this clause 3.12.2.

(e) If the figure calculated 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.

(f) Subject to paragraphs (h) and (i), within 7 *business days* of receipt of the notice referred to in paragraph (c) an *Affected Participant* or *Market Customer* may make a written submission to *AEMO* in accordance with paragraph (g) claiming that the amount set out in the notice is greater than, less than, or equal to its entitlement pursuant to paragraph (a)(1) as an *Affected Participant* or paragraph (a)(2) as a *Market Customer*, as the case may be.

(g) A written submission made by an *Affected Participant* or *Market Customer* 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) if the *Affected Participant* claims that the amount calculated by *AEMO* pursuant to paragraphs (c)(1) or (c)(2) is less than the amount the *Affected Participant* is entitled to receive pursuant to paragraph (a)(1), specify the difference between such amounts (such difference being the *affected participant's adjustment claim*);

(4) if the *Market Customer* claims that the amount calculated by *AEMO* pursuant to paragraph (c)(3) is less than the amount the *Market Customer* is entitled to receive pursuant to paragraph (a)(2), specify the difference between such amounts (such difference being the *market customer's additional claim*); and

(5) be signed by an authorised officer of the *Affected Participant* or *Market Customer* certifying that the written submission is true and correct.

(h) If an *Affected Participant* or *Market Customer* does not deliver to *AEMO* a written submission in accordance with paragraph (f) it shall cease to have an entitlement to compensation under this clause 3.12.2.

(i) In respect of a single *intervention price trading interval* an *Affected Participant* or *Market Customer* may only make a claim pursuant to paragraph (f) in respect of that *intervention price trading interval* if it claims that its entitlement or liability pursuant to this clause 3.12.2 is greater than ~~$5,000~~$1,000.

(j) In determining the amount for the purposes of paragraph (a)(1), the following must, as appropriate, be taken into account:

(1) the direct costs incurred or avoided by the *Affected Participant* in respect of that *scheduled generating unit* or *scheduled network service*, as the case may be, as a result of the *AEMO intervention event* including:

3.12A.3 Acquisition of capacity

(a) *AEMO* must immediately upon *publication* of a *mandatory restriction schedule* or an amended *mandatory restriction schedule* use its reasonable endeavours to acquire, in accordance with the *restriction offer procedures*, capacity to meet the *mandatory restriction schedule* or amended *mandatory restriction schedule* as the case may be.

(b) *AEMO* must terminate in accordance with the *restriction offer procedures* such number of *accepted restriction offers*, in whole or in part, so that the total capacity of existing *accepted restriction offers* as far as practicable equals the amended *mandatory restriction schedule*.

3.12A.4 Rebid of capacity under restriction offers

In each ~~*dispatch interval*~~*trading interval* when *mandatory restrictions* apply, each *scheduled generating unit* or *scheduled network service* the subject of an *accepted restriction offer* with respect to that ~~*dispatch interval*~~*trading interval* must rebid the total capacity the subject of such *restriction offer* by varying the respective *dispatch offers* or *network dispatch offers* in accordance with the procedures developed pursuant to clause 3.12A.1(a)(4).

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.)

3.12A.5 Dispatch of restriction offers

(a) In a ~~*dispatch interval*~~*trading interval* *AEMO* may only *dispatch* the capacity of a *scheduled generating unit* or *scheduled network service* in accordance with the procedures for the *rebidding* and *dispatch* of capacity the subject of an *accepted restriction offer* developed by *AEMO* in consultation with *Registered Participants*. Such procedures must as far as reasonably practical incorporate the following principles:

(i) *dispatch* of *accepted restriction offers* only after all the capacity of *scheduled loads*, *scheduled generating units* and *scheduled network services* contained in valid *dispatch offers* and *dispatch bids* have been *dispatched*;

(ii) recognise any requirement for advance notice or action for generators to operate at minimum generation, provide advance notice to *loads* or obtain capacity of *market network services* that are or may become the subject of a *AEMO intervention event*;

(iii) be consistent with the price of *accepted restriction offers* in accordance with clause 3.12A.6; and

(iv) minimise the *restriction shortfall amount*.

(b) Notwithstanding the provisions of this clause 3.12A.5, at no time is *AEMO* required to *dispatch* the capacity of a *Scheduled Generator* or *Scheduled Network Service Provider* the subject of an *accepted restriction offer* if such *dispatch* would prevent *AEMO* from meeting its obligations for system security.

3.12A.6 Pricing during a restriction price trading interval

During a *mandatory restriction period*, ~~*dispatch prices*~~*spot prices* must be determined by the *central dispatch* process based on *dispatch offers*, *dispatch bids* and *network dispatch offers* in accordance with clause 3.9.2, provided that *AEMO* must calculate the ~~*dispatch price*~~*spot price* as if the *dispatch offer price* for all capacity the subject of an *accepted restriction offer* was the maximum price permitted by clause 3.8.6(c) and 3.8.6A(i) notwithstanding any other provision of the *Rules*.

3.12A.7 Determination of funding restriction shortfalls

(a) *AEMO* is entitled to the *trading amount* received by *Scheduled Generators* and *Scheduled Network Service Providers* from the *dispatch* of capacity the subject of an *accepted restriction offer* in accordance with 3.15.10B.

(b) *AEMO* must, as soon as reasonably practicable following the end of a *mandatory restriction period*, calculate:

(i) the aggregate amount payable to *AEMO* pursuant to clause 3.12A.7(a) from all *accepted restriction offers* in that *mandatory restriction period*;

(ii) the aggregate amount payable by *AEMO* pursuant to all *accepted restriction offers* in that *mandatory restriction period*; and

(iii) the sum of the amount determined under clause 3.12A.7(b)(i) less the amount determined under clause 3.12A.7(b)(ii) (the *restriction shortfall amount*).

(b1) The maximum amount payable to a *Scheduled Generator* or *Market Participant* for any *accepted restriction offer* of that *Scheduled Generator* or *Market Participant* during a *mandatory restriction period* is the aggregate of the maximum possible *spot price* for each *trading interval* within the *mandatory restriction period*, being the *market price cap* or an *administered price cap* as the case may be, multiplied by the capacity of the *accepted restriction offer* in MWh for each corresponding *trading interval*.

(c) Notwithstanding any other provisions of the *Rules*, the absolute value of the *restriction shortfall amount* must not exceed the sum of the maximum possible *spot price* for a *trading interval*, being the *market price cap* or an *administered price cap* as the case may be, multiplied by the aggregate of the capacity of all *accepted restriction offers* in MWh for that *trading interval* for all *trading intervals* in the *mandatory restriction period*.

(w) 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.

(x) A *jurisdictional planning body* must provide assistance *AEMO* reasonably requests in connection with the preparation of a report under paragraph (u).

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 ~~*trading interval*~~*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 *pre-dispatch schedule* for the period described in clause 3.8.20(a).

(f) Subject to clause 3.8.20(b), ~~Details~~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 *power system load* 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* 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* in each forecast:

(i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);

(ii) referred to in clause 3.13.4(f)(2);

(iii) 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(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:

(i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);

(ii) referred to in clause 3.13.4(f)(2);

(iii) 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(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) when and where the projected conditions are found to be inadequate;

(ii) any *trading intervals* for which *low reserve* or *lack of reserve* conditions are forecast to apply;

(iii) 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*;

(iv) forecast *interconnector* transfer capabilities and the projected impact of any *inter-network tests* on those transfer capabilities; and

(v) when and where *network constraints* may become binding on 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) ~~or *dispatch interval* (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* 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 ~~*dispatch price*~~*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*. The 30-minute price must be calculated in accordance with clause 11.100.7.

(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 *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* received and actual availabilities of *generating 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 *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 offer*;

(3) the *dispatch bid* or *dispatch offer prices*;

(4) quantities for each *trading interval*;

(5) the *ramp rate* of each *generating 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 *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 ~~*dispatch interval*~~*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 ~~*dispatch interval*~~*trading interval*.

(q) Each *day*, in accordance with the *timetable*, *AEMO* must *publish* details of:

(1) *dispatched generation*, *dispatched network service* or *dispatched load* for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* and *scheduled load* respectively in each *trading interval* ~~and *dispatch interval*~~; and

(2) for each *semi-scheduled generating unit* in each *trading interval* ~~and *dispatch 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*;

(2) actual *network service* for each *scheduled network service*; and

(3) actual *load* for each *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.

(u) Each time *AEMO* runs the *dispatch algorithm* it must, within 5 minutes, *publish* for the relevant ~~*dispatch interval*~~*trading interval*:

(1) details of any MW allowance made by *AEMO* for *generation* from *non-scheduled generating 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*; and

(3) for each *regional reference node*, a value that is the sum of the *regional* demand value used by *AEMO* in its *dispatch algorithm* to calculate the ~~*dispatch price*~~*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*.

(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).

(2) details of the calculation of the regional benefit determined under clause 3.15.8(b1); and

(3) a breakdown of the *compensation recovery amount* by each category of *Registered Participant*, as determined by *AEMO*, in each *region*.

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 ~~in a *trading interval* or *trading intervals*~~, prepare and *publish* a report which must~~ for each *trading interval* in which the *spot price* exceeded $5,000/MWh in that week~~:

(1) describe the significant factor~~s~~ that contributed to the ~~*spot price*~~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 ~~*spot price*~~ 30-minute price exceeding $5,000~~/~~MWh; and

(3) identify the marginal *scheduled generating units* and *semi-scheduled generating units* for the ~~*dispatch intervals* in the~~ relevant ~~*trading interval*~~period ~~–~~ and all *scheduled generating units* and *semi-scheduled generating units* for which any *dispatch offer* for ~~the~~ a *trading interval* in the relevant period was equal to or greater than $5,000/MWh and compare these *dispatch offers* to relevant *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* ~~for *energy*~~; 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/MW~~h~~;

(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/M~~w~~W~~h~~.

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 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

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* 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* or *market generating 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

3.14.1 Cumulative Price Threshold and Administered Price Cap

(a) The *administered price cap* for each *region* is $300/MWh.

(b) The *administered floor price* for each *region* to apply to *spot prices* is the negative of the value of the *administered price cap*.

(c) The *cumulative price threshold* for each *financial year* is the dollar amount calculated by the *AEMC* under paragraph (d).

Note

The current value of the *cumulative price threshold* is set out in a schedule of reliability settings published on the AEMC's website www.aemc.gov.au

(d) By 28 February of each year (commencing 2012), the *AEMC* must calculate the *cumulative price threshold* to apply on and from 1 July of that year in accordance with paragraphs (e) and (f) and *publish* its calculation on its website as part of a schedule of *reliability* settings.

(e) Subject to paragraph (f), the *AEMC* must calculate the *cumulative price threshold* using the following formula:

$$CPT^X = BV^{CPT} \times \frac{(Q_1^c + Q_2^c + Q_3^c + Q_4^c)}{(Q_1^b + Q_2^b + Q_3^b + Q_4^b)}$$

Where:

CPT is the *cumulative price threshold* in dollars;

x is the *financial year* for which the *cumulative price threshold* is being calculated;

BV^{CPT} is $1,125,000~~187,500~~ (being 6 times the value of the *cumulative price threshold* calculated on a 30-minute basis prior to 1 July 2012);

Q1 to Q4 are the values of the Reliability Settings Index for each of the four quarters of years c and b (as the case may be) as at five months before the start of year x;

Reliability Settings Index is the All groups, Australia CPI found at Index Numbers, All groups, Australia, in Tables 1 and 2 of the Consumer Price Index, Australia published by the Australian Bureau of Statistics for the relevant quarter, except where that index ceases to be published or is substantially changed, in which case the Reliability Settings Index will be such other index as is determined by the *AEMC* as suitable;

c is the calendar year commencing 18 months before the start of year x; and

b is calendar year 2010.

(f) If the value calculated by the *AEMC* under paragraph (e) is:

(1) not in whole hundreds of dollars, then the *cumulative price threshold* for year x will be the value calculated under paragraph (e) rounded to the nearest $100;

(2) less than the *cumulative price threshold* applied under this clause 3.14.1 for the preceding *financial year* (year x-1), then the *cumulative price threshold* for year x will be the value of the *cumulative price threshold* for year x-1.

3.14.2 Application of Administered Price Cap

(a) **[Deleted]**

(b) *AEMO* must immediately notify all *Market Participants* of the commencement and closing of an *administered price period* under rule 3.14.

(c) Each of the following periods is an *administered price period* in a *region*:

(1) a *trading interval*, where the sum of the *spot prices* in the previous ~~336~~ 2016 *trading intervals*, calculated as if this clause did not apply, exceeds the *cumulative price threshold*;

(1A) a ~~*dispatch interval*~~*trading interval*, where the sum of the *ancillary service prices* for a *market ancillary service* in the previous 2016

~~*dispatch intervals*~~*trading intervals*, calculated as if this clause did not apply, exceeds ~~6 times~~ the *cumulative price threshold*; or

(2) a *trading interval* in a *trading day* in which a prior *trading interval* is an *administered price period*.~~;~~

(2A) **[Deleted]**~~a *dispatch interval* in a *trading day* in which a prior *dispatch interval* is an *administered price period*; or~~

(2B) **[Deleted]**~~a *dispatch interval* within a *trading interval* that is an *administered price period*.~~

(3) **[Deleted]**

(d) During an *administered price period* the procedures for *PASA*, *dispatch*, *spot price* and *ancillary service price* determination are to continue in accordance with the provisions of the *Rules*.

(d1) If, within an *administered price period* triggered because of clause 3.14.2(c)(1) or (2) in relation to *energy*, the ~~*dispatch price*~~*spot price* for the *region* identified in clause 3.14.2(c) calculated as if this clause 3.14.2(d1) did not apply:

(1) exceeds the *administered price cap*, then *AEMO* must set the ~~*dispatch price*~~*spot price* to the *administered price cap*; or

(2) is less than the *administered floor price*, *AEMO* must set the ~~*dispatch price*~~*spot price* to the *administered floor price*.

(d2) If within an *administered price period* an *ancillary service price* for any *market ancillary service* for the *region* identified in clause 3.14.2(c) calculated as if this clause 3.14.2(d2) did not apply exceeds the *administered price cap*, then *AEMO* must set that *ancillary service price* to the *administered price cap*.

(e) If during an *administered price period* the ~~*dispatch price*~~*spot price*:

(1) **[Deleted]**

(2) at any *regional reference node* is set to the *administered price cap* under clause 3.14.2(d1)(1), then ~~*dispatch prices*~~*spot prices* at all other *regional reference nodes connected* by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow towards that *regional reference node* must not exceed the *administered price cap* divided by the average *loss factor* that applies for *energy* flow in that direction for that ~~*dispatch interval*~~*trading interval* and determined in accordance with clause 3.14.2(e)(5).

(3) **[Deleted]**

(4) at any *regional reference node* is set to the *administered floor price* under clause 3.14.2(d1)(2), then ~~*dispatch prices*~~*spot prices* at all other

regional reference nodes connected by a *regulated interconnector* or *regulated interconnectors* that have an *energy* flow away from that *regional reference node* must be equal to or greater than the *administered floor price* multiplied by the average *loss factor* that applies for *energy* flow in that direction for that ~~*dispatch interval*~~*trading interval* and determined in accordance with clause 3.14.2(e)(5).

(5) *AEMO* must determine the average *loss factors* applicable to clause 3.14.2(e)(2) and 3.14.2(e)(4) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.14.3 Conditions for suspension of the spot market

(a) Subject to clause 3.14.3(b), *AEMO* may declare the *spot market* to be suspended in a *region* when in respect of that *region*:

(1) the *power system* has collapsed to a *black system*;

(2) *AEMO* has been directed by a *participating jurisdiction* to suspend the *market* or operate all or part of the *power system* in a manner contrary to the provisions of the *Rules* following the formal declaration by that *participating jurisdiction* of a state of emergency under its emergency services or equivalent legislation; or

(3) *AEMO* determines that it is necessary to suspend the *spot market* in a *region* because it has become impossible to operate the *spot market* in accordance with the provisions of the *Rules*.

(a1) If *AEMO* declares the *spot market* to be suspended in a *region*, then all *spot prices* and *ancillary service prices* are set in accordance with clause 3.14.5 for that *region*.

(b) *AEMO* must not suspend the *spot market* solely because:

(1) *spot prices* have reached the *market price cap*;

(1A) *spot prices* have reached the *market floor price*;

(2) *AEMO* has issued a *direction*; or

(3) *AEMO* has otherwise intervened in the market under rule 3.12.

(c) *AEMO* must conduct reviews of each occasion when it suspended the *spot market* in order to assess the adequacy of the provision and response of *facilities* or services, and the appropriateness of actions taken to restore or maintain *power system security*.

(d) The report of the review carried out in accordance with clause 3.14.3(c) must be made available to *Registered Participants* and the public.

suspended region divided by the average *loss factor* that applies for *energy* flow in that direction for that *trading interval*.

(n) *AEMO* must use reasonable endeavours to ensure that any adjustments required to *regional reference prices* so that they do not exceed the limits set by clause 3.14.5(m) are finalised as soon as practicable but in any event by no later than one *business day* following the day on which the *spot market* in the *region* ceased to be suspended.

(o) *AEMO* must calculate the average *loss factor* applicable to clause 3.14.5(m) by reference to the *inter-regional loss factor* equations relating to the relevant *regulated interconnector*.

3.14.6 Compensation due to the application of an administered price cap or administered floor price

Eligibility for compensation

(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.

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 ~~final *dispatch interval* 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* and *Non-Scheduled Generators*:

(i) the ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*trading interval* is set by the *administered price cap* during an *administered price period*; or

(ii) the ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*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 ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*trading interval* is set by the *administered floor price* during an *administered price period*; or

(ii) the ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*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 ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*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 ~~*dispatch price*~~*spot price* for a ~~*dispatch interval*~~*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*, the *ancillary service price* for a ~~*dispatch interval*~~*trading interval* is set by the *administered price cap* during an *administered price period*.

relevant region means a *region* in which the ~~*dispatch price*~~*spot price* or *ancillary service price* (as relevant) is set by the price limit event.

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.

(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* or *Non-Scheduled Generator* in the relevant region;

(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,

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).

(b) *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

(a) In each *trading interval*, in relation to each *enabled 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 = the aggregate of $\frac{EA \times ASP}{(12)}$ for each ~~*dispatch interval* in a~~ *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* has been *enabled* to provide in the ~~*dispatch interval*~~*trading interval*; and
ASP (in $ per MW per hour)	=	the *ancillary service price* for the *market ancillary service* for the ~~*dispatch interval*~~*trading interval* for the *region* in which the *ancillary service generating unit* or *ancillary service load* 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.

(b1) Where an amount payable by *AEMO* under paragraph (b) 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, AGE, AAGE, TGE, ATGE, TSGE, ATSGE, TCE, 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) In this clause:

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.

(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) *system restart ancillary services*, 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 *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 *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 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 a *system restart ancillary service*, that can be used to restart *generating 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.

(c8) In each *trading interval*, in relation to each *Market Customer* for each *region*, an *ancillary services* transaction occurs, which results in a *trading amount* for the *Market Customer* determined in accordance with the following formula:

'

$$TA_{p,r} = \left(\sum_{\text{for all 's'}} \left(TNSCAS_{s,p} \times RBF_{s,p,r} \right)\right) \times \frac{AGE_{p,r}}{AAGE_{p,r}} - 1$$

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*.

(c9) In each *trading interval*, in relation to each *Market Customer*, an *ancillary services* transaction occurs, which results in a *trading amount* for the *Market Customer* determined in accordance with the following formula:

$$TA_P = TNSCAS_P \times \frac{AGE_P}{AAGE_P} \times -1$$

Where

Subscript 'P' is the relevant period;

TAp(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*.

(c10) *AEMO* must *publish* the regional benefit factors determined under paragraph (c7);

(d) In each *trading interval*, in relation to each *Market Generator* and each *Market Small Generation Aggregator* for each *region*, an ancillary services transaction occurs, which results in a *trading amount* for the *Market Generator* or the *Market Small Generation Aggregator* determined in accordance with the following formula:

$$TA = \sum \left(\left(\frac{SRP_i \times RBF_{Ri}}{2} \right) \times \left(\frac{TGE_R + TSGE_R}{ATGE_R + ATSGE_R} \right) \right) \times -1$$

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 *system restart ancillary service*;

RBF_{Ri} (number) = the latest regional benefit factor assigned to the provision of the relevant *system restart ancillary service* 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*.

(e) In each *trading interval*, in relation to each *Market Customer*, for each *region*, an ancillary services transaction occurs, which results in a *trading amount* for the *Market Customer* determined in accordance with the following formula:

$$TA = \sum \left(\left(\frac{SRP_i \times RBF_{Ri}}{2} \right) \times \frac{TCE_R}{ATCE_R} \right) \times -1$$

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 *system restart ancillary service* 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*.

(f) The total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast raise service*, *slow raise service* or *delayed raise service* in respect of each ~~*dispatch interval* which falls within 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 ~~each *dispatch interval* within~~ the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *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 ~~each~~ the relevant ~~*dispatch interval*~~*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 clause 3.15.6A(f)(1); and

(3) allocate for ~~each~~ the relevant ~~*dispatch interval*~~*trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in clause 3.15.6A(f)(2) to each *region* as relevant to that requirement pro-rata to the aggregate of the *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 ~~all *dispatch intervals* in~~ 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 ~~all *dispatch intervals* in~~ the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3).

In each *trading interval*, in relation to each *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 *Market Generator* and that *Market Small Generation Aggregator* determined in accordance with the following formula:

$$TA = RTCRSP \times \frac{TGE + TSGE}{RATGE + RATSGE} \times -1$$

where:

TA (in $)	=	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 *fast raise service*, *slow raise service* or *delayed raise service* in respect of ~~*dispatch intervals* which fall in~~ 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*.

(g) The total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *fast lower service*, *slow lower service* or *delayed lower service* in respect of each ~~*dispatch interval* which falls within 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 ~~each *dispatch interval* within~~ the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under clause 3.15.6A(a) for each of the *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 ~~each~~ the relevant ~~*dispatch interval*~~*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 clause 3.15.6A(g)(1); and

(3) allocate for ~~each~~ the relevant ~~*dispatch interval*~~*trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in clause 3.15.6A(g)(2) to each *region* as relevant to that requirement pro-rata to the aggregate of the *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 ~~all *dispatch intervals* in~~ 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 ~~all *dispatch intervals* in~~ the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3).

In each *trading interval*, in relation to each *Market Customer* in a given *region*, an ancillary services transaction occurs, which results in a *trading amount* for that *Market Customer* determined in accordance with the following formula:

$$TA = RTCLSP \times \frac{TCE}{RATCE} \times -1$$

where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
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 *fast lower service*, *slow lower service* or *delayed lower service* in respect of ~~*dispatch intervals* which fall in~~ the *trading interval*;
TCE (in MWh)	=	the *customer energy* for the *Market Customer* in that *region* for the *trading interval*; and

RATCE (in MWh)	=	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 ~~*dispatch interval* which falls within the~~ *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 ~~each *dispatch interval* within~~ 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 ~~each~~ the relevant ~~*dispatch interval*~~*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 *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 *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 ~~*dispatch interval* in the~~ *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	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 ~~*dispatch interval*~~*trading interval*;

MPF (a number) = the contribution factor last set by *AEMO* for the *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 *Market Participants* for the ~~*dispatch interval*~~*trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*.

or

(2) in relation to each *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 *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 ~~*dispatch interval* in the~~ *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $) = 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 *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 *Market Participants* for the ~~*dispatch interval*~~*trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;
TCE (in MWh)	=	the *customer energy* for the *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 *customer energy* figures for all *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*.

(j) *AEMO* must determine for the purpose of paragraph (i):

(1) a contribution factor for each *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 *Market Participant* should reflect the extent to which the *Market Participant* contributed to the need for *regulation services*;

(2) the contribution factor for all *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 *Market Customers* that do not have *metering* to allow the individual contribution of that *Market Customer* to the aggregate need for *regulation services* to be assessed, must be

divided between *regions* in proportion to the total *customer energy* for the *regions*;

(4) the individual *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 load*, *ancillary service generating unit* or *ancillary service load* (called a **Scheduled Participant**) will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a ~~*dispatch interval*~~*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 *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 ~~*dispatch interval*~~*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

3.15.7B Claim for additional compensation by Directed Participants

(a) Subject to clauses 3.15.7B(a1) and 3.15.7B(a4), a *Directed Participant* entitled to compensation pursuant to clause 3.15.7 or clause 3.15.7A may, in accordance with the *intervention settlement timetable*, 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 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 3.15.7(c) or clause 3.15.7A(f); 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) Subject to clause 3.15.7B(a4), if *AEMO* determines pursuant to clause 3.15.7A(b) that an independent expert could not reasonably be expected to determine within a reasonable period of time the relevant fair payment price, a *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *AEMO* claiming compensation from *AEMO* for the provision of services under the *direction* equal to:

(1) loss of revenue and additional net direct costs which the *Directed Participant* incurred as a result of the provision of services under the *direction*; and

(2) a reasonable rate of return on the capital employed in the provision of the service determined by reference as far as reasonably practicable to rates of return for the provision of similar services by similar providers of such services.

(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 paragraphs (a)(1) and (a1)(1), the additional net direct costs incurred by the *Directed Participant* in respect of 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 *generating unit* or *scheduled network services*;

(2) incremental maintenance costs in connection with the relevant *generating unit* or *scheduled network services*;

(3) incremental manning costs in connection with the relevant *generating unit* or *scheduled network services*;

(4) acceleration costs of maintenance work in connection with the relevant *generating unit* or *scheduled network services*, where such acceleration costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*;

(5) delay costs for maintenance work in connection with the relevant *generating unit* or *scheduled network services*, where such delay costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*;

(6) other costs incurred in connection with the relevant *generating unit* or *scheduled network services*, where such costs are incurred to enable the *generating unit* or *scheduled network services* to comply with the *direction*; and

(7) any compensation which the *Directed Participant* receives or could have obtained by taking reasonable steps in connection with the relevant *generating unit* or *scheduled network services* being available.

(a4) In respect of a single *intervention price trading interval*, a *Directed Participant* may only make a claim pursuant to clauses 3.15.7B(a), 3.15.7B(a1) or 3.15.7B(a2) if the amount of the claim in respect of that *intervention price trading interval* is greater than $~~5~~1,000.

(b) The submissions pursuant to clauses 3.15.7B(a), 3.15.7B(a1) 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 and the reasonable rate of return, 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), 3.15.7B(a1) 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

E is the sum of all that *Market Customer's adjusted gross energy amounts* in a *region* (the " **relevant *region*"**) in each *trading interval* which occurs between 0800 hours and 2000 hours (*EST*) on a *business day* in the *billing period* excluding any *loads* in that *region* in respect of which the *Market Customer* submitted a *dispatch bid* for any such *trading interval*;

RRC is the total amount payable by *AEMO* under *reserve contracts* which relate to the relevant *region* in the *billing period* as agreed under clause 3.20.3(f); and

∑E is the sum of all amounts determined as "E" in accordance with this paragraph (e) in respect of that *region*.

(f) A *Market Customer* is liable to pay *AEMO* an amount equal to the sum calculated under paragraph (e) in respect of that *Market Customer*.

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.)

(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 ~~*dispatch price*~~*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* or *Ancillary Service Provider* under clause 3.14.6, then *AEMO* must determine an amount which shall be payable by each *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 *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 *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 *Market Customer* is *financially responsible* in the cost recovery region ~~i~~.

$\sum E_i$ 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 *Market Participants* as determined in accordance with this clause 3.15.10.

3.15.10A Goods and services tax

(a) In this clause 3.15.10A:

"GST" has the meaning given in the GST Act; and

"GST Act" means the *A New Tax System (Goods and Services Tax) Act 1999* (C'th);

"supply" and " **taxable supply"** each have the meaning given in the GST Act,

and the definition of "*supply*" in Chapter 10 does not apply.

(b) Despite anything else in the *Rules*, *Participant fees*, *spot prices*, adjustments for *directions*, *reserve settlements*, *administered price cap* compensation payments, system security *direction settlements*, *re-allocation transactions*, compensation, interest, *settlements residues*, *ancillary services settlements*, *settlements residue* distributions (including *auction* proceeds), *auction expense fees* and other prices, fees, charges and amounts payable to or by

(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* is not entitled to a refund of any contributions made to the *Participant compensation fund*.

(h) 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* who receives an instruction in respect of a *scheduled generating unit* or *semi-scheduled generating unit* (as the case may be) to operate at a 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* who receives a *dispatch instruction* in respect of a *generating unit* to operate at a level consistent with a *dispatch offer price* (with reference to the relevant *regional reference node*) which is higher than the ~~*dispatch price*~~*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* 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* for that ~~*dispatch interval*~~*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 ~~*dispatch interval*~~*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*.

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(g) A *Registered Participant* must provide the information requested by *AEMO* under clause 4.8.15(f) within 20 *business days* unless *AEMO* agrees to a longer period, taking into account:

(1) the particular circumstances of the reviewable operating incident; and

(2) any request made under clause 4.8.15(h).

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) *AEMO* must as soon as practicable, provide to a *Registered Participant* such information relating to the performance of equipment of the *Registered Participant* during and after a reviewable operating incident as the *Registered Participant* reasonably requests and in relation to which *AEMO* is required to conduct a review under this clause 4.8.15.

(i) At any time when no guidelines are in force under rule 8.8, *AEMO* may conduct a review of any incident referred to in clause 4.8.15(a)(1) that *AEMO* considers to be of significance to the operation of the *power system* or a significant deviation from normal operating conditions, and this clause 4.8.15 applies to and in respect of the review as if the incident were a reviewable operating incident.

4.9 Power System Security Related Market Operations

4.9.1 Load forecasting

(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 ~~*trading interval*~~*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 ~~*trading interval*~~*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* 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*;

(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*; 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

(a) To implement *central dispatch* or, where *AEMO* has the power to direct or to instruct a *Scheduled Generator* or *Semi-Scheduled Generator* 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* in relation to any of its *generating 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;

(2) in the case of a *scheduled generating unit*, the level or schedule of power to be supplied by the *generating unit* over the specified period; and

(3) in the case of a *semi-scheduled generating unit*, the maximum level of power 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* in relation to any of its *generating units* with a *nameplate rating* of 30MW or more, or its *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

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.)

4.9.5 Form of dispatch instructions

(a) A *dispatch instruction* for a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* 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* 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 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 ~~*dispatch interval*~~*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 *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.

(b) The *dispatch instruction* must be provided as provided in clause 3.8.21.

4.9.6 Commitment of scheduled generating units

(a) Self-commitment:

(1) In relation to any *scheduled generating unit*, the *Scheduled Generator* must confirm with *AEMO* the expected *synchronising* time at least one hour before the expected actual *synchronising* time, and update this advice 5 minutes before *synchronising* unless otherwise agreed with

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(b) No requirement in this Chapter 6 to publish information about a *tariff class* is to be construed as requiring publication of information about an individual *retail customer*.

Part J Billing and Settlements

6.20 Billing and Settlements Process

This clause describes the manner in which *Distribution Customers* and *Embedded Generators* are billed by *Distribution Network Service Providers* for *distribution services* and how payments for *distribution services* 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) *Embedded Generators*:

(i) by applying the *entry charge* as a fixed annual charge to each *Embedded Generator*; and

(ii) by applying any other charge the *Distribution Network Service Provider* makes consistently with these *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 ~~half-hourly~~ demand;

(ii) energy-based prices to the *Distribution Customer's* metered or agreed energy;

(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.

National Electricity Rules

Status Information

This is the consolidated version of Chapter 7 of the National Electricity Rules as amended by:

- the *National Electricity Amendment (Expanding Competition in metering and related services) Rule 2015 No.12* and the:
- the *National Electricity Amendment (Embedded Networks) Rule 2015 No.13*:
- the *National Electricity Amendment (Meter Replacement Processes) Rule 2016 No.2*; and
- the *National Electricity Amendment (Updating the electricity B2B framework) Rule No. 6*.

Metering Coordinator's capability for ongoing compliance with the *Rules* or procedures authorised under the *Rules*; and

(3) *AEMO* may, following a review conducted under subparagraph (c)(2), issue a notice to the *Metering Coordinator* which must identify the continuing breach and state that the notice is a notice for the purpose of paragraph (d) of the definition of a *Metering Coordinator default event*.

(d) If *AEMO* has issued a notice under subparagraph (c)(3), it must promptly issue a notice to the *financially responsible Market Participant* and relevant person for each *connection point* for which the *Metering Coordinator* in respect of whom the *Metering Coordinator default event* occurred is appointed by the *financially responsible Market Participant* or relevant person. Such notice must:

(1) state that an *Metering Coordinator default event* under paragraph (d) of the definition of *Metering Coordinator default event* has occurred; and

(2) specify the *Metering Coordinator* in respect of whom the *Metering Coordinator default event* occurred.

Part D **Metering installation**

7.8 Metering installation arrangements

7.8.1 Metering installation requirements

(a) The *Metering Coordinator* at a connection point must ensure that there is a *metering installation* at that connection point.

(b) The *Metering Coordinator* at a *connection point* must ensure that *energy data* held in the *metering installation* is based on units of watthour (**active energy**) and where required varhour (**reactive energy**).

(c) Installation and maintenance of a *metering installation* must be carried out only by a *Metering Provider* appointed under clause7.3.2(a).

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);

(2) is accurate in accordance with clause 7.8.8;

(3) in the case of *metering installation*s types 1, 2, 3, or 4, has electronic data transfer facilities from the *metering installation* to the *metering data services* database;

(4) includes a *communications interface* to meet the requirements of clause 7.3.2(e)(4);

(5) is secure in accordance with rule 7.15;

(6) records *energy data* in a manner that enables *metering data* to be collated in accordance with clause 7.10.5;

(7) is capable of separately recording *energy data* for *energy* flows in each direction where bi-directional *active energy* flows occur or could occur;

(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;

(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*;

(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

(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.

(a1) *AEMO* may exempt a *Metering Provider* at a *connection point* from complying with the data storage requirements under clause 7.8.2(a)(9) for types 1, 2, 3, and 4 *metering installations* 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 clause 7.8.2(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* 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

(2) register the *NMI* with *AEMO* in accordance with procedures from time to time specified by *AEMO*.

(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) ~~(1)~~provide the Metering Coordinator, financially responsible Market Participant and Exempted Embedded Network Service Provider with the NMI for the metering installation within 5 business days of receiving the NMI from AEMO; and

(3) ~~(2)~~register the *NMI* with *AEMO* in accordance with procedures from time to time specified by *AEMO*.

(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

(f) In addition to the requirements in paragraphs (a) to (e), the *Metering Coordinator* at a *connection point* for a *non-market generating 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 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 *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 a small generating unit classified as a market generating unit

(g) In addition to the requirements for *metering installation*s for non-market generating units in paragraph (f), the *Metering Coordinator* for a 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*.

7.8.2A New and replacement metering installations

The *Metering Coordinator* at a *connection point* must ensure that all new and replacement *metering installations* are capable of recording and providing, and configured to record and provide, *trading interval energy data.*

(c) Where a *Market Network Service Provider* installs a *two-terminal link* between two *connection points*, *AEMO* in its absolute discretion may require a *metering installation* to be installed in the *facility* at each end of the *two-terminal link*. Each of these *metering installations* must be separately assessed to determine the requirement for *check metering* in accordance with Schedule 7.4.

7.8.8 Metering installation types and accuracy

(a) The type of *metering installation* and the accuracy requirements for a *metering installation* are to be determined in accordance with Schedule 7.4.

(b) A *check metering installation* is not required to have the degree of accuracy required of a *metering installation* but the *Metering Coordinator* must ensure that its has mathematical correlation with the *metering installation* and be consistent with the requirements of Schedule 7.4.

(c) The *Metering Coordinator* at a *connection point* must ensure that the accuracy of a type 6 *metering installation* is in accordance with regulations issued under the *National Measurement Act* or, in the absence of any such regulations, with the *metrology procedure*.

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.

(10) notifying the *Metering Coordinator* of any *metering installation* malfunction of a *metering installation* within 1 business day; and

(11) management and storage of *metering data* in accordance with clause 7.10.2.

(b) Despite anything to the contrary in the *Rules, AEMO* may obtain *energy data* directly from a *metering installation* for the *settlements* process.

7.10.2 Data management and storage

(a) Metering Data Providers must:

(1) retain metering data for all relevant *metering installation*s 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

(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*.

(b) Metering Data Providers accredited for type 7 *metering installation*s must maintain techniques for determining calculated metering data for type 7 *metering installation*s 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*~~, if any,~~ becomes unavailable.

7.10.3 Provision of metering data to certain persons

(a) The *Metering Data Provider* must provide *metering data* and relevant *NMI Standing Data* to the persons referred to in clauses 7.15.5(c)(1) to 7.15.5(c)(5a) as required by and in accordance with the *Rules* and procedures authorised by *AEMO* under this Chapter 7.

(b) *AEMO* must ensure that the procedures it authorises under this Chapter 7 do not require the *Metering Data Provider* to provide *metering data* or relevant *NMI Standing Data* to a person under paragraph (a) except to the extent that such *metering data* or relevant *NMI Standing Data* is required by that person to perform its obligations under the *Rules*, the *National Energy Retail Rules* or *jurisdictional electricity legislation*.

7.10.4 Use of check metering data

(a) *Check metering data*, where available and provided that the *check metering data* has been appropriately adjusted for differences in *metering installation* accuracy, must be used by *Metering Data Providers* or *AEMO*, as the case may be, for:

(1) validation;

(2) substitution; and

(3) estimation,

of *metering data* as required by clauses 7.10.1 and 7.11.2(c).

7.10.5 Periodic energy metering

(a) The *Metering Data Provider* must, for types 1, 2 and 3 *metering installations* ~~type 1, 2, 3,~~ and type 4 *metering installations* that provide *trading interval energy data*~~, 4A and 5 *metering installations*~~, collate *metering data* relating to:

(1) the amount of *active energy*; and

(2) *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.

(b) For types 4A, 5 and 6 *metering installations* ~~type 6~~ and type 4 *metering installations* that do not provide *trading interval energy data* ~~*metering installations*~~, *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 *market load*, including the algorithms;

(2) the *metering data* from *first-tier loads* that is to be used in the conversion process;

(3) the quality and timeliness of the *metering data* from the *first-tier loads*;

(4) the party responsible for providing the *metering data* from the *first-tier loads*; and

(5) if required, the method of cost recovery in accordance with clause 7.5.2.

(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.

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 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*.

(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;

7.15.5 Access to data

(a) Access to *energy data* recorded by a *metering installation* must only be provided where passwords are allocated in accordance with ~~rule~~clause 7.15.4(c).

(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;

(f) *AEMO* must establish, maintain and *publish* a list of procedures authorised under the *Rules* relevant to this Chapter 7, irrespective of who authorised those procedures.

7.16.2 Market Settlement and Transfer Solution Procedures

(a) *AEMO*, must establish, maintain and publish Market Settlement and *Transfer Solution Procedures*.

(b) *AEMO* must publish any amendment to the Market Settlement and *Transfer Solution Procedures*.

(c) All Registered Participants, Metering Providers, Metering Data Providers and Embedded Network Managers must comply with the Market Settlement and Transfer Solution Procedures.

(d) If a Registered Participant, Metering Provider, Metering Data Provider or Embedded Network Manager breaches the requirements of the Market Settlement and Transfer Solution Procedures, *AEMO* may send to that Registered Participant, Metering Provider, Metering Data Provider or Embedded Network Manager a notice in writing setting out the nature of the breach.

(e) If the Registered Participant, Metering Provider, Metering Data Providers ~~and~~ or Embedded Network Manager remains in breach for more than 5 business days after receipt of the notice from *AEMO*, *AEMO* must advise:

(1) the *AER*; and

(2) in the case of breach by a Registered Participant other than a *Metering Coordinator*, the Authority responsible for administering jurisdictional electricity legislation in the participating jurisdiction in which the connection point to which the breach relates is located.

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 ~~and Metering Data Providers~~;

(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:

(A) by which *interval metering data* for types 4A and 5 *metering installations* and type 4 *metering installations* that do not provide *trading interval energy data*, and *accumulated metering data* is to be converted by *AEMO* into *trading interval metering data*; and

(B) of managing the *first-tier load metering data* that is necessary to enable the conversion referred to in subparagraph (A) to take place; and

(7) other matters in the *Rules* required to be included in the *metrology procedure*.

7.16.4 Jurisdictional metrology material in metrology procedure

(a) Subject to this clause 7.16.4, *AEMO* may include in the *metrology procedure* other metrology material that is in the nature of a guideline, specification or other standard for a *participating jurisdiction* in relation to

type 5, 6 and 7 *metering installations* which alters the application of the *metrology procedure* for that jurisdiction (*jurisdictional metrology material*).

(b) Jurisdictional metrology material may only be submitted to *AEMO* for inclusion in the metrology procedure by the *Ministers of the MCE*.

(c) Jurisdictional metrology material submitted to *AEMO* under paragraph (b) must:

(1) be in writing;

(2) be provided to *AEMO* within sufficient time for *AEMO* to meet its obligations under this clause 7.16.4;

(3) be consistent with the matters contained in clauses 7.16.3 and 7.16.5;

(4) contain a date by which the *Ministers of the MCE* will undertake a review in relation to harmonising the *jurisdictional metrology material* with the *metrology procedure* (the **review date**); and

(5) be accompanied by written reasons as to why the *jurisdictional metrology material* is required instead of the *metrology procedure*.

(d) *Jurisdictional metrology material* may address ~~the following matters:~~

~~(1) guidelines for the replacement of a device capable of producing *interval energy data* with a device that only produces *accumulated energy data*; and~~

the specification of the type 5 accumulation boundary.

(e) On receiving *jurisdictional metrology material* from the *Ministers of the MCE*, *AEMO* must undertake the *Rules consultation procedures* in relation to that material, including in that consultation the reasons referred to subparagraph (c)(5).

(f) At the conclusion of the *Rules consultation procedures* under paragraph (e), *AEMO* must provide a final report to the *Ministers of the MCE* in accordance with rule 8.9(k) of the outcome of that procedure and:

(1) in the case where the *Ministers of the MCE* do not advise *AEMO* of any amendments to the *jurisdictional metrology material*, *AEMO* must incorporate that material into a separate part of the *metrology procedure*; or

(2) in the case where the *Ministers of the MCE* advise *AEMO* of amendments to the *jurisdictional metrology material*, *AEMO* must incorporate the amended material into a separate part of the *metrology procedure*.

(g) The *jurisdictional metrology material*, as included in the *metrology procedure* by *AEMO*, expires on the review date unless the *Ministers of the MCE* submit to *AEMO* new *jurisdictional metrology material* in accordance with this clause 7.16.4.

~~addition to publishing its *B2B Decision* in relation to such a change, *AEMO* must notify all *Local Retailers*, *Market Customers* and *Distribution Network Service Providers* of the change.~~

~~7.17.5 Cost Recovery~~

~~(a) The costs of the development of the *B2B Procedures*, the costs of the establishment and operation of the *Information Exchange Committee* (including the engagement costs of specialist advisers, and the remuneration and payment of the reasonable expenses of the *Independent Members*), all of which must be set out in the budget prepared by the *Information Exchange Committee* pursuant to clause 7.17.2(s) and the *Information Exchange Committee Annual Report*, and the operational costs associated with any service provided by *AEMO* to facilitate *B2B Communications* (including providing and operating a *B2B e-Hub*) must be paid by *AEMO* in the first instance and recouped by *AEMO* as *Participant fees*.~~

~~(b) Subject to paragraph (a), the cost of any *Member* (other than an *Independent Member*) and involvement of individuals in the *Information Exchange Committee Working Groups* is not to be borne by *AEMO*.~~

~~(c) The cost to a person of implementing and maintaining the necessary systems and processes to ensure compliance with *B2B Procedures* must be met by that person.~~

Schedule 7.1 Metering register

S7.1.1 General

(a) The *metering register* forms part of the *metering database* and holds static *metering* information associated with *metering installations* defined by the *Rules* that determines the validity and accuracy of *metering data*.

(b) The purpose of the *metering register* is to facilitate:

(1) the registration of connection points, metering points and affected Registered Participants;

(2) the verification of compliance with the *Rules*; and

(3) the auditable control of changes to the registered information.

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 Second-Tier Customer and Non-Registered Second-Tier Customer 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* ~~half-hourly~~*trading interval* 'sent out' calculation;

(2) customer ~~half-hourly~~*trading interval* *load* calculation; and

(3) Local Retailer net load calculation.

Schedule 7.2 Metering Provider

S7.2.1 General

(a) A *Metering Provider* must be accredited by and registered by *AEMO*. *AEMO* must accredit and register a *Metering Provider* only for the type of work the *Metering Provider* is qualified to provide.

(b) *AEMO* must establish a qualification process for *Metering Providers* that enables registration to be achieved in accordance with the requirements of this Schedule 7.2.

(c) A *Metering Provider* must have the necessary licences in accordance with appropriate State and Territory requirements.

(d) A *Metering Provider* must ensure that any *metering* equipment it installs is suitable for the range of operating conditions to which it will be exposed (e.g. temperature; impulse levels), and operates within the defined limits for that equipment.

S7.2.2 Categories of registration

(a) Registrations for *Metering Providers* in relation to the provision, installation and maintenance of *metering installation* types 1, 2, 3, 4 and 4A must be categorised in accordance with Tables S7.2.2.1, S7.2.2.2 and S7.2.2.3, or other procedures approved by *AEMO*.

(b) Registrations for *Metering Providers* in relation to the provision, installation and maintenance (unless otherwise specified) of *metering installation* types 5 and 6 must be categorised in accordance with Table S7.2.2.4 with the capabilities established in the *metrology procedures*.

(c) Registration for *Metering Providers* in relation to the provision, installation and maintenance of *small customer metering installations* must be categorised in accordance with Tables S7.2.2.2 and satisfy the requirements in clause S7.2.5.

(d) *AEMO* may establish *Accredited Service Provider categories* of registration for a *Metering Provider* in accordance with clause S7.2.6.

Table S7.2.2.1 Categories of registration for accreditation

Category	Competency
1C	Class 0.2 CTs with < 0.1% uncertainty.
1V	Class 0.2 VTs with < 0.1% uncertainty.
1M	Class 0.2 Wh meters with < 0.1/cosφ% uncertainty and class 0.5 varh meters with <0.3/sinφ uncertainty.

those competencies are consistent with any capabilities established in the *metrology procedure* in respect of the work performed under paragraph (a); and

(2) different competencies for each Accredited Service Provider category for each participating jurisdiction.

Schedule 7.3 Metering Data Provider

S7.3.1 General

(a) A *Metering Data Provider* must be accredited by and registered by AEMO.

(b) *AEMO* must accredit and register a *Metering Data Provider* only for the type of work the *Metering Data Provider* is qualified to provide.

(c) *AEMO* must establish a qualification process for *Metering Data Providers* that enables registration to be achieved in accordance with the requirements of this Schedule 7.3.

S7.3.2 Categories of registration

Categories of registration are set out in Table S7.3.2.1.

Table S7.3.2.1 Categories of registration for accreditation

***Metering installation* type**	**Categories of registration**	
1, 2 3 and/or 4	Category 1D, 2D, 3D and/or 4D (for *remote acquisition*, processing and delivery of *metering data* for *connection points*)	Category 4S (for *small customer metering installations* in relation to *remote acquisition*, processing and delivery of *metering data* for *connection points*)
4A, 5 and/or 6	Category 4AC, 5C and/or 6C (for manual collection or *remote acquisition* of *metering data*)	Category 4AD, 5D and/or 6D (for manual collection, processing and delivery of *metering data* or for *remote acquisition*, processing and delivery of *metering data*)
7	Category 7D (for processing and delivery of *calculated metering data*)	

S7.3.3 Capabilities of Metering Data Providers

Metering Data Providers must be able to exhibit to the reasonable satisfaction of *AEMO* the following capabilities, as applicable, for the categories of *Metering Data Provider* accreditation sought:

(a) Detailed understanding of the *Rules*, and all procedures authorised under the *Rules* including the relevant *service level procedures* relating to the function of a *Metering Data Provider* and the carrying out of *metering data services*.

(b) Detailed understanding of the participant role relationships and obligations that exist between the Metering Data Provider, Metering Provider, financially responsible Market Participant, Local Network Service Provider, *AEMO* and the *Metering Coordinator*.

(c) An understanding of *metering* arrangements, including knowledge of *metering* equipment (*meters*, *current transformers* and *voltage transformers*).

(d) Authorised access to *metering* software for the: ~~(1) collection of *metering data*;~~

(1) collection of *metering data*;

~~(1)~~(2) establishment, maintenance and operation of a *metering data services database* for the storage and management of *metering data* and *NMI Standing Data*; and

~~(2)~~(3) the validation, substitution and estimation of *metering data*.

(e) Processes and systems for the collection of *metering data* including: (1) knowledge of manual collection and *remote acquisition* of

metering data (as applicable);

(1) collection technologies and methodologies; and

(2) *metering* protocols and equipment.

(f) Systems for the processing of *metering data* including:

(1) processes for the verification and commissioning of *metering data* and relevant *NMI Standing Data* pertaining to each *metering installation* into the *metering data services database*;

(2) processes for validation, substitution and estimation of

metering data;

(3) processes for the storage, adjustment and aggregation of

metering data; and

(4) the secure storage of historical data.

(g) Processes for the delivery of metering data and relevant NMI Standing Data to Registered Participants and *AEMO* including:

(1) delivery performance requirements for *metering data*; and

(2) an understanding of the relevant *metering data* file formats.

(h) The availability of trained and competent staff to:

S7.4.1 General requirements

(a) This Schedule 7.4 sets out the minimum requirements for *metering installations*.

S7.4.2 *Metering installation*s commissioned prior to 13 December

(a) This clause provides conditions that are to apply to *metering installations* that were commissioned prior to 13 December 1998.

(b) The use of *metering* class *current transformers* and *voltage transformers* that are not in accordance with Table S7.4.3.1 are permitted provided that where necessary to achieve the overall accuracy requirements:

(1) *meters* of a higher class accuracy are installed; and/or

(2) calibration factors are applied within the *meter* to compensate for *current transformer* and *voltage transformer* errors.

(c) Protection *current transformers* are acceptable where there are no suitable *metering* class *current transformers* available and the overall accuracy and performance levels can be met.

(d) Where the requirements of paragraph (b) and (c) cannot be achieved then the *Metering Coordinator* is required to comply with transitional arrangements or obtain an exemption from *AEMO* or upgrade the *metering installation* to comply with this Schedule 7.4.

(e) The arrangements referred to in paragraph (d) may remain in force while the required accuracy and performance can be maintained within the requirements of the *Rules.*

(f) The purchase of new current transformers and voltage transformers must comply with the *Rules*.

S7.4.3 Accuracy requirements for *metering installation*s

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

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
3	0.75 to less than 100 GWh	1.5	3.0	0.5CT/VT meter Wh 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 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* into *trading interval metering data* and *estimated metering data* where necessary are included in the *metrology procedure*.	±20 (Item 2a)
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	±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
				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*.	
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 connected general purpose meter ~~wh~~Wh: • meets requirements of clause	'±/-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
				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*. (Item 1)	
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)

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
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* of a *participating jurisdiction* 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.

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.

S7.4.4 Check metering

(a) *Check metering* is to be applied in accordance with the following Table:

***Metering installation* Type in accordance with Table S7.2.3.1**	**Check Metering Requirements**
1	*Check metering installation*
2	Partial *check metering*
3	No requirement
4, 4A, 5 and 6	No requirement

(b) A check *metering installation* involves either:

(1) the provision of a separate *metering installation* using separate *current transformer* cores and separately fused *voltage transformer* secondary circuits, preferably from separate secondary windings: or

(2) if in *AEMO's* absolute discretion it is considered appropriate, in the case of a *metering installation* located at the *facility* at one end of the *two-terminal link*, a *metering installation* located at the *facility* at the other end of a *two-terminal link*.

(c) Where the *check metering installation* duplicates the *metering installation* and accuracy level, the average of the two validated data sets will be used to determine the *energy* measurement.

(d) Partial *check metering* involves the use of other *metering data* or operational data available to *AEMO* in ~~30 min~~*trading interval* electronic format as part of a validation process in accordance with the *metrology procedure*.

(e) The physical arrangement of partial *check metering* shall be agreed between the *Metering Coordinator* and *AEMO*.

(f) *Check metering installations* may be supplied from secondary circuits used for other purposes and may have a lower level of accuracy than the *metering installation*, but must not exceed twice the level prescribed for the *metering installation*.

S7.4.5 Resolution and accuracy of displayed or captured data

Programmable settings available within a *metering installation* or any peripheral device, which may affect the resolution of displayed or stored data, must:

(a) meet the requirements of the relevant *Australian Standards* and International Standards which must be identified in the *metrology procedure*; and

(b) comply with any applicable specifications or guidelines (including any transitional arrangements) specified by the National Measurement Institute under the *National Measurement Act*.

S7.4.6 General design standards

S7.4.6.1 Design requirements

CHAPTER9

Part G Schedules to Chapter 9

Schedule 9G1 Metering Transitional Arrangements

1. Introduction

(a) The following minimum requirements apply in respect of *metering installations* commissioned before 13 December 1998.

(b) **[Deleted]**

2. [Deleted]

3. General Principle

The general principle is that *meters* are required and a *metering installation(s)* capable of recording ~~*half hour energy*~~*interval energy data* ~~flows~~ and of providing electronic data for transfer to the *metering database* is to be in place for each *Market Participant's connection point(s)* before the *Market Participant* is permitted to participate in the *market*, and there will be no relaxation of this principle in the *jurisdictional derogations*.

4. [Deleted]

5. Accuracy Requirements

5.1 Existing Metering Installations Transitional Exemptions

In addition to those allowances in clause S7.2.2 of schedule 7.2 - "Metering installations commissioned prior to 13 December 1998", the following conditions/exemptions apply:

(a) For *Generators*, *generated* quantities together with estimates for *generating unit* auxiliary loads may be used provided there is an agreed method with *NEMMCO* for determining *sent-out* energy. [refer to clause 7.3.2]

(b) The *check metering* requirements of the *Rules* do not have to be met for Type 1 *metering installations*. A minimum of partial *check metering* is required for Types 1 and 2 *metering installations*. [refer to clause S7.2.4 of schedule 7.2 of Chapter 7]

(c) Joint use of secondary circuits is permitted for Type 1 *metering installations*. [refer to cl.S7.2.6.1(a) of schedule 7.2 of Chapter 7]

CHAPTER 10

10. Glossary

30-minute period

A 30 minute period ending on the hour (*EST*) or on the half-hour, and comprising 6 consecutive *trading intervals*. Where a *30-minute period* is identified by a time, it means the 30-minute period ending at that time.

AARR

The *aggregate annual revenue requirement* for *prescribed transmission services*.

abnormal conditions

A condition described in clause 4.2.3A(a).

above-standard system shared transmission service

A *shared transmission service* that exceeds the requirements referred to in paragraph (a)(1) or (2) of the definition of *negotiated transmission service* principally as a consequence of investments that have *system-wide benefits*.

ACCC

Australian Competition and Consumer Commission as established under the *Competition and Consumer Act 2010* (Cth).

acceptable credit criteria

The credit criteria defined in clause 3.3.3.

acceptable credit rating

The credit rating determined by *AEMO* under clause 3.3.4.

accepted restriction offer

A *restriction offer* accepted by *AEMO* in accordance with the *restriction offer procedures*.

access charge

For a *Transmission Network Service Provider* - an amount described in clause 5.4A(g)-(j).

For a *Distribution Network Service Provider* - in respect of access to:

(a) *negotiated distribution services* which would have been *negotiated distribution services* regardless of the operation of clause 6.24.2(c), an amount described in clause 5.5(f)(4); and

(b) *negotiated distribution services* which would have been treated as *negotiated transmission services* were it not for the operation of clause 6.24.2(c), an amount described in clause 5.4A(g)-(j).

access standard

Either an *automatic access standard* or a *negotiated access standard* for a particular technical requirement as recorded in a *connection agreement*.

Accredited Service Provider category

A category of registration of a *Metering Provider* established by *AEMO* under S7.4.2(b) as a consequence of requirements of a *participating jurisdiction* to install *metering installations*.

accumulated energy data

The data that results from the measurement of the flow of electricity in a power conductor where the data represents a period in excess of a ~~*trading interval*~~*30-minute period*. *Accumulated energy data* is held in the *metering installation*. The measurement is carried out at a *metering point*.

accumulated metering data

The *accumulated energy data*, once collected from a *metering installation*, is *accumulated metering data*. *Accumulated metering data* is held in a *metering data services database* and the *metering database*.

activate*, *activated*, *activation

The operation of a *generating unit* (other than a *scheduled generating 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 energy

A measure of electrical energy flow, being the time integral of the product of *voltage* and the in-phase component of current flow across a *connection point*, expressed in watthour (Wh).

active power

The rate at which *active energy* is transferred.

active power capability

The maximum rate at which *active energy* may be transferred from a *generating unit* to a *connection point* as specified or proposed to be specified in a *connection agreement* (as the case may be).

additional intervention claim

Has the meaning given in clause 3.12.2(k).

adequately damped

In relation to a *control system*, when tested with a step change of a feedback input or corresponding reference, or otherwise observed, any oscillatory response at a *frequency* of:

(a) 0.05 Hz or less, has a damping ratio of at least 0.4;

(b) between 0.05 Hz and 0.6 Hz, has a halving time of 5 seconds or less (equivalent to a damping coefficient –0.14 nepers per second or less); and

(c) 0.6 Hz or more, has a damping ratio of at least 0.05 in relation to a *minimum access standard* and a damping ratio of at least 0.1 otherwise.

adjusted gross energy

The *energy* adjusted in accordance with clause 3.15.5 (for a *transmission network connection point*) or clause 3.15.5A (for a *virtual transmission node*) or clause 3.15.4 (for any other *connection point*).

adjusted locational component

Has the meaning given to it in clause 6A.23.3(b).

adjusted non-locational component

Has the meaning given to it in clause 6A.23.3(e).

administered floor price

A price floor to apply to a *regional reference price*, with the levels of the price floor being administered under clause 3.14.1 and the circumstances under which it can be invoked by *AEMO* being determined as set out in clause 3.14.2.

administered price cap

A price cap to apply to a ~~*dispatch price,*~~ *regional reference price* or *ancillary service price* as specified in clause 3.14.1.

administered price period

A period declared by *AEMO*, in accordance with clause 3.14.2, in which an *administered price cap* may be invoked.

adoptive jurisdiction

Has the meaning given in the *National Electricity Law*.

Adviser

The Dispute Resolution Adviser specified in clause 8.2.2(a).

Adviser referral notice

A notice referring a dispute to the *Adviser* for the purposes of clause 8.2.5.

ancillary service price

In respect of a ~~*dispatch interval*~~*trading interval*, for a *market ancillary service*, the common clearing price for the *market ancillary service* determined in accordance with clause 3.9.

Ancillary Service Provider

A person who engages in the activity of owning, controlling or operating a *generating unit* 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 services

Market ancillary services and *non-market ancillary services*.

ancillary services agreement

An agreement under which an *NMAS provider* agrees to provide one or more *non-market ancillary services* to *AEMO*.

annual benchmarking report

Has the meaning given to it by clause 6.27 or clause 6A.31, as the case may be.

annual building block revenue requirement

The amount representing the revenue requirement of a *Transmission Network Service Provider* for each *regulatory year* of a *regulatory control period* calculated in accordance with clause 6A.5.4.

annual revenue requirement

An amount representing revenue for a *Distribution Network Service Provider*, for each *regulatory year* of a *regulatory control period*, calculated in accordance with Part C of Chapter 6.

annual service revenue requirement (or "ASRR")

Has the meaning set out in clause 6A.22.2.

apparent power

The square root of the sum of the squares of the *active power* and the *reactive power*.

applicable regulatory instruments

All laws, regulations, orders, licences, codes, determinations and other regulatory instruments (other than the *Rules*) which apply to *Registered Participants* from time to time, including those applicable in each *participating jurisdiction* as listed below, to the extent that they regulate or contain terms and conditions relating to access to a *network*, *connection* to a *network*, the provision of *network services*, *network service* price or *augmentation* of a *network*.

basic connection service

Has (in the context of Chapter 5A) the meaning given in clause 5A.A.1.

basic micro EG 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* and *scheduled market network services* in accordance with schedule 3.1.

billed but unpaid charges

For a *Distribution Network Service Provider*, *network charges* that have been billed to a *failed retailer* by the *Distribution Network Service Provider*, but that the *failed retailer* has not yet paid (whether before or after the relevant due date for payment).

billing period

The period of 7 *days* commencing at the start of the *trading interval* ending ~~12.30~~12.05 am Sunday.

black start capability

A capability that allows a *generating unit*, following its *disconnection* from the *power system*, to be able to deliver electricity to either:

(a) its *connection point*; or

(b) a suitable point in the *network* from which *supply* can be made available to other *generating units*,

without taking *supply* from any part of the *power system* following *disconnection*.

black system

The absence of *voltage* on all or a significant part of the *transmission system* or within a *region* during a *major supply disruption* affecting a significant number of customers.

breaker fail

In relation to a *protection system*, that part of the *protection system* that protects a *Market Participant's facilities* against the non-operation of a circuit breaker that is required to open.

breaker fail protection system

A *protection system* that protects a *facility* against the non-operation of a circuit breaker that is required to open to clear a fault.

~~***dispatch interval***~~

~~A period defined in clause 3.8.21(a1) in which the *dispatch algorithm* is run in accordance with clause 3.8.21(b).~~

dispatch level

Means:

(1) for a ~~*semi-dispatch interval*~~*semi-trading interval*, the amount of electricity specified in a *dispatch instruction* as the *semi-scheduled generating unit's* maximum permissible *active power* at the end of the ~~*dispatch interval*~~*trading interval* specified in the *dispatch instruction*; and

(2) for a *non* ~~*semi-dispatch interval*~~*semi-trading interval*, an estimate of the *active power* at the end of the ~~*dispatch interval*~~*trading interval* specified in the *dispatch instruction*.

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*.

~~***dispatch price***~~

~~The price determined for each *regional reference node* by the *dispatch algorithm* each time it is run by *AEMO*.~~

dispatchable unit identifier

An unique reference label allocated by *AEMO* for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled load*, and *scheduled network service*.

dispatched generating unit

A *scheduled generating unit* which has received instructions from *AEMO* in accordance with a *dispatch* schedule.

dispatched generation

The *generation* which has been *dispatched* as part of *central dispatch*.

dispatched Generator

A *Generator* who has received a *dispatch instruction* from *AEMO*.

dispatched load

The *load* which has been *dispatched* as part of *central dispatch*.

intermittent

A description of a *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.

inter-network test

A test conducted for the purpose of verifying the magnitude of the *power transfer capability* of more than one *transmission network* in accordance with clause 5.7.7.

inter-network testing constraint

A *constraint* on a *transmission network* as contemplated by clause 5.7.7.

inter-regional

Between *regions*.

inter-regional loss factor

A *marginal loss factor* determined according to clause 3.6.1.

inter-regional losses

Has the meaning given to it by clause 3.6.1(a).

interruptible load

A *load* which is able to be *disconnected*, either manually or automatically initiated, which is provided for the restoration or control of the *power system frequency* by *AEMO* to cater for *contingency events* or shortages of *supply*.

interval energy data

The data that results from the measurement of the flow of electricity in a power conductor where the data is prepared and recorded by the *metering installation* in intervals which:

(a) for types 1, 2 and 3 *metering installations* and type 4 *metering installations* to which clauses 7.8.2(b1) and 7.8.2A apply, correspond to a *trading interval* or are submultiples of a *trading interval*; and

(b) for all other type 4 *metering installations* and types 4A and 5 *metering installations*, correspond to a *30-minute period* or are submultiples of a *30-minute period*.

Interval energy data is held in the *metering installation*.

interval metering data

The *interval energy data*, once collected from a *metering installation*, is *interval metering data*. *Interval metering data* is held in a *metering data services database* and the *metering database*.

intervention pricing ~~interval~~

A ~~*dispatch interval*~~*trading interval* declared by *AEMO* to be an *intervention pricing interval* in accordance with clause 3.9.3.

~~***intervention price trading interval***~~

~~A *trading interval* in which *AEMO* has declared an *intervention price dispatch interval* in accordance with clause 3.9.3.~~

intervention settlement timetable

Has the meaning given in clause 3.12.1(b).

intra-regional

Within a *region*.

intra-regional loss factor

A *marginal loss factor* determined according to clause 3.6.2.

intra-regional losses

Has the meaning given to it by clause 3.6.2(a).

invoiced amount

The aggregate of the *settlement statements*, *interim*, *preliminary* or *final*, which at the time of issue of a *call notice* are unpaid by the *Market Participant*, notwithstanding that the usual time for issue or payment of those *settlement statements* has not been reached.

involuntary load shedding

Load shedding where the *load* shed is not an *interruptible load* except *load* under the control of underfrequency relays as described in clause S5.1.10.1(a), or a *scheduled load*.

isolation

Electrical isolation of one part of a communication system from another but where the passage of *electronic data transfer* is not prevented.

jurisdictional derogation

Has the meaning given in the *National Electricity Law*. The jurisdictional derogations are included in Chapter 9.

jurisdictional electricity legislation

Has the meaning given to that term in the *National Electricity Law*.

the date of that determination; or

(d) if in a previous *pricing proposal* the *Distribution Network Service Provider* provided information in respect of that *approved jurisdictional scheme* to the *AER* under clause 6.18.2(b)(6B), the date that such a *pricing proposal* was submitted.

last resort planning power

The *AEMC's* power to direct a *Registered Participant* under rule 5.22(c).

last resort planning power guidelines

The guidelines made by the *AEMC* relating to the exercise of the *last resort planning power* and referred to in rule 5.22(n) to (q).

late rebidding period

In respect of a *trading interval*, the period beginning ~~15~~ 30 minutes before the commencement of the *trading interval*.

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*.

load centre

A geographically concentrated area containing *load* or *loads* with a significant combined consumption capability.

load shedding

Reducing or *disconnecting load* from the *power system*.

load shedding procedures

The procedures developed by *AEMO* for each *participating jurisdiction* in accordance with clause 4.3.2(h)(1) for the implementation of the *load shedding* priority and *sensitive load* priority advised by that *Jurisdictional System Security Coordinator* under clauses 4.3.2(f)(1) and (2).

loading level

The level of output, consumption or power flow (in MW) of a *generating unit*, *load* or *scheduled network service*.

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

In the context of clause 6.7A, has the meaning given in chapter 5A.

non-regulated transmission services

A *transmission service* that is neither a *prescribed transmission service* nor a *negotiated transmission service*.

non-scheduled generating unit

A *generating unit* so classified in accordance with Chapter 2.

non-scheduled generating system

A *generating system* comprising *non-scheduled generating units*.

Non-Scheduled Generator

A *Generator* in respect of which any *generating unit* is classified as a *non-scheduled generating unit* in accordance with Chapter 2.

non-scheduled load

A *market load* which is not a *scheduled load*.

non semi-dispatch interval

For a *semi-scheduled generating unit*, a ~~*dispatch interval*~~*trading interval* other than a *semi-dispatch interval*.

non-suspension decision

A decision made by *AEMO* under clause 3.15.21(c1)(2) or (3) not to suspend some or all of the activities of a *defaulting Market Participant* following an *external administration default event*.

normal operating frequency band

In relation to the *frequency* of the *power system*, means the range 49.9Hz to 50.1Hz or such other range so specified in the *power system security standards*.

normal operating frequency excursion band

In relation to the *frequency* of the *power system*, means the range specified as being acceptable for infrequent and momentary excursions of *frequency* outside

self-decommitment

Decommitment, where the decision to *decommit* a *generating unit* was made by the relevant *Generator* without instruction or direction from *AEMO*.

semi-dispatch interval

For a *semi-scheduled generating unit*, a ~~*dispatch*~~ *trading interval* for which either:

(a) a *network constraint* would be violated if the *semi-scheduled generating unit's generation* were to exceed the *dispatch level* specified in the related *dispatch instruction* at the end of the ~~*dispatch*~~ *trading interval*; or

(b) the *dispatch level* specified in that *dispatch instruction* is less than the *unconstrained intermittent generation forecast* at the end of the ~~*dispatch*~~ *trading interval*,

and which is notified by *AEMO* in that *dispatch instruction* to be a *semi-dispatch interval*.

self-dispatch level

The level of *generation* in MW, as specified in a *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 generating system

A *generating system* comprising *semi-scheduled generating units*.

semi-scheduled generating unit

(a) A *generating unit* classified in accordance with clause 2.2.7.

(b) For the purposes of Chapter 3 and rule 4.9, two or more *generating units* referred to in paragraph (a) that have been aggregated in accordance with clause 3.8.3.

Semi-Scheduled Generator

A *Generator* in respect of which any *generating unit* is classified as a *semi-scheduled generating unit* in accordance with Chapter 2.

sensitive loads

Loads defined as sensitive for each *participating jurisdiction* by the *Jurisdictional System Security Coordinator* for that *participating jurisdiction*.

sent out generation

In relation to a *generating unit*, the amount of electricity *supplied* to the *transmission* or *distribution network* at its *connection point*.

Service Applicant

According to context:

(a) a person who is an existing or intending *Registered Participant* or a person who is eligible to become a *Registered Participant*; or

(b) a person who asks a *Distribution Network Service Provider* for access to a *distribution service*.

service level procedures

The procedures established under the *Rules consultation procedures* by *AEMO* in accordance with clause 7.14.1A.

service standard event

A legislative or administrative act or decision that:

(a) has the effect of:

(i) substantially varying, during the course of a *regulatory control period*, the manner in which a *Transmission Network Service Provider* is required to provide a *prescribed transmission service*, or a *Distribution Network Service Provider* is required to provide a *direct control service*; or

(ii) imposing, removing or varying, during the course of a *regulatory control period*, minimum service standards applicable to *prescribed transmission services* or *direct control services*; or

(iii) altering, during the course of a *regulatory control period*, the nature or scope of the *prescribed transmission services* or *direct control services*, provided by the service provider; and

(b) *materially* increases or *materially* decreases the costs to the service provider of providing *prescribed transmission services* or *direct control services*.

spot market

The spot market established and operated by *AEMO* in accordance with clause 3.4.1.

spot market transaction

A transaction as defined pursuant to clause 3.15.6 which occurs in the *spot market*.

spot price

The price for electricity in a *trading interval* at a *regional reference node* or a *connection point* as determined in accordance with clause 3.9.2.

spot price forecast

A forecast of the *spot price* published by *AEMO* in accordance with clause 3.13.4.

SRAS Guideline

The guideline developed and *published* by *AEMO* in accordance with clause 3.11.7(c) as in force from time to time and includes amendments made in accordance with clauses 3.11.7(f) and 3.11.7(g).

SRAS Objective

The objective for *system restart ancillary services* is to minimise the expected costs of a *major supply disruption*, to the extent appropriate having regard to the *national electricity objective*.

SRAS Provider

A person who agrees to provide one or more *system restart ancillary services* to *AEMO* under an *ancillary services agreement*.

SRAS Procurement Objective

Has the meaning given in clause 3.11.7(a1).

stand-alone amount

For a *category of prescribed transmission services*, the costs of a *transmission system* asset that would have been incurred had that *transmission system* asset been developed, exclusively to provide that *category of prescribed transmission services*.

standard connection service

Has (in the context of Chapter 5A) the meaning given in clause 5A.A.1.

standard control service

A *direct control service* that is subject to a control mechanism based on a *Distribution Network Service Provider's total revenue requirement*.

(6) criteria for continuing or concluding a test and the decision-making process relevant to the test; and

(7) contingency arrangements.

tie

Identically priced *dispatch bids* or *dispatch offers*.

time

Eastern Standard Time.

time stamp

The means of identifying the *time* and date at which data is transmitted or received.

timetable

The timetable published by *AEMO* under clause 3.4.3 for the operation of the *spot market* and the provision of *market* information.

total revenue cap

For a *Transmission Network Service Provider* for a *regulatory control period*, the sum of the *maximum allowed revenues* for that provider for each *regulatory year* of that *regulatory control period* as calculated in accordance with clause 6A.5.3 and set out in a *revenue determination*.

total revenue requirement

For a *Distribution Network Service Provider*, an amount representing revenue calculated for the whole of a *regulatory control period* in accordance with Part C of Chapter 6.

Trader

A person who is registered by *AEMO* as a *Trader* under Chapter 2.

trading amount

The positive or negative dollar amount resulting from a *transaction*, determined pursuant to clauses 3.15.6, 3.15.6A or 3.15.11.

trading day

The 24 hour period commencing at 4.00 am (*EST*) and finishing at 4.00 am on the following *day*.

trading interval

A ~~30-~~5 minute period ending on the hour (*EST*) and each continuous period of 5 minutes thereafter ~~or on the half hour~~ and, where identified by a time, means the
~~30-~~5 minute period ending at that time.

trading interval energy data

Interval energy data prepared and recorded by a *metering installation* in intervals which correspond to a *trading interval*.

trading limit

A dollar amount for a *Market Participant*, determined pursuant to clause 3.3.10.

trading margin

Has the meaning given in clause 3.3.15.

transaction

A *spot market transaction*, *reallocation transaction* or any other transaction either in the *market* or to which *AEMO* is a party.

transformer

A *plant* or device that reduces or increases the *voltage* of alternating current.

transformer tap position

Where a tap changer is fitted to a *transformer*, each tap position represents a change in *voltage* ratio of the *transformer* which can be manually or automatically adjusted to change the *transformer* output *voltage*. The tap position is used as a reference for the output *voltage* of the *transformer*.

transmission

Activities pertaining to a *transmission system* including the conveyance of electricity through that *transmission system*.

Transmission Annual Planning Report

A report prepared by a *Transmission Network Service Provider* under clause 5.12.2.

Transmission Confidentiality Guidelines

Guidelines made by the *AER* under clause 6A.16A.

transmission consultation procedures

The procedures set out in Part H of Chapter 6A that must be followed by:

(a) the *AER* in making, developing or amending guidelines, models or schemes or in reviewing methodologies; or

(b) the *AEMC* in developing or amending guidelines.

Transmission Customer

A *Customer*, *Non-Registered Customer* or *Distribution Network Service Provider* having a *connection point* with a *transmission network*.

CHAPTER 11

Part ZZZB Five Minute Settlement

11.100 Rules consequential on the making of the National Electricity Amendment (Five Minute Settlement) Rule 2017

11.100.1 Definitions

For the purposes of this rule 11.100:

Amending Rule means the National Electricity Amendment (Five Minute Settlement) Rule 2017.

commencement date means the day on which the Amending Rule commences operation.

new Chapter 7 means Chapter 7 of the *Rules* as in force immediately after the commencement date.

new Chapter 10 means Chapter 10 of the *Rules* as in force immediately after the commencement date.

new clause 3.8.9 means clause 3.8.9 of the *Rules* as in force immediately after the commencement date.

new clause 3.13.4(l1) means clause 3.13.4(l1) of the *Rules* as in force immediately after the commencement date

new clause 7.8.2(a2) means clause 7.8.2(a2) of the *Rules* as in force immediately after the commencement date.

new clause 7.8.2(b1) means clause 7.8.2(b1) of the *Rules* as in force immediately after the commencement date.

new clause 7.8.2A means clause 7.8.2A of the *Rules* as in force immediately after the commencement date.

old Chapter 3 means Chapter 3 of the *Rules* and all related definitions in the *Rules* as in force immediately prior to the commencement date.

old clause 3.8.9 means clause 3.8.9 of the *Rules* as in force immediately prior to the commencement date.

11.100.2 Amendments to procedures

(a) By 1 December 2020, *AEMO* must review and where necessary amend and *publish* the following documents to apply from the commencement date to take into account the Amending Rule:

(1) the credit limit procedures in accordance with clause 3.3.8;

(2) the *spot market* operations timetable in accordance with clause 3.4.3;

(3) the automated procedures relating to dispatch intervals subject to review in accordance with clause 3.9.2B;

(4) the methodology for determining *dispatch prices* and *ancillary services prices* in the event of intervention by *AEMO* in accordance with clause 3.9.3;

(5) the *reliability standards and settings guidelines*;

(6) the estimated price methodology and estimated price schedules for periods of market suspension in accordance with clause 3.14.5;

(7) the *reallocation procedures*;

(8) the *settlement residue* auction rules in accordance with clause 3.18.3;

(9) the methodology relating to dispatch pricing for unscheduled reserve price contracts in accordance with clause 3.20.4;

(10) the procedures relating to the exercise of the RERT in accordance with clause 3.20.7;

(11) the procedures maintained under clause 7.8.3(b) in respect of the *minimum services specification*;

(12) the *meter churn procedures* in accordance with clause 7.8.9;

(13) the *metering data provision procedures*;

(14) the *Market Settlement and Transfer Solution Procedures*;

(15) the *metrology procedure*; and

(16) the *service level procedures*.

(b) The *Information Exchange Committee* must make an *Information Exchange Committee Recommendation* to change the *B2B Procedures* (**B2B Recommendation**) to take into account the Amending Rule by **3 December 2018**.

(c) Subject to clause 7.17.5(b), *AEMO* must *publish* the *B2B Procedures* in accordance with the B2B Recommendation within 10 *business days* of the *Information Exchange Committee* making the B2B Recommendation.

(d) By 1 December 2020, the *AER* must amend and *publish* the following documents to apply from the commencement date to take into account the Amending Rule:

(1) the methodology relating to the *distribution loss factor* in accordance with clause 3.6.3;

(2) guidelines maintained under clause 3.8.22 in respect of *rebidding*; and

(3) criteria that the *AER* will use to determine whether there is a significant variation between the *spot price forecast* and the actual *spot price* in accordance with clause 3.13.7.

11.100.3 Exemption for type 4 metering installations installed prior to 1 December 2018

Subject to new clause 7.8.2(b1), from the commencement date, type 4 *metering installations* that were installed prior to 1 December 2018 do not have to be capable of recording and providing, or configured to record and provide, *trading interval energy data* (as defined under new Chapter 10) until they are replaced in accordance with new clause 7.8.2A.

11.100.4 New and replacement meters

From 1 December 2018 until the commencement date, the *Metering Coordinator* at a *connection point* must ensure that all new and replacement *metering installations* must be capable of recording and providing, and configured to record and provide, *trading interval energy data* as defined under new Chapter 10.

11.100.5 Exemption from meter data storage requirements

By 1 December 2020, *AEMO* must establish and *publish* the procedure required by new clause 7.8.2(a2) in respect of exemptions from data storage requirements.

11.100.6 Default offers and bids submitted prior to the commencement date

Any *dispatch offer* or *dispatch bid* submitted pursuant to old clause 3.8.9 for a *trading interval* prior to the commencement date will, from the commencement date, be deemed to be 6 equal *dispatch offers* or *dispatch bids* submitted in respect of the 6 consecutive *trading intervals* within the relevant *30-minute period* until such time as that *dispatch offer* or *dispatch bid* is resubmitted under new clause 3.8.9.

11.100.7 AEMO publication of 30-minute price

For the purposes of new clause 3.13.4(l1), the 30-minute price means the *spot price* calculated in accordance with old Chapter 3.