

## **Indicative rule drafting for the Improving security frameworks for the energy transition Directions Paper published on 24 August 2023**

*Note: This document is part of the AEMC's Improving security frameworks for the energy transition Directions Paper, published on 24 August 2023. It shows indicative amendments to the National Electricity Rules (NER) to support the policy outlined in the Directions Paper.*

*The markup is against NER v 200. This modified version of parts of the NER is provided for information on the TPIR recommendations only, and should not be used for any other purpose. The AEMC does not guarantee the accuracy, reliability or completeness of these extracts of the NER.*

**CHAPTER 3**

### 3. Market Rules

...

#### 3.9.7 Pricing for constrained-on units

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

##### Note

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

- (b) A *Scheduled Generator* or *Demand Response Service Provider* that is *constrained-on* in accordance with paragraph (a) is not entitled to receive from *AEMO* any compensation due to its *spot price* being less than its *dispatch offer price*.
- (c) In the event that:
- (1) an *inertia network service* under an *inertia services agreement* is *enabled* such that an *inertia generating unit* is *constrained on* in any *trading interval* to provide *inertia*; or
  - (2) a *system strength service* under a *system strength services agreement* is *enabled* such that a *system strength generating unit* is *constrained on* in any *trading interval* to provide a *system strength service*; or
  - (3) a *transitional service* under an *ancillary services agreement* is *enabled* such that a *synchronous generating unit* is *constrained on* in any *trading interval* to provide a *transitional service*; or
  - (4) a *NSCAS* under an *ancillary services agreement* is *enabled* such that a *generating unit* is *constrained on* in any *trading interval* to provide *NSCAS*.

the relevant *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 *spot price* in that *trading interval* except to the extent that the *generating unit* is *dispatched* at a level above its minimum *loading level*.

##### Note

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

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

...

## 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 clause 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* and transitional services, 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; ~~and~~ and
  - (4) in the case of *transitional services*, by *AEMO* under *ancillary services agreements*, with the prices for *transitional services* being determined in accordance with the relevant *ancillary services 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 relevant

*performance standards*, and any person so instructed must use reasonable endeavours to comply with that instruction.

- (e) *AEMO* is not responsible for payment to a person for *non-market ancillary services* provided by that person under a *connection agreement* or a *network support agreement*.
- (f) A *Transmission Network Service Provider* who procures a *system strength service* or an *inertia network service* under a *network support agreement* must establish arrangements for each *system strength service* or *inertia network service* (as the case may be) it makes available to *AEMO* under the *Rules* to ensure:
  - (1) that *system strength service* or *inertia network service* is capable of being enabled by *AEMO* under clause 4.4A.1; and
  - (2) that *system strength service* or *inertia network service* is only capable of being enabled by *AEMO*.

...

### **3.11.11 Acquisition of transitional services by AEMO**

- (a) If *AEMO* identifies a need for *transitional services*, *AEMO* may enter into an *ancillary services agreement* with a prospective *Transitional Services Provider* following the completion of any procurement process to acquire *transitional services* which *AEMO* is satisfied will enable it to meet the *Transitional Services Procurement Objective*.
- (b) *AEMO* must use reasonable endeavours to acquire *transitional ancillary services* to meet the *Transitional Services Objective* at the lowest long-term cost (the *Transitional Services Procurement Objective*).
- (c) *AEMO* may acquire *transitional services* from any person who satisfies the criteria specified in the *Transitional Services Guideline*.
- (d) An *ancillary services agreement* for *transitional services* must be:
  - (1) no longer than the period over which the *transitional services* are foreseeably needed (according to *AEMO*'s understanding of that time period at the time it acquires the service); and
  - (2) in any case, not longer than three years duration.
- (e) In assessing any tenders submitted to provide *transitional services*, *AEMO* must first determine whether those tenders are competitive. The tenders submitted to provide *transitional services* will be deemed to be competitive if the *transitional services* that *AEMO* is seeking can be supplied from the conforming tenders received by *AEMO* with any one conforming tender discarded, or all conforming tenders from any one party discarded. If the tenders submitted to provide *transitional services* are not deemed to be competitive, *AEMO* and *transitional services preferred tenderers*, must negotiate in good faith to agree reasonable terms and conditions for the provision of the *transitional services*, taking into account the need to:

- (1) subject to subparagraph (2), so far as practicable minimise the overall cost of supply of that service; and
- (2) appropriately remunerate the providers of the relevant *transitional services* for that service.
- (f) A dispute concerning any aspect, (other than the aspect of price), of an *ancillary services agreement* or a call for offers conducted by *AEMO* for the acquisition of *transitional services*, must be dealt with in accordance with rule 8.2.
- (g) *AEMO* may, from time to time, require a *Transitional Services Provider* which provides *transitional services* under an *ancillary services agreement* to demonstrate the relevant *plant* or equipment's capability to provide the *transitional services* to the satisfaction of *AEMO* according to standard test procedures. A *Transitional Services Provider* must promptly comply with a request by *AEMO* under this clause.
- (h) If requested, a prospective *Transitional Services Provider* must provide to *AEMO* sufficient data, models and parameters of relevant *plant* or equipment in accordance with the requirements specified in the *Power System Model Guidelines*, the *Power System Design Data Sheet* and the *Power System Setting Data Sheet*, to facilitate a thorough assessment of the *network impacts* and *power station impacts* of the use of the relevant *transitional services*.
- (i) If *AEMO* seeks to enter into an *ancillary services agreement* with a prospective *Transitional Services Provider* for *transitional services*, *AEMO* and that *Transitional Services Provider* must negotiate in good faith as to the terms and conditions of the *ancillary services agreement*.
- (j) A *Transitional Services Provider* must comply with an *ancillary services agreement* under which it provides one or more *transitional services*.

**Note**

The AEMC proposes to recommend that this paragraph is classified as a tier 2 civil penalty provision under the National Electricity (South Australia) Regulations. (See clause 6(1) and Schedule 1 of the National Electricity (South Australia) Regulations.)

**Note**

This clause 3.11.11 expires on [10 years after commencement]. See clause 11.xxx.3.

**3.11.12 Guidelines and objectives for acquisition of transitional services by AEMO**

- (a) *AEMO* must use reasonable endeavours to acquire *transitional services* only where:
  - (1) the service cannot be provided by an *inertia network service*, a *system strength service*, or any other *NMAS*; and
  - (2) the service is:
    - (i) needed to maintain *power system security*; or
    - (ii) part of a trial for testing new ways of maintaining *power system security*,

with the aim for AEMO to transition away from reliance on the number of synchronous generating units required to maintain power system security

(the *Transitional Services Objective*).

- (b) AEMO must develop and publish the *Transitional Services Guideline*. The *Transitional Services Guideline* must be designed to achieve the *Transitional Services Procurement Objective*.
- (c) The *Transitional Services Guideline* must include:
  - (1) a description of the technical and availability requirements of *transitional services*;
  - (2) guidance on the factors that AEMO must take into account when making a decision to follow a particular type of procurement process to acquire *transitional services* to meet the *Transitional Services Procurement Objective*;
  - (3) guidance on how AEMO will achieve the *Transitional Services Procurement Objective*;
  - (4) a process for AEMO to follow for contacting a potential *Transitional Services Provider* to negotiate the provision of *transitional services* without a competitive tender process; and
  - (5) a process for a potential *Transitional Services Provider* to contact AEMO to offer the provision of *transitional services* without a competitive tender process, which offer AEMO is in no way obliged to accept.
- (d) AEMO may amend the *Transitional Services Guideline* from time to time.
- (e) Subject to paragraph (f), when making or amending the *Transitional Services Guideline*, AEMO must consult with:
  - (1) *Registered Participants*; and
  - (2) such other persons who, in AEMO's reasonable opinion, have, or have identified themselves to AEMO as having, an interest in the *Transitional Services Guideline*,

in accordance with the *Rules consultation procedures*.
- (f) AEMO may make minor and administrative amendments to the *Transitional Services Guideline* without complying with the *Rules consultation procedures*.

**Note**

This clause 3.11.12 expires on [10 years after commencement]. See clause 11.xxx.3.

**3.11.13 Statement and reporting for transitional services**

- (a) Prior to acquiring *transitional services* under clause 3.11.11, AEMO must publish a statement describing:

- (1) the power system security need necessitating the transitional services and expected duration of the need;
  - (2) how the transitional services satisfy the Transitional Services Objective;
  - (3) why AEMO considers the transitional services cannot be provided by any of the services specified in clause 3.11.12(a)(4); and
  - (4) AEMO's intended procurement process and its reasons for choosing that process, including for any direct tender, its reasons for not using a competitive process.
- (b) At least once each year, AEMO must prepare and publish a report setting out:
- (1) the total annual cost for the provision of transitional services, broken down to the costs incurred for each facility providing transitional services;
  - (2) a description of the transitional services provided by each facility and the reasons for acquiring services from that facility;
  - (3) the procurement process followed by AEMO to acquire transitional services for each facility;
  - (4) how AEMO sought to minimise the costs of acquiring transitional services;
  - (5) if applicable, the reasons why AEMO did not accept an offer received in accordance with clause 3.11.12(c)(5); and
  - (6) the steps AEMO is taking to transition away from the procurement of transitional services.

**Note**

This clause 3.11.13 expires on [10 years after commencement]. See clause 11.xxx.3.

## **3.12 Market Intervention by AEMO**

...

### **3.12.3 Role of the Independent Expert in calculating payments in relation to intervention by AEMO and market suspension pricing schedule periods**

- (a) Subject to paragraph (a1), if a matter is to be referred to an independent expert pursuant to clauses 3.12.2(l), 3.12.2(m), 3.14.5B(f), 3.14.5B(g), 3.15.7A or 3.15.7B, AEMO must in accordance with the *intervention settlement timetable* publish a notice of its proposed nominee as independent expert and appoint such nominee.
- (a1) If within 3 *business days* of publication of AEMO's nominee pursuant to paragraph (a) more than 25% of the *Referred Participants*, *Referred Market Suspension Compensation Claimants* and *Referred Directed Participants* in relation to the relevant AEMO intervention event or market suspension pricing schedule period (as the case may be) object in writing to AEMO's



nominee *AEMO* must, as soon as reasonably practicable thereafter, request the *AEMC* to nominate an independent expert.

- (a2) If a valid objection pursuant to clause 3.12.3(a1) is made, the *AEMC* must, within 3 *business days* of a written request from *AEMO*, nominate an independent expert to be appointed by *AEMO* for the purposes of this clause 3.12.3.
- (b) *AEMO* must provide to the independent expert a copy of all written submissions made by *Referred Participants*, *Referred Market Suspension Compensation Claimants* or *Referred Directed Participants* under clause 3.12.2(f), 3.14.5B(a), 3.15.7A(f) or 3.15.7B(a).
- (b1) To the extent reasonably practicable, all claims arising out of a single *AEMO intervention event* or *market suspension pricing schedule period* (as the case may be), or arising out of, in *AEMO's* reasonable opinion, a series of related *AEMO intervention events* or *market suspension pricing schedule periods* (as the case may be), should be determined by the same independent expert as part of the same process.
- (c) *AEMO* must include as part of the independent expert's terms of appointment the following requirements:
  - (1) In accordance with the *intervention settlement timetable* the independent expert must:
    - (i) determine and *publish* a draft report setting out:
      - (A) as appropriate, the total compensation payable by, or receivable by, *Referred Affected Participants* and *Referred Market Customers* under clause 3.12.2(a) pursuant to claims referred to the independent expert in respect of the *AEMO intervention event*;
      - (A1) the amount of compensation payable to each *Referred Market Suspension Compensation Claimant* pursuant to clause 3.14.5B;
      - (B) the total amount of compensation payable to *Referred Directed Participants* pursuant to either clause 3.15.7A or clause 3.15.7B, as the case may be; and
      - (C) the methodology and assumptions, if any, used by the independent expert in making the determination in subparagraphs (c)(1)(ii), (c)(1)(iii) and (c)(1)(iv);
    - (ii) notify individual assessments by delivery to each *Referred Participant* and to *AEMO* of a draft assessment detailing the amount payable or receivable by that party, as the case may be, pursuant to clause 3.12.2(a);
    - (iii) deliver to each *Referred Directed Participant* and to *AEMO* a draft assessment detailing the calculation of the amount of compensation receivable by that party pursuant to clause 3.15.7A or 3.15.7B as the case may be; and

- (iv) deliver to each *Referred Market Suspension Compensation Claimant* and to *AEMO* a draft assessment detailing the calculation of the amount of compensation receivable by that party pursuant to clause 3.14.5B.
- (2) The independent expert must call for submissions from all relevant *Referred Participant*, *Referred Market Suspension Compensation Claimants* and *Referred Directed Participants* after *publishing* the draft report and delivering the draft assessment under subparagraph (c)(1).
- (3) Before the *publication* of the final report and delivery of the final assessment pursuant to subparagraph (c)(4), the independent expert must:
  - (i) if requested to do so by a *Referred Participant*, *Referred Market Suspension Compensation Claimant* or *Referred Directed Participant*, within 15 *business days* of the *publication* of the draft report and draft assessment, meet with *representatives* of the *Referred Participant*, *Referred Market Suspension Compensation Claimant* or *Directed Participant* to discuss any queries it has in relation to the draft report or draft assessment as appropriate; and
  - (ii) take into consideration, any further written submissions made by a *Referred Participant*, *Referred Market Suspension Compensation Claimant* or *Referred Directed Participant* in relation to the draft report or draft assessment, as the case may be, if the independent expert receives those submissions within 15 *business days* of the *publication* of the draft report and draft assessment.
- (4) The independent expert must in accordance with the *intervention settlement timetable*:
  - (i) prepare and *publish* a final report;
  - (ii) prepare and deliver his or her final assessment of the amounts payable or receivable by the relevant party pursuant to clause 3.12.2(a), 3.14.5B, 3.15.7A or 3.15.7B, as the case may be; and
  - (iii) deliver to *AEMO* a final tax invoice for the services rendered by the independent expert and a copy of all final assessments issued pursuant to subparagraph (c)(4)(ii).
- (5) [Except to the extent subparagraph \(9\) applies, Aa](#) report prepared under subparagraphs (c)(1)(i) and (c)(4)(i) must not disclose *confidential information*.
- (6) If the independent expert requires further information than that contained in a written submission made by the *Referred Participant*, *Referred Market Suspension Compensation Claimant* or *Referred Directed Participant* under clause 3.12.2(f), 3.14.5B(a), 3.15.7A(f) or 3.15.7B(a), the independent expert may advise the relevant party in writing of the information required.

- (7) If the relevant party has not provided that information to the independent expert within 10 *business days* of the date of the request for further information, then the independent expert, acting reasonably, is entitled to make such assumptions concerning that information as he or she thinks appropriate.
- (8) The independent expert must enter into, and deliver, a confidentiality deed for the benefit of each *Referred Participant*, *Referred Market Suspension Compensation Claimant* and *Referred Directed Participant* in a form developed by *AEMO* pursuant to paragraph (e).
- (9) A report prepared under subparagraphs (c)(1)(i) and (c)(4)(i) must identify a *Referred Participant*, *Referred Market Suspension Compensation Claimant* and *Referred Directed Participant*, as the case may be.
- (d) A final report and a final assessment of an independent expert prepared in accordance with subparagraph (c)(4) is final and binding.
- (e) *AEMO* must in accordance with the *Rules consultation procedures* prepare and *publish* a confidentiality deed for the purposes of this clause 3.12.3.

...

### 3.13.6A Report by AEMO

- (a) *AEMO* must publish a report (quarterly directions report) within one month following the end of each calendar quarter that sets out, for each *direction* for the relevant quarter: , as soon as reasonably practicable after issuing a *direction*, publish a report outlining:
  - (1) the circumstances giving rise to the need for the *direction*;
  - (2) the basis on which it determined the latest time for that *direction* and on what basis that it determined that a *market* response would not have avoided the need for the *direction*;
  - (3) details of the changes in *dispatch* outcomes due to the *direction*;
  - (4) the processes implemented by *AEMO* to issue the *direction*;
  - (5) if applicable, the basis upon which *AEMO* did not follow any or all of the processes set out in rule 4.8 either in whole or in part prior to the issuance of the *direction*;
  - (6) the basis upon which *AEMO* determined its approach to setting *spot prices* and *ancillary service prices* in accordance with clause 3.9.3;
  - (7) details of the adequacy and effectiveness of responses to inquiries made by *AEMO* under clause 4.8.5A(d);
  - (8) information regarding any notification by a *Registered Participant* that it will not be able to comply with a *direction* under clause 4.8.9(d); and
  - (9) if applicable, the information required under clause 3.8.14A(c).
- (a1) The quarterly directions report must also set out:

- (1) *AEMO's observations of any trends in when and why directions are required, including the power system security conditions necessitating directions; and*
- (2) *the total amount of compensation paid to each Directed Participant and Affected participant in accordance with clauses 3.15.7(a) and 3.12.2(a).*
- (b) As soon as reasonably practicable after *AEMO* has, in accordance with clause 3.15.10C, included the amounts arising from a *direction* in a settlement statement provided under clause 3.15.15, *AEMO* must *publish* details of:
  - (1) the *compensation recovery amount* arising from the *direction* as calculated under clause 3.15.8(a) for the period of the *direction*;
  - (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*.
- (c) *If AEMO has issued 30 directions or more to a particular Registered Participant in any period of 12 months or less, AEMO must include in its next quarterly directions report:*
  - (1) *the circumstances that have led to the repeated directions for that Registered Participant;*
  - (2) *details of any investigation, or joint planning undertaken with the relevant Transmission Network Service Provider pursuant to rule 5.14, into what actions can be taken to reduce the use of directions; and*
  - (3) *whether AEMO intends to declare a NSCAS gap, procure a transitional service or take any other action to reduce the use of directions.*

...

## **3.15 Settlements**

...

### **3.15.6A Ancillary service transactions**

#### **Definitions**

- (a0) In this clause 3.15.6A:

**customer energy** in respect of a *Market Customer* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Customer's* relevant *connection points*, provided that, if the sum of those figures is positive, then the *Market Customer's customer energy* for that *trading interval* is zero;

a *connection point* is a relevant *connection point* of a *Market Customer* if:

- (1) the *Market Customer* is *financially responsible* for the *connection point*; and
- (2) the *load* at that *connection point* has been classified (or is deemed to be classified) as a *market load*.

**generator energy** in respect of a *Market Generator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Generator's* applicable *connection points*, provided that, if the sum of those figures is negative, then the *Market Generator's generator energy* for that *trading interval* is zero;

a *connection point* is an applicable *connection point* of a *Market Generator* if:

- (1) the *Market Generator* is *financially responsible* for the *connection point*; and
- (2) the *connection point* connects a *market generating unit* to the *national grid*.

**regional benefit ancillary services procedures** means the procedures to determine the relative benefit that each *region* is estimated to receive from the provision of *NMAS*.

**regional benefit factors** means the factors to allocate, between *regions*, the costs associated with the provision of *NMAS* under each *ancillary services agreement* in accordance with the regional benefit ancillary services procedures.

**Scheduled Participant** has the meaning given to it by clause 3.15.6A(k)(5).

**small generator energy** in respect of a *Market Small Generation Aggregator* for a *trading interval* means the sum of the *adjusted gross energy* figures calculated for that *trading interval* in respect of that *Market Small Generation Aggregator's* applicable *connection points*, provided that, if the sum of those figures is negative, then the *Market Small Generation Aggregator's small generator energy* for that *trading interval* is zero; and

a *connection point* is an applicable *connection point* of a *Market Small Generation Aggregator* if:

- (1) the *Market Small Generation Aggregator* is *financially responsible* for the *connection point*; and
  - (2) the *connection point* connects a *small generating unit* classified as a *market generating unit* to the *national grid*.
- (a) 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:

$$TA = \text{the aggregate of } \frac{EA \times ASP}{(12)} \text{ for each } \textit{trading interval}$$

where:

TA (in \$)	=	the <i>trading amount</i> to be determined (which is a positive number);
EA (in MW)	=	the amount of the relevant <i>market ancillary service</i> which the <i>ancillary service generating unit</i> or <i>ancillary service load</i> has been <i>enabled</i> to provide in the <i>trading interval</i> ; and
ASP (in \$ per MW per hour)	=	the <i>ancillary service price</i> for the <i>market ancillary service</i> for the <i>trading interval</i> for the <i>region</i> in which the <i>ancillary service generating unit</i> or <i>ancillary service load</i> has been <i>enabled</i> .

(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 is payable by *AEMO*:

- (1) under clause 4.3.6(o); or
- (2) under paragraph (b) where it is not determined on a *trading interval basis*,

that amount is recovered in accordance with the relevant paragraphs (c8), (c9), (d) and (e), except that a reference to *trading interval* in the calculation of RBF, 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) **[Deleted]**

(c2) Subject to paragraph (b1), *AEMO* must recover its liabilities under *ancillary services agreements* for the provision of:

- (1) *NSCAS* [and transitional services](#) from *Market Customers* in each *region* in accordance with paragraphs (c8) and (c9); and
- (2) *SRASs*, from:
  - (i) *Market Generators* and *Market Small Generation Aggregators* in each *region* in accordance with paragraph (d); and
  - (ii) *Market Customers* in each *region* in accordance with paragraph (e).

**Note**

[The use of transitional services expires on \[10 years after commencement date\]. See clause 11.xxx.3.](#)

- (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 *TNSCAS<sub>p</sub>* 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* and transitional services, the estimated increase for each *region* of the gross economic benefit from increased *power transfer capability*; and
  - (2) for an *SRAS*, that can be used to restart *generating units* in two or more *regions*, the relative benefit provided by that service to each *region*.

**Note**

The use of transitional services expires on [10 years after commencement date]. See clause 11.xxx.3.

- (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:

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

Where

Subscript 'P' is the relevant period;

Subscript 'R' is the relevant

Subscript 'S' is the relevant *NSCAS*;

$TA_{p,r}$  (in \$) = *trading amount* payable by the *Market Customer* in respect of the relevant *region* and *trading interval*;



TNSCAS<sub>p</sub> the total amount payable by *AEMO* for the provision of the relevant *NSCAS* or transitional services (as the case may be) under an *ancillary services agreement* in respect of the relevant *trading interval*;

RBF<sub>s,p,r</sub> (number) = the latest regional benefit factor assigned to the provision of the relevant *NSCAS* or transitional services (as the case may be) under an *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);

AGE<sub>p,r</sub> (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

AAGE<sub>p,r</sub> (in MWh) = the aggregate AGE<sub>p,r</sub> figures for all *Market Customers* in respect of the relevant *region* and *trading interval*.

**Note**

The values of AGE<sub>p,r</sub> and AAGE<sub>p,r</sub> are subject to substitution in accordance with clause 3.15.6AA.

**Note**

The use of transitional services expires on [10 years after commencement date]. See clause 11.xxx.3.

- (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;

TA<sub>p</sub>(in \$) = the *trading amount* payable by the *Market Customer* in respect of the relevant *trading interval*;

TNSCAS<sub>p</sub> (in \$) = the sum of all amounts payable by *AEMO* for the provision of *NSCAS* or transitional services (as the case may be) 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);

AGE<sub>p</sub> (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

AAGE<sub>p</sub> (in MWh) = the aggregate AGE<sub>p</sub> figures for all *Market Customers* in respect of the relevant *trading interval*.

**Note**

The values of AGE<sub>p</sub> and AAGE<sub>p</sub> are subject to substitution in accordance with clause 3.15.6AA.

The use of transitional services expires on [10 years after commencement date]. See clause 11.xxx.3.



- (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<sub>i</sub> (in \$) = the amount payable by *AEMO* in respect of the *trading interval* under an individual *ancillary services agreement* in respect of the provision of a specific *SRAS* or, for the purposes of clause 4.3.6(q), the compensation payable by *AEMO* under clause 4.3.6(o) for the relevant *billing period*;

RBF<sub>Ri</sub> (number) = the latest regional benefit factor assigned to the provision of the relevant *SRAS* under an individual *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);

TGE<sub>R</sub> (in MWh) = the *generator energy* for the *Market Generator* for the *trading interval* in that *region*;

TSGE<sub>R</sub> (in MWh) = the *small generator energy* for the *Market Small Generation Aggregator* for the *trading interval* in that *region*;

ATGE<sub>R</sub> (in MWh) = the aggregate of the *generator energy* figures for all *Market Generators* for the *trading interval* in that *region*; and

ATSGE<sub>R</sub> (in MWh) = the aggregate of the *small generator energy* figures for all *Market Small Generation 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<sub>i</sub> (in \$) = has the meaning given in clause 3.15.6A(d);

$RBF_{Ri}$  (number) = the latest regional benefit factor assigned to the provision of the relevant *SRAS* under an individual *ancillary services agreement* in respect of the relevant *region* and *trading interval*, as determined by *AEMO* under paragraph (c7);

$TCE_R$  (in MWh) = the *customer energy* for the *Market Customer* for the *trading interval* in that *region*; and

$ATCE_R$  (in MWh) = the aggregate of the *customer energy* figures for all *Market Customers* for the *trading interval* in that *region*.

**Note**

The values of  $TCE_R$  and  $ATCE_R$  are subject to substitution in accordance with clause 3.15.6AA.

- (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 *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:
- (1) allocate for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under 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 the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(f)(1); and
  - (3) allocate for the relevant *trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in 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 the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3); and
- (ii) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3).

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 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 Generation 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 Generation 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 *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *AEMO* must:

(1) allocate for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under 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 the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring each *local market ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(g)(1); and
- (3) allocate for the relevant *trading interval* the sum of the costs of the *global market ancillary service requirement* and each *local market ancillary service requirement* calculated in 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 the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3); and
- (ii) all *local market ancillary service requirement* costs for that *region*, for the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3).

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 <i>trading amount</i> to be determined (which is a negative number);
RTCLSP (in \$)	=	the total of all amounts calculated by <i>AEMO</i> as appropriate to recover from the given <i>region</i> as calculated in this clause 3.15.6A(g) for the <i>fast lower service</i> , <i>slow lower service</i> or <i>delayed lower service</i> in respect of the <i>trading interval</i> ;
TCE (in MWh)	=	the <i>customer energy</i> for the <i>Market Customer</i> in that <i>region</i> for the <i>trading interval</i> ; and
RATCE (in MWh)	=	the aggregate of the <i>customer energy</i> figures for all <i>Market Customers</i> in that <i>region</i> for the <i>trading interval</i> .

**Note**

The values of TCE and RATCE are subject to substitution in accordance with clause 3.15.6AA.

- (h) The total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* or the *regulating lower service* in respect of each *trading interval* must be allocated by *AEMO* to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b):
- (1) allocate on a pro-rata basis for each *region* and for the relevant *trading interval* the proportion of the total amount calculated by *AEMO* under paragraph (a) for the *regulating raise service* and *regulating lower service* between *global market ancillary service requirements* and *local market ancillary service requirements* to the respective marginal prices for each such service; and
  - (2) calculate for the relevant *trading interval* the sum of the costs of acquiring the *global market ancillary service requirements* for all *regions* and the sum of the costs of acquiring *local market ancillary service requirements* for all *regions*, as determined under subparagraph (1).
- (i) In each *trading interval* in relation to:
- (1) each *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:

$$TA = PTA \times -I$$

and

$$PTA = \text{the aggregate of} \left( TSFCAS \times \frac{MPF}{AMPF} \right)$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in \$) = the *trading amount* to be determined (which is a negative number);

TSFCAS (in \$) = the total of all amounts calculated by *AEMO* under paragraph (h)(2) for the *regulating raise service* or the *regulating lower service* in respect of a *trading interval*;

MPF (a number) = the contribution factor last set by *AEMO* for the *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 *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:

$$TA = PTA \times -I$$

and

$$PTA = \text{the aggregate of} \left( TSFCAS \times \frac{MPF}{AMPF} \times \frac{TCE}{ATCE} \right)$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in \$) = the *trading amount* 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 *trading*

		<i>interval for the region or regions relevant to the regulating raise service or regulating lower service;</i>
TCE (in MWh)	=	the <i>customer energy</i> for the <i>Market Customer</i> for the <i>trading interval</i> in the <i>region or regions</i> relevant to the <i>regulating raise service</i> or <i>regulating lower service</i> ; and
ATCE (in MWh)	=	the aggregate of the <i>customer energy</i> figures for all <i>Market Customers</i> , for whom the <i>trading amount</i> is not calculated in accordance with the formula in subparagraph (1), for the <i>trading interval</i> for the <i>region or regions</i> relevant to that <i>regulating raise service</i> or <i>regulating lower service</i> .

**Note**

The values of TCE and ATCE are subject to substitution in accordance with clause 3.15.6AA.

- (j) *AEMO* must determine for the purpose of paragraph (i):
- (1) a contribution factor for each *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 *trading interval*:
  - (i) subject to the provision of *primary frequency response* by that *Scheduled Participant* in accordance with the *Primary Frequency Response Requirements*, 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 *trading interval*, the *semi-scheduled generating unit*:
  - (i) subject to the provision of *primary frequency response* by that *semi-scheduled generating unit* in accordance with the *Primary Frequency Response Requirements*, achieves its *dispatch level* at a uniform rate;
  - (ii) is *enabled* to provide a *market ancillary service* and responds to a control signal from *AEMO* to *AEMO's* satisfaction; or
  - (iii) is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services*.
- (l) *AEMO* may amend the procedure referred to in clause 3.15.6A(j) from time to time.
- (m) *AEMO* must comply with the *Rules consultation procedures* when making or amending the procedure referred to in clause 3.15.6A(k).
- (n) *AEMO* must *publish*, in accordance with the *timetable*, the historical data used in determining a factor for each *Market Participant* for the purposes of clauses 3.15.6A(h) and (i) in accordance with the procedure contemplated by clause 3.15.6A(k).



- (na) Notwithstanding any other provisions of the *Rules*, *AEMO* must *publish* the factors determined in accordance with clause 3.15.6A(j)(1) at least 10 *business days* prior to the application of those factors in accordance with clauses 3.15.6A(h) and 3.15.6A(i).
- (nb) When a *region* is or *regions* are operating asynchronously, *AEMO* must *publish* (where appropriate in accordance with the procedure developed under paragraph (k)), an estimate of the contribution factors referred to in paragraph (j)(2) to be applied for information purposes only by *Market Participants* for the duration of the separation.
- (o) **[Deleted]**
- (p) When *AEMO* dispatches a quantity of *regulating raise service* or *regulating lower service* in addition to the quantity it determines in accordance with the *dispatch algorithm*, *AEMO* must:
  - (1) for the purposes of paragraphs (f) and (g), include the additional quantity in the cost of *delayed services*; and
  - (2) for the purposes of paragraphs (h) and (i), exclude the additional quantity in the cost of *regulation services*,
 taking into account the requirements in clauses 3.8.1(a) and (b) to maximise the value of *spot market* trading.

...

### 3.15.7 Payment to Directed Participants

- (a) Subject to paragraphs (b) and (d1), *AEMO* must pay compensation to *Directed Participants* calculated in accordance with ~~clauses this clause 3.15.7, and clauses~~ 3.15.7A and 3.15.7B, as the case may be, for any service which the *Directed Participant* was required to provide in order to comply with the *direction*.
- (a1) *AEMO* must compensate each *Directed Participant* for the provision of:
  - (1) *energy* or *market ancillary services* pursuant to a *direction*, under this clause 3.15.7 and clause 3.15.7B, as the case may be; and
  - (2) services, other than *energy* or *market ancillary services*, pursuant to a *direction* (**other compensable services**), in accordance with the fair payment compensation for those services determined under clause 3.15.7A.
- (a2) For the purpose of paragraph (a1) a *Directed Participant* provides *energy* or *market ancillary services* if it was *directed* to provide one or more of the following services:
  - (1) *energy*;
  - (2) any one of the *market ancillary services*;
  - (3) a service that is a direct substitute for *energy* or a *market ancillary service*; or

- (4) a service that was provided by the *Directed Participant* where *energy* or *market ancillary services* are provided incidental to the provision of that service, including without limitation:
- (i) *inertia*;
  - (ii) *voltage* control; and
  - (iii) system strength.
- (b) For the purpose of clause 3.15.8 and 3.15.10C the amount of compensation due to a *Directed Participant* pursuant to clause 3.15.7(a) must include interest on the sum of that amount less any payment made in accordance with clause 3.15.10C(a), computed at the average *bank bill rate* for the period beginning on the day on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the *final statement* for the *billing period* in which the *direction* was issued and ending on the day on which payment is required to be made pursuant to clause 3.15.10C.
- (c) Subject to clause 3.15.7(d) and clause 3.15.7B, the compensation payable to each *Directed Participant* for the provision of *energy* or *market ancillary services* pursuant to a *direction* is to be determined in accordance with the formula set out below:

$$DCP = AMP \times DQ$$

$$C = CO - RE$$

where:

C = the amount of compensation the *Directed Participant* is entitled to receive;

CO = the costs the *Directed Participant* is deemed to have incurred for the duration of the *direction*, to be determined in accordance with the formula set out below:

$$CO = (DGEN \times BVG) + (MWE \times BVAS)$$

DGEN = the sum of *Directed Participant's* dispatched generation (in MWh) for the duration of the *direction*.

BVG = the amount (in \$/MWh) calculated in accordance with paragraph (c1) below.

MWE = the sum of the relevant *market ancillary services* (in MW) which the *Directed Participant* has been enabled to provide for the duration of the *direction*.

BVAS = the amount (in \$/MWh) calculated in accordance with paragraph (c2) below.

RE = The sum of *trading amounts* determined under clauses 3.15.6 or 3.15.6A payable to the *Directed Participant* for the duration of the *direction*,

and where C is a negative number, it will be deemed to be zero.

(c1) The benchmark value for *generation* (BVG) at paragraph (c) is to be determined in accordance with the formula set out below and the *directions compensation methodology* developed under paragraph (c3):

$$\text{BVG} = \text{BC}_{(\text{av})} \times 1.15$$

where:

BC<sub>(av)</sub> = the capacity-weighted average of the benchmark costs (in \$/MWh) of all *Scheduled Generators* in the same class of *Generator* and same *region* as the *Directed Participant*, with each benchmark cost to be determined in accordance with the formula below:

$$\text{BC} = (\text{FC} \times \text{E}) + \text{VOC}$$

where:

FC = the fuel costs (in \$/GJ) the *Directed Participant* is deemed to have incurred for the duration of the *direction*.

E = the efficiency (in GJ/MWh) for the *Directed Participant* for the duration of the *direction*.

VOC = the variable operating costs the *Directed Participant* is deemed to have incurred for the duration of the *direction*.

In each case, the inputs (FC, E and VOC) in this paragraph (c1) are to be the same as the equivalent inputs published in the *ISP database*. If there is no equivalent input for “FC” or “E”, it will be deemed to be 1. If there is no equivalent input for “VOC”, it will be deemed to be zero.

(c2) The BVAS at paragraph (c) is to be determined in accordance with the formula below and the *directions compensation methodology*:

$$\text{BVAS} = \text{BC}_{(\text{av})} \times (0.15 \div n)$$

where:

BC<sub>(av)</sub> has the same meaning as in paragraph (c1) above.

n is the number of *trading intervals* in one hour.

**Directions compensation methodology and schedule of benchmark values for directions**

- (c3) AEMO must develop and publish a methodology (*directions compensation methodology*) that specifies:
- (1) the approach to be adopted by AEMO in selecting the class of *Scheduled Generator* and *Ancillary Service Provider* to be used when determining the value of  $BC_{(av)}$  for the calculation in paragraph (c1);
  - (2) the classes of *Scheduled Generator* and *Ancillary Service Provider* to be used for the purpose of calculating benchmark costs referred to in the input “BC” in paragraph (c1);
  - (3) the approach to be adopted by AEMO in calculating the benchmark costs referred to in the input “BC” in paragraph (c1) for each class of *Scheduled Generator* in each *region*, including determining the equivalent inputs published in the *ISP database* for the purpose of the calculation in paragraph (c3); and
  - (4) a process for how AEMO will annually update the *schedule of benchmark values for directions*, including how it will consult with interested parties.
- (c4) AEMO must develop a schedule of benchmark values to be used when determining the compensation payable to a *Directed Participant* (***schedule of benchmark values for directions***) for each class of *Scheduled Generator* and *Ancillary Service Provider* in each *region*, calculated in accordance with the formula set out in paragraph (c) and using (where appropriate) the equivalent inputs published in the *ISP database*.
- (c5) The *schedule of benchmark values for directions* developed under paragraph (c4) must:
- (1) be updated at least annually in accordance with the process specified in the *directions compensation methodology*; and
  - (2) be published at least 14 days prior to the first day to which the *schedule of benchmark values* relates.
- (c6) AEMO may amend the *directions compensation methodology* from time to time in accordance with the *Rules consultation procedures*. Notwithstanding this paragraph (c6), AEMO may make minor and administrative amendments to the *directions compensation methodology* without complying with the *Rules consultation procedures*.
- (d) If at the time AEMO issues a *direction*:
- (1) the *Directed Participant* had submitted a *dispatch bid*, *dispatch offer* or *rebid* acknowledged by AEMO in accordance with clause 3.8.8 for *dispatch* of the service that is to be *dispatched* in accordance with the *direction*; and

- (2) the *direction* was issued because *AEMO* was prevented from *dispatching* the *Directed Participant's plant* in accordance with that *dispatch bid, dispatch offer* or *rebid* due to a failure of the *central dispatch process*,

the *Directed Participant* is entitled to receive compensation for the provision of that service at a price equal to the price in that *dispatch bid, dispatch offer* or *rebid* acknowledged by *AEMO* in accordance with clause 3.8.8, as the case may be.

- (d1) Where a *Directed Participant* is also a *Market Suspension Compensation Claimant* with respect to any *trading interval* in relation to which *AEMO* has issued a *direction*, such *Directed Participant*:
  - (1) may be entitled to compensation calculated in accordance with clause 3.14.5A(d); and
  - (2) is not entitled to compensation calculated in accordance with paragraph (c).
- (e) *AEMO* must, in accordance with the *intervention settlement timetable*, advise each *Directed Participant* in writing of the amount the *Directed Participant* is entitled to receive pursuant to clause 3.15.7(c) or clause 3.15.7(d).

**CHAPTER 4**

## 4. Power System Security

### 4.1 Introduction

#### 4.1.1 Purpose

- (a) This Chapter:
- (1) provides the framework for achieving and maintaining a secure *power system*;
  - (2) provides the conditions under which *AEMO* can intervene in the processes of the *spot market* and issue *directions* to *Registered Participants* so as to maintain or re-establish a secure and reliable *power system*;
  - (3) has the following aims:
    - (i) to detail the principles and guidelines for achieving and maintaining *power system security*;
    - (ii) to establish the processes for the assessment of the adequacy of *power system reserves*;
    - (iii) to establish processes to enable *AEMO* to plan and conduct operations within the *power system* to achieve and maintain *power system security*; and
    - (iv) to establish processes for the actual *dispatch* of *scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services and ancillary services* by *AEMO* and for *AEMO* to enable ~~*inertia network services or system strength services*~~ *system security services*.
- (b) By virtue of this Chapter and the *NEL*, *AEMO* has responsibility to maintain and improve *power system security*. This Chapter also requires the *Jurisdictional System Security Coordinator* for each *participating jurisdiction* to advise *AEMO* of the requirements of the *participating jurisdiction* regarding *sensitive loads* and priority of *load shedding* and requires *AEMO* to provide copies of the relevant *load shedding procedures* and *EFCS settings schedules* to the *Jurisdictional System Security Coordinator*.

...

#### 4.2.5 Technical envelope

- (a) The *technical envelope* means the technical boundary limits of the *power system* for achieving and maintaining the *secure operating state* of the *power system* for a given demand and *power system* scenario.
- (b) *AEMO* must determine and revise the *technical envelope* (as may be necessary from time to time) by taking into account the prevailing *power system* and *plant* conditions as described in clause 4.2.5(c).

- (c) In determining and revising the *technical envelope* AEMO must take into account matters such as:
- (1) AEMO's forecast of total *power system load*;
  - (2) the provision of the applicable *contingency capacity reserves*;
  - (3) operation within all *plant* capabilities of *plant* on the *power system*;
  - (4) *contingency capacity reserves* available to handle any *credible contingency event*;
  - (5) advised *generation* minimum *load constraints*;
  - (6) *constraints* on *transmission networks*, including short term limitations;
  - (7) *ancillary service* requirements and ~~*inertia network service and system strength service*~~ *system security services* availability;
  - (8) **[Deleted]**
  - (9) the existence of proposals for any major equipment or *plant* testing, including the checking of, or possible changes in, *transmission plant* availability; and
  - (10) applicable *performance standards*.
- (d) AEMO must, when determining the secure operating limits of the *power system*, assume that the applicable *performance standards* are being met, subject to:
- (1) a *Registered Participant* notifying AEMO, in accordance with rule 4.15(f), that a *performance standard* is not being met; or
  - (2) AEMO otherwise becoming aware that a *performance standard* is not being met.

...

#### 4.3.1 Responsibility of AEMO for power system security

The AEMO *power system security responsibilities* are:

- (a) to maintain *power system security*;
- (b) to monitor the operating status of the *power system*;
- (c) to co-ordinate the *System Operators* in undertaking certain of its activities and operations and monitoring activities of the *power system*;
- (d) to ensure that *high voltage* switching procedures and arrangements are utilised by *Network Service Providers* to provide adequate protection of the *power system*;
- (e) to assess potential infringement of the *technical envelope* or *power system operating procedures* which could affect the security of the *power system*;



- (f) to ensure that the *power system* is operated within the limits of the *technical envelope*;
- (g) to ensure that all *plant* and equipment under its control or co-ordination is operated within the appropriate operational or emergency limits which are advised to *AEMO* by the respective *Network Service Providers* or *Registered Participants*;
- (h) to assess the impacts of technical and any operational *plant* on the operation of the *power system*;
- (i) to arrange the *dispatch* of *scheduled generating units, semi-scheduled generating units, wholesale demand response units, scheduled loads, scheduled network services* and *ancillary services* (including *dispatch* by remote control actions or specific directions) in accordance with the *Rules*, allowing for the dynamic nature of the *technical envelope*;
- (j) to determine any potential *constraint* on the *dispatch* of *generating units, wholesale demand response units, loads, market network services* and *ancillary services* and to assess the effect of this *constraint* on the maintenance of *power system security*;
- (k) to assess the availability and adequacy, including the dynamic response, of *contingency capacity reserves* and *reactive power reserves* in accordance with the *power system security standards* and to ensure that appropriate levels of *contingency capacity reserves* and *reactive power reserves* are available:
  - (1) to ensure the *power system* is, and is maintained, in a *satisfactory operating state*; and
  - (2) to arrest the impacts of a range of significant multiple *contingency events* (affecting up to 60% of the total *power system load*) or *protected events* to allow a prompt restoration or recovery of *power system security*, taking into account under-frequency initiated *load shedding* capability provided under *connection agreements*, by *emergency frequency control schemes* or otherwise;
- (l) to monitor demand and *generation* capacity in accordance with the *reliability standard implementation guidelines* and, if necessary, initiate action in relation to a *relevant AEMO intervention event*;
- (m) to publish as appropriate, information about the potential for, or the occurrence of, a situation which could significantly impact, or is significantly impacting, on *power system security*, and advise of any *low reserve* condition for the relevant periods determined in accordance with the *reliability standard implementation guidelines*;
- (n) to refer to *Registered Participants*, as *AEMO* deems appropriate, information of which *AEMO* becomes aware in relation to significant risks to the *power system* where actions to achieve a resolution of those risks are outside the responsibility or control of *AEMO*;
- (o) to utilise resources and services provided or procured as *ancillary services*; ~~or *system strength services* or *inertia network services*~~ *system security*

*services* or otherwise to maintain or restore the *satisfactory operating state* of the *power system*;

- (p) to manage activities reasonably required to effectively prepare for and coordinate a response to a *major supply disruption*, including (but not limited to):
  - (1) procuring adequate *SRASs* in accordance with clause 3.11.9 to enable *AEMO* to co-ordinate a response to a *major supply disruption*;
  - (2) developing the *system restart plan* and coordinating activities among *Registered Participants*, including the testing of *SRASs* or any other equipment, as reasonably necessary to prepare for the implementation of the *system restart plan*; and
  - (3) managing and coordinating the restoration of *supply* following a *major supply disruption*;
- (p1) to coordinate the provision of *emergency frequency control schemes* by *Network Service Providers* and to determine the settings and intended sequence of response by those schemes;
- (p2) to determine the boundaries of *inertia sub-networks* and the *inertia requirements* for each *inertia sub-network* and to *enable inertia network services*;
- (p3) to determine the *system strength requirements* for each *region* and to *enable system strength services*;
- (q) to interrupt, subject to clause 4.3.2(1), *Registered Participant connections* as necessary during emergency situations to facilitate the re-establishment of the *satisfactory operating state* of the *power system*;
- (r) to issue a *direction* or *clause 4.8.9 instruction* (as necessary) to any *Registered Participant*;
- (s) to co-ordinate and direct any rotation of widespread interruption of demand in the event of a *major supply* shortfall or disruption;
- (t) to liaise with *participating jurisdictions* should there be a need to manage an extensive disruption, including the use of emergency services powers in a *participating jurisdiction*;
- (u) to determine the extent to which the levels of *contingency capacity reserves* and *reactive power reserves* are or were appropriate through appropriate testing, auditing and simulation studies;
- (v) to investigate and review all major *power system* operational incidents and to initiate action plans to manage any abnormal situations or significant deficiencies which could reasonably threaten *power system security*. Such situations or deficiencies include without limitation:
  - (1) *power system frequencies* outside those specified in the definition of *satisfactory operating state*;
  - (2) *power system voltages* outside those specified in the definition of *satisfactory operating state*;

- (3) actual or potential *power system* instability; and
- (4) unplanned/unexpected operation of major *power system* equipment; and
- (w) to ensure that each *System Operator* satisfactorily interacts with *AEMO*, other *System Operators* and *Distribution System Operators* for both *transmission* and *distribution network* activities and operations, so that *power system security* is not jeopardised by operations on the *connected transmission networks* and *distribution networks*.

...

#### 4.3.4 Network Service Providers

...

- (j) Each *Transmission Network Service Provider* that is an *Inertia Service Provider* must make *inertia network services* available to *AEMO* in accordance with clause 5.20B.4(b) and (a1).

##### Note

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

...

#### 4.4 Power System Frequency Control

##### 4.4.5 ~~Instructions to enable system strength services~~

- ~~(a) *AEMO* may at any time *enable* a range and quantity of *system strength services* to maintain the minimum *three phase fault level* at a *system strength node* when the *three phase fault level* at the *system strength node* would otherwise be below the minimum *three phase fault level* or when reasonably considered necessary by *AEMO* to maintain the *power system* in a *secure operating state*.~~
- ~~(b) In selecting the *system strength services* to be *enabled* under paragraph (a), *AEMO* must use reasonable endeavours to select services in the order of priority specified by the *System Strength Service Provider* in its schedule of *system strength services* given to *AEMO* under clause 5.20C.4(a).~~
- ~~(c) For the purposes of paragraph (a), *AEMO* may at any time give an instruction to a *System Strength Service Provider* who is providing *system strength services* or a *Registered Participant* who has agreed with a *System Strength Service Provider* to provide *system strength services* stating that *AEMO* requires *system strength services* to be *enabled*. Where the *system strength services* are provided by a *system strength generating unit*, the instruction must be given in accordance with the procedures for giving *dispatch instructions* under the *Rules*. Otherwise, the instruction must be given in~~

~~accordance with the arrangements for giving instructions applicable to the system strength service approved by AEMO under clause 5.20C.4(e).~~

- ~~(d) AEMO may at any time give an instruction stating that AEMO requires the provision of a system strength service to cease. The instruction must be given in the manner provided for in paragraph (e).~~
- ~~(e) An instruction to enable or cease providing system strength services must include:
  - ~~(1) specific reference to the system strength service to which the instruction applies;~~
  - ~~(2) the time the instruction is issued; and~~
  - ~~(3) the time at which the service is to be enabled or cease, if that is different from the time the instruction is issued.~~~~
- ~~(f) A System Strength Service Provider or a Registered Participant providing system strength services must comply with an instruction given under paragraph (e) or (d).~~

**Note**

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

- ~~(g) A System Strength Service Provider or a Registered Participant providing system strength services must ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon instructions issued by AEMO to enable the system strength service or cease providing it.~~

**Note**

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

## **4.4A Enablement of system security services**

### **4.4A.1 AEMO enablement of system security services**

AEMO may, at any time, enable:

- (a) any system security services to achieve and maintain the minimum system security requirements; and
- (b) system strength services to achieve and maintain stable voltage waveforms for the level and type of inverter based resources and market network service facilities forecast to be dispatched in the pre-dispatch schedule (“stable voltage waveform requirements”).

in accordance with this rule 4.4A and the System Security Services Procedures.

#### **4.4A.2 System security services**

(a) Each of the following is a *system security service*:

- (1) a *system strength service*;
- (2) an *inertia network service*;
- (3) *transitional services*; and
- (4) a *NSCAS*,

to the extent procured by *AEMO* or a *Transmission Network Service Provider* under a contract for that service under the *Rules*.

#### **Note**

The use of *transitional services* expires on [10 years after commencement date]. See clause 11.xxx.3.

#### **4.4A.3 Minimum system security requirement**

(a) *AEMO* must, from time to time, publish the *minimum system security requirements*, in accordance with the *System Security Services Procedures*.

(b) The *minimum system security requirements* are:

- (1) the *inertia requirements*;
- (2) where a *contingency event* that would result in the *islanding* of an *inertia sub-network* has been classified as a *credible contingency event* or defined as a *protected event*, the level of *inertia* to be provided to the *inertia sub-network* while the *contingency event* remains classified or defined in that way is:
  - (i) the *minimum threshold level of inertia* for the *inertia sub-network*; or
  - (ii) if the *minimum threshold level of inertia* for the *inertia sub-network* has been adjusted for *inertia support activities* under clause 5.20B.5(a), that adjusted level of *inertia*;
- (3) where an *inertia sub-network* is *islanded* the level of *inertia* to be provided to the *inertia sub-network* while the *inertia sub-network* remains *islanded* is:
  - (i) the *secure operating level of inertia* for the *inertia sub-network*; or
  - (ii) if the *secure operating level of inertia* for the *inertia sub-network* has been adjusted for *inertia support activities* under clause 5.20B.5(a), that adjusted level of *inertia*;
- (4) the *minimum three phase fault level* for each *system strength node* when the *three phase fault level* at the *system strength node* would otherwise be below the *minimum three phase fault level*;
- (5) the *three phase fault level* at each *system strength node* reasonably considered necessary by *AEMO* to maintain the *power system* in a *secure operating state*;

- (6) a NSCAS need to the extent reasonably considered necessary by AEMO to maintain the power system in a secure operating state, and where the NSCAS Provider has agreed under the relevant ancillary services agreement to be enabled;
- (7) the power system security needs and expected duration specified in the statement for transitional services published under clause 3.11.13(a) from time to time; and
- (8) any other power system security requirements that AEMO determines from time to time are necessary to maintain the power system security standards,

but do not include the reliability standard or the system restart standard.

#### **4.4A.4 Enablement principles**

- (a) When electing the range and quantity of system security services to be enabled under clause 4.4A.1, AEMO must use reasonable endeavours to give effect to the following principles:
  - (1) the system security services that are enabled should be the lowest total cost combination required to achieve and maintain the minimum system security requirements and the stable voltage waveform requirements;
  - (2) a system security service should be enabled as close as practicable to the relevant trading interval, having regard to any unit commitment time for that service and, in any case, enabled no more than 12 hours ahead of the trading interval;
  - (3) a system security service should only be enabled where the minimum system security requirements and the stable voltage waveform requirements would not be met but for such enablement; and
  - (4) subject to subparagraph (a)(1), AEMO should enable a system security service for the need for which it was contracted in preference to another system security service.

##### **Note**

For example, when enabling a system security service to provide inertia to an inertia sub-network, AEMO should prefer an inertia network service.

- (5) when enabling a system security service to achieve the stable voltage waveform requirements, where such services are required in addition to those required to achieve the minimum system security requirements, AEMO must only enable a quantity of system strength services for which the energy that is dispatched by that enablement is less than the total increase in inverter based resources that is estimated to be dispatched as a result of that same enablement.

#### **4.4A.54 Instructions to enable inertia networks system security services**

- (a) ~~Where a contingency event that would result in the islanding of an inertia sub-network has been classified as a credible contingency event or defined as a protected event:~~



- ~~(1) AEMO may require a range and quantity of inertia network services to be enabled that will provide inertia to the inertia sub-network to the level required under subparagraph (2) while the contingency event remains classified or defined in that way; and~~
- ~~(2) the level of inertia referred to in subparagraph (1) is:~~
- ~~(i) the minimum threshold level of inertia for the inertia sub-network; or~~
- ~~(ii) if the minimum threshold level of inertia for the inertia sub-network has been adjusted for inertia support activities under clause 5.20B.5(a), that adjusted level of inertia.~~
- ~~(b) Where an inertia sub-network is islanded:~~
- ~~(1) AEMO may enable a range and quantity of inertia network services that will provide inertia to the inertia sub-network to the level required under subparagraph (2) while the inertia sub-network remains islanded; and~~
- ~~(2) the level of inertia referred to in subparagraph (1) is:~~
- ~~(i) the secure operating level of inertia for the inertia sub-network; or~~
- ~~(ii) if the secure operating level of inertia for the inertia sub-network has been adjusted for inertia support activities under clause 5.20B.5(a), that adjusted level of inertia.~~
- ~~(ea)~~ In selecting the inertia network system security services to be enabled under ~~paragraph (a) clause 4.4A.1 or (b)~~, AEMO must use reasonable endeavours to select services in the order of priority specified by the Inertia Service Provider in its schedule of inertia network services given to accordance with the enablement principles ~~AEMO~~ under clause ~~5.20B.6(a)~~ 4.4A.4 and the System Security Services Procedures.
- ~~(db)~~ For the purposes of clause 4.4A.1 paragraphs (a) and (b), AEMO may at any time give an instruction to an Inertia System Security Service Provider who is providing inertia network system security services, or to a Registered Participant who has agreed with a Inertia System Security Service Provider to provide inertia network system security services, stating that AEMO requires inertia network system security services to be enabled. Where inertia network system security services are provided by an inertia generating unit or system strength generating unit, the instruction must be given in accordance with the procedures for giving dispatch instructions under the Rules. Otherwise, the instruction must be given in accordance with the arrangements for giving instructions applicable to the inertia network system security service approved by AEMO under clause 4.3.4(d)(4), clause 5.20B.6(e), clause 5.20C.4(e), or as agreed with AEMO under the relevant ancillary services agreement.
- ~~(ec)~~ AEMO may at any time give an instruction stating that AEMO requires the provision of an inertia network system security service to cease. The instruction must be given in the manner provided for in paragraph ~~(dd)~~.
- ~~(fd)~~ An instruction to enable or cease providing inertia network system security services must include:

- (1) specific reference to the *inertia network system security service* to which the instruction applies;
- (2) the time the instruction is issued; and
- (3) the time at which the service is to be *enabled* or cease, if that is different from the time the instruction is issued.

(~~ge~~) ~~An *Inertia Service Provider System Security Service Provider* or Registered Participant providing *inertia network system security services* must comply with an instruction given under paragraph (~~db~~) or (~~ec~~).~~

**Note**

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

(~~hf~~) ~~An *Inertia Service Provider System Security Service Provider* or Registered Participant providing *inertia network system security services* must ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon instructions issued by AEMO to *enable* the *inertia network system security service* or cease providing it.~~

**Note**

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

(g) A *System Security Service Provider* must ensure that it is able to *dispatch a facility that is enabled pursuant to clause 4.4A.1 and is responsible for changing inputs to the central dispatch process, if necessary to achieve this, via the offer and bidding provisions under clauses 3.8.6 to 3.8.7B and the rebidding provisions under clause 3.8.22.*

**Note**

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

#### **4.4A.6 System Security Services Procedures**

(a) AEMO must develop and publish procedures for the *enablement of system security services (System Security Services Procedures)*, which must include:

- (1) a methodology for the *enablement of system security services in accordance with the enablement principles in clause 4.4A4;*
- (2) any minimum or recommended requirements to be included in agreements for the provision of *system security services entered into by Transmission Network Service Providers.*

(b) AEMO must comply with the *Rules consultation procedures* when making or amending the *System Security Services Procedures*. AEMO may make minor and administrative amendments without complying with the *Rules consultation procedures.*



#### **4.4A.7 System security services reporting**

- (a) Each day, in accordance with the timetable, AEMO must publish details of each type of system security service, the relevant facilities, the quantity and AEMO's estimate of the cost of that service enabled in the previous day and the reasons for the enablement.
- (b) By no later than 30 September each year, AEMO must prepare and publish a report setting out (system security services report):
  - (1) an assessment of the extent to which system security services achieved the minimum system security requirements and stable voltage waveform requirements in the previous financial year;
  - (2) the total quantity and estimate of costs of each type of system security service and the relevant facilities that were enabled in the previous financial year;
  - (3) the reasons for enablement of the system security services that were enabled in the previous financial year; and
  - (4) any trends in the enablement of system security services compared with earlier financial years.

...

#### **4.8.9 Power to issue directions and clause 4.8.9 instructions**

- (a) Notwithstanding any other provision of rule 4.8:
  - (1) AEMO may require a *Registered Participant* to do any act or thing if AEMO is satisfied that it is necessary to do so to maintain or re-establish the power system to a *secure operating state*, a *satisfactory operating state*, or a *reliable operating state*; and
  - (2) AEMO may authorise a person to do any of the things contemplated by section 116 of the NEL if AEMO is satisfied that it is necessary to do so for reasons of public safety or the security of the electricity system.
- (a1) If AEMO, or a person authorised by AEMO, requires a *Registered Participant* to:
  - (1) take action as contemplated by clause 4.8.9(a) or section 116 of the NEL in relation to *scheduled plant* or a *market generating unit*, AEMO is taken to have issued a *direction*; or
  - (2) take some other action contemplated by clause 4.8.9(a) or section 116 of the NEL, AEMO is taken to have issued a *clause 4.8.9 instruction*.
- (a2) AEMO must use reasonable endeavours to ensure that persons authorised by AEMO under clause 4.8.9(a)(2) follow all relevant processes in rule 4.8 prior to issuing a *direction*, unless it is not reasonably practical to do so.
- (b) AEMO must develop, and may amend from time to time, in accordance with the *Rules consultation procedures*, procedures for the issuance of *directions*. Such procedures must reflect the following principles:

- (1) *AEMO* must use its reasonable endeavours to minimise any cost related to *directions* and compensation to *Affected Participants*, *Market Customers* and *Ancillary Service Providers* pursuant to clause 3.12.2 and compensation to *Directed Participants* pursuant to clauses 3.15.7 and 3.15.7A;
  - (2) a *direction* should be revoked as soon as *AEMO* determines that the *direction* is no longer required;
  - (3) *AEMO* must take into account any applicable guidelines issued by the *Reliability Panel*;
  - (4) *AEMO* must observe its obligations under clause 4.3.2 concerning *sensitive loads*;
  - (5) *AEMO* must expressly notify a *Directed Participant* that *AEMO's* requirement or that of another person authorised by *AEMO* pursuant to clause 4.8.9(a) is a *direction*.
- (c) A *Registered Participant* must use its reasonable endeavours to comply with a *direction* or *clause 4.8.9 instruction* unless to do so would, in the *Registered Participant's* reasonable opinion, be a hazard to public safety, or materially risk damaging equipment, or contravene any other law.

**Note**

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

- (c1) Subject to clause 4.8.9(c) a *Registered Participant* must use its best endeavours to comply with a *direction* or *clause 4.8.9 instruction* in accordance with the timeframe specified by *AEMO* in the *direction* or *clause 4.8.9 instruction*.
- (c2) A *Market Participant* must not by any act or omission, whether intentionally or recklessly, cause or significantly contribute to the circumstances causing a *direction* to be issued, without reasonable cause.
- (d) A *Registered Participant* must immediately notify *AEMO* of its inability to comply or its intention not to comply with a *direction* or *clause 4.8.9 instruction*.
- (e) If a *Registered Participant* does not comply with a *direction* or *clause 4.8.9 instruction*, it must within 2 *business days* of the *direction* or *clause 4.8.9 instruction* deliver to *AEMO* and the *AER* a report detailing the reasons for the non compliance together with all relevant facts.
- (f) *AEMO* must *publish* a report in accordance with clause 3.13.6A.
- (g) Any *Registered Participant* who is aware of a failure to comply with a *direction* or *clause 4.8.9 instruction* or who believes any such failure has taken place must notify *AEMO* and the *AER* in writing and as soon as practicable of that fact.
- (h) If *AEMO* issues a *direction* or *clause 4.8.9 instruction*, *AEMO* may, to give effect to the *direction* or *clause 4.8.9 instruction*:

- (1) submit, update or vary *dispatch bids, dispatch offers* or *rebids* in relation to the *plant* of *Directed Participants* and *Affected Participants*; or
  - (2) change other inputs to the *central dispatch* process.
- (i) When issuing *clause 4.8.9 instructions* to implement *load shedding* across *interconnected regions*, *AEMO* must use reasonable endeavours to implement *load shedding* in an equitable manner as specified in the *power system security standards*, taking into account the *power transfer capability* of the relevant *networks*.
  - (j) When issuing *clause 4.8.9 instructions* to implement *load shedding*, *AEMO* must comply with its obligations under clauses 4.3.2(e) to (l) and Part 8 of the *NEL*.
  - (k) If *AEMO* has issued a *direction*, *AEMO* must, to the extent reasonably practicable, immediately *publish* a notice setting out:
    - (1) the *Directed Participant* subject to the *direction*;
    - (2) the required actions to be taken by the *Directed Participant*, including the quantity of energy (in MW) to be *dispatched*, and details about the *Directed Participant's* future *dispatch* targets, if applicable;
    - (3) for a *direction* pursuant to clause 3.15.7(a2)(4), the service that was provided;
    - (4) details of the circumstances that necessitated the *direction*, including the 'act or thing' referred to in paragraph (a)(1) that was necessary to maintain or re-establish the *power system* to a *secure operating state*, a *satisfactory operating state*, or a *reliable operating state* (as the case may be).

#### 4.8.9A System security directions

- (a) Notwithstanding any other provision of the *Rules*, a *Registered Participant* must follow any *direction* issued by or on behalf of *AEMO* and with which that *Registered Participant* is required to comply under Chapter 4 or section 116 of the *NEL*.
- (b) Any event or action required to be performed pursuant to a *direction* issued under Chapter 4 or section 116 of the *NEL* on or by a stipulated *day* is required by the *Rules* to occur on or by that *day*, whether or not a *business day*.
- (c) Any failure to observe such a *direction* will be deemed to be a breach of the *Rules*.
- (d) *AEMO* or any *Registered Participant* who is aware of any such failure must notify the *AER* in writing of the failure.

#### Note

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

...

#### 4.11.1 Remote control and monitoring devices

- (b) The provider of any ancillary services, ~~system strength services or inertia network services~~ or system security services must arrange the installation and maintenance of all remote control equipment and remote monitoring equipment in accordance with the standards and protocols determined and advised by AEMO for use in the relevant control centre.

**Note**

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

**CHAPTER 5**

## 5. Network Connection Access, Planning and Expansion

...

### 5.16.3 Investments subject to the regulatory investment test for transmission

- (a) A *RIT-T proponent* must apply the *regulatory investment test for transmission* to a *RIT-T project* except in circumstances where:
- (1) the *RIT-T project* is required to address an urgent and unforeseen *network* issue that would otherwise put at risk the *reliability* of the *transmission network* as described in paragraph (b);
  - (2) the estimated capital cost of the most expensive option to address the *identified need* which is technically and economically feasible is less than \$5 million (as varied in accordance with a *cost threshold determination*);
  - (3) the proposed expenditure relates to maintenance and is not intended to *augment* the *transmission network* or replace *network* assets;
  - (4) **[Deleted]**;
  - (5) the proposed relevant *network* investment is an investment undertaken by a *Transmission Network Service Provider* which:
    - (i) re-routes one or more paths of a *network* for the long term; and
    - (ii) has a substantial primary purpose other than the need to *augment* a *network*,  
(a *reconfiguration investment*) and which the *RIT-T proponent* reasonably estimates to have an estimated capital cost of less than \$5 million (as varied in accordance with a *cost threshold determination*) or which has, or is likely to have, no material impact on *network* users;
  - (6) the *identified need* can only be addressed by expenditure on a *connection asset* which provides services other than *prescribed transmission services* or *standard control services*;
  - (7) the cost of addressing the *identified need* is to be fully recovered through charges other than charges in respect of *prescribed transmission services* or *standard control services*;
  - (8) the proposed expenditure relates to *protected event EFCS investment* and is not intended to *augment* the *transmission network*;
  - (9) the proposed expenditure is an *inertia service payment*;
  - (10) the proposed expenditure is for *network* investment undertaken by the *Transmission Network Service Provider* to satisfy its obligation as an *Inertia Service Provider* under clause 5.20B.4 to make available *inertia network services* in relation to an *inertia shortfall* for an *inertia sub-network* and:

- (i) immediately prior to the notice of the *inertia shortfall* being given by *AEMO* under clause 5.20B.3(c), the *Inertia Service Provider* is not under an obligation to provide *inertia network services* for that *inertia sub-network* (including under rule 11.100); ~~and~~
  - (ii) the time by which the *Inertia Service Provider* must make the *inertia network services* available is less than 18 months after the notice is given by *AEMO* under clause 5.20B.3(c); and
- (11) the proposed expenditure is for network investment undertaken by the Transmission Network Service Provider to address a NSCAS gap as part of the arrangements provided to AEMO in response to a request under clause 3.11.3(b) and either:
  - (i) the NSCAS gap relates to an inertia shortfall and the time by which the Transmission Network Service Provider (as the Inertia Service Provider) must address the NSCAS gap is less than 18 months from the date AEMO has declared the NSCAS gap; or
  - (ii) the NSCAS gap relates to insufficient system strength services to meet the system strength requirements and the time by which the Transmission Network Service Provider (as the System Strength Service Provider) must address the NSCAS gap is less than 18 months from the date AEMO has declared the NSCAS gap,

and, in each case, the proposed expenditure must only relate to that part of the NSCAS gap for which there is an inertia shortfall or insufficient system strength services.
- (b) For the purposes of paragraph (a)(1), a *RIT-T project* will be required to address an urgent and unforeseen *network* issue that would otherwise put at risk the *reliability* of the *transmission network* if:
  - (1) it is necessary that the assets or services to address the issue be operational within 6 months of the issue being identified;
  - (2) the event or circumstances causing the *identified need* was not reasonably foreseeable by, and was beyond the reasonable control of, the *Network Service Provider(s)* that identified the *identified need*;
  - (3) a failure to address the *identified need* is likely to materially adversely affect the *reliability* and *secure operating state* of the *transmission network*; and
  - (4) it is not a *contingent project*.
- (c) If a proposed relevant *network* investment is determined to be required to address an urgent and unforeseen *network* issue as described in paragraph (b), and the *Network Service Provider* making the investment is a *Transmission Network Service Provider*, then the *Transmission Network Service Provider* must provide the following information in its next *Transmission Annual Planning Report* following the identification of the need for the relevant *network* investment:
  - (1) the date when the proposed relevant *network* investment became or will become operational;
  - (2) the purpose of the proposed relevant *network* investment; and

- (3) the total cost of the proposed relevant *network* investment.
- (d) With the exception of *funded augmentations*, for each *RIT-T project* to which the *regulatory investment test for transmission* does not apply in accordance with paragraph (a), the *Network Service Providers* affected by the *RIT-T project* must ensure, acting reasonably, that the investment required to address the *identified need* is planned and developed at least cost over the life of the investment.
- (e) A *RIT-T proponent* must not treat different parts of an integrated solution to an *identified need* as distinct and separate options for the purposes of determining whether the *regulatory investment test for transmission* applies to each of those parts.

## 5.20 System security reports

### 5.20.1 Definitions

In this rule 5.20:

**NSCAS description** means a detailed description of each type of *network support and control ancillary service*.

**NSCAS quantity procedure** means a procedure that determines the location and quantity of each type of *network support and control ancillary service* required.

**NSCAS trigger date** means for any *NSCAS gap* identified in clause 5.20.3(b), the date that the *NSCAS gap* first arises.

**NSCAS tender date** means for any *NSCAS gap* identified in clause 5.20.3(c), the date or indicative date that *AEMO* would need to act so as to call for offers to acquire *NSCAS* to meet that *NSCAS gap* by the relevant *NSCAS* trigger date in accordance with clause 3.11.3(c)(4).

### 5.20.2 Publication of NSCAS methodology

- (a) *AEMO* must develop and publish the *NSCAS description* and *NSCAS quantity procedure* in accordance with the *Rules consultation procedures*.
- (b) *AEMO* may amend the *NSCAS description* and the *NSCAS quantity procedure*.
- (c) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *NSCAS description* or the *NSCAS quantity procedure*.
- (d) *AEMO* may make minor and administrative amendments to the *NSCAS description* or the *NSCAS quantity procedure* without complying with the *Rules consultation procedures*.

### 5.20.3 Publication of NSCAS Report

*AEMO* must publish annually the *NSCAS Report* on its website for the following year which must include:

- (a) an assessment that identifies any *NSCAS gap*;



- (b) for any *NSCAS gap* identified in subparagraph (a) required to maintain *power system security* and *reliability of supply* of the *transmission network* in accordance with the *power system security standards* and the *reliability standard*, the relevant *NSCAS* trigger date;
- (c) for any *NSCAS gap* identified in subparagraph (a) required to maintain *power system security* and *reliability of supply* of the *transmission network* in accordance with the *power system security standards* and the *reliability standard*, the relevant *NSCAS* tender date;
- (d) a report on *NSCAS* acquired by *AEMO* under *ancillary services agreements* in the previous calendar year; and
- (e) information on any other matter that *AEMO* considers relevant.

#### 5.20.4 Inertia requirements methodology

- (a) *AEMO* must develop and publish the *inertia requirements methodology* in accordance with the *Rules consultation procedures*.
- (b) *AEMO* may amend the *inertia requirements methodology*.
- (c) *AEMO* must comply with the *Rules consultation procedures* when making or amending the *inertia requirements methodology*.
- (d) *AEMO* may make minor and administrative amendments to the *inertia requirements methodology* without complying with the *Rules consultation procedures*.

(d1) The *inertia requirements methodology* determined by *AEMO* must provide for *AEMO* to take the following matters into account in determining the *system-wide minimum level of inertia*:

(1) the rate of change of frequency in the *frequency operating standard*;

(2) any other matters as *AEMO* considers appropriate.

(e) The *inertia requirements methodology* determined by *AEMO* must provide for *AEMO* to take the following matters into account in determining the *secure operating level of inertia*:

(1) the capabilities and expected response times provided by *generating units* providing *market ancillary services* (other than the *regulating raise service* or *regulating lower service*) in the *inertia sub-network*;

(2) the maximum *load shedding* or *generation shedding* expected to occur on the occurrence of any *credible contingency event* affecting the *inertia sub-network* when the *inertia sub-network* is *islanded*;

(3) additional *inertia* needed to account for the possibility of a reduction in *inertia* if the *contingency event* that occurs is the loss or unavailability of a *synchronous generating unit*, *synchronous condenser* or any other *facility* or service that is material in determining *inertia requirements*;

(4) any *constraints* that could reasonably be applied to the *inertia sub-network* when *islanded* to achieve a *secure operating state* and any *unserved energy* that might result from the *constraints*; and

(5) any other matters as *AEMO* considers appropriate.

### 5.20.5 Publication of Inertia Report

- (a) AEMO must publish annually by 1 December the *Inertia Report* on its website for the following year which must include:
  - (1) the boundaries of the *inertia sub-networks* and related *inertia requirements* determined by AEMO under rule 5.20B since the last ~~*Inertia Report*~~ ~~and details of AEMO's assessment of any *inertia shortfall*~~ ~~and AEMO's forecast of any *inertia shortfall*~~ ~~arising at any time within a planning horizon of at least 5 years;~~
  - (2) a report on the *inertia requirements* ~~determined for each *inertia sub-network*~~ together with the results of AEMO's assessment under clause 5.20B.3; and
  - (3) information on any other matter that AEMO considers relevant.

### 5.20.6 Publication of system strength requirements methodologies

- (a) AEMO must develop and publish the *system strength requirements methodology* in accordance with the *Rules consultation procedures*.
- (b) AEMO may amend the *system strength requirements methodology*.
- (c) AEMO must comply with the *Rules consultation procedures* when making or amending the *system strength requirements methodology*.
- (d) AEMO may make minor and administrative amendments to the *system strength requirements methodology* without complying with the *Rules consultation procedures*.
- (e) The *system strength requirements methodology* determined by AEMO must provide for AEMO to take the following matters into account in determining the *system strength requirements*:
  - (1) the combination of *three phase fault levels* at each *system strength node* in the *region* that could reasonably be considered to be sufficient for the *power system* to be in a *secure operating state*;
  - (2) the maximum *load shedding* or *generation shedding* expected to occur on the occurrence of any *credible contingency event* or *protected event* affecting the *region*;
  - (3) the stability of the *region* following any *credible contingency event* or *protected event*;
  - (4) the risk of *cascading outages* as a result of any *load shedding* or *generating system* or *market network service facility* tripping as a result of a *credible contingency event* or *protected event* in the *region*;
  - (5) additional contribution to the *three phase fault level* needed to account for the possibility of a reduction in the *three phase fault level* at a *system strength node* if the *contingency event* that occurs is the loss or unavailability of a *synchronous generating unit* or any other *facility* or service that is material in determining the *three phase fault level* at the *system strength node*;
  - (6) the stability of any equipment that is materially contributing to the *three phase fault level* or *inertia* within the *region*; and

- (7) any other matters *AEMO* considers appropriate.
- (f) The *system strength requirements methodology* determined by *AEMO* must:
  - (1) provide an overview of *system strength nodes* and the process to declare them;
  - (2) describe:
    - (i) how *AEMO* forecasts new *connections* and the information it takes into account;
    - (ii) how *AEMO* will determine the assumptions it will use about the size, type and operational profile of *facilities* or classes of *facilities* to be *connected* and their contribution to the matters taken into account in determining the *system strength requirements*; and
    - (iii) the modelling and analysis methodologies *AEMO* will use to determine *system strength nodes* and minimum *three phase fault levels* at the *system strength nodes* and the matters it will take into account;
  - (3) provide for *AEMO* to take the following matters into account in determining the *system strength requirements*:
    - (i) the *Integrated System Plan* and the *Electricity Statement of Opportunities*;
    - (ii) the matters in paragraphs (e)(1) to (7) for each year of the forecast period; and
    - (iii) any other matters *AEMO* considers appropriate; and
  - (4) provide a description of what is meant by stable *voltage* waveforms for the purposes of clause S5.1.14(b)(2) (in addition to that provided in clause S5.1.14(c)) including the matters that may be taken into account by *System Strength Service Providers* to assess, for the level and type of *inverter based resources* projected by *AEMO* at *system strength nodes*, what may be required to achieve stable operation.

### 5.20.7 Publication of System Strength Report

*AEMO* must publish annually by 1 December the *System Strength Report* on its website for the following year which must include:

- (a) a description of the *system strength requirements* determined by *AEMO* under rule 5.20C since the last *System Strength Report*;
- (b) the *system strength requirements* determined for each *system strength node*;
- (c) the system strength standard specification (as defined in clause S5.1.14(a)) applicable at each *system strength node* during the 12 months following publication of the *System Strength Report*;
- (d) the assumptions used by *AEMO* to determine the *system strength requirements* including assumptions about the size, type and operational profile of *facilities* or classes of *facilities* to be *connected* and their

contribution to the matters taken into account in determining the *system strength requirements*;

- (e) information about new *system strength nodes* declared since the last *System Strength Report* and an indication of possible future *system strength nodes* and when *AEMO* considers the nodes may be declared; and
- (f) information on any other matter that *AEMO* considers relevant.

...

## 5.20B Inertia sub-networks and requirements

### 5.20B.1 Boundaries of inertia sub-networks

- (a) For the purpose of determining the required levels of *inertia* in the *national grid*, the *connected transmission systems* forming part of the *national grid* are to be divided into *inertia sub-networks*.
- (b) *AEMO* must determine the boundaries of *inertia sub-networks* and may from time to time adjust the boundaries, including adjustments that result in new *inertia sub-networks*.
- (c) The boundaries of an *inertia sub-network* must be aligned with the boundaries of a *region* or wholly confined within a *region*.
- (d) Subject to paragraph (c), in determining and adjusting the boundaries of *inertia sub-networks*, *AEMO* must take into account the following matters:
  - (1) synchronous *connections* between the proposed *inertia sub-network* and adjacent parts of the *national grid*;
  - (2) ~~the likelihood of the proposed *inertia sub-network* being islanded; and~~
  - (3) the criticality and practicality of maintaining the proposed *inertia sub-network* in a *satisfactory operating state* if it is *islanded* and being able to return to a *secure operating state* while *islanded*.
- (e) In determining and adjusting the boundaries of *inertia sub-networks*, *AEMO* must comply with the *Rules consultation procedures*.
- (f) *AEMO* must publish the boundaries of the *inertia sub-networks* and any adjustments in the *Inertia Report*.

### 5.20B.2 Inertia requirements

- (a) *AEMO* must, ~~by 1 December each year, from time to time~~ determine the *inertia requirements* ~~for *inertia sub-networks*~~ applying the *inertia requirements methodology*. ~~*AEMO* must make a determination under this paragraph:~~
  - (1) ~~subject to subparagraph (2) and any other requirements under the *Rules*, for any *inertia sub-network*, no more than once in every 12 month period; and~~
  - (2) ~~for each affected *inertia sub-network*, as soon as reasonably practical after becoming aware of a material change to the *power system* likely~~

~~to affect the inertia requirements for the inertia sub-network where the timing, occurrence or impact of the change was unforeseen.~~

- (b) The *inertia requirements* to be determined ~~for each inertia sub-network~~ are AEMO's forecast of the following matters for each of the following ten years (commencing 2 December):
- (1A) the system-wide minimum level of inertia, being the minimum level of inertia required to operate the power system (excluding the Tasmania region) in a satisfactory operating state in the absence of any inertia sub-network being islanded;
- (1B) each inertia sub-network's allocation of a portion of the system-wide minimum level of inertia (inertia minimum level allocation), which must be determined for each inertia sub-network based on:
- (i) a balanced allocation of the system-wide minimum level of inertia across the national grid (excluding the Tasmania region);
- (ii) any identified minimum requirements for inertia in a particular region or inertia sub-network; and
- (iii) any other matters as AEMO considers appropriate,  
provided that no portion of the system-wide minimum level of inertia will be allocated to any inertia sub-network whose boundaries are aligned with, or wholly confined within, the boundaries of the Tasmania region);
- (1) the *minimum threshold level of inertia for each inertia sub-network*, being the minimum level of *inertia* required to operate the *inertia sub-network* in a *satisfactory operating state* when the *inertia sub-network* is *islanded*; and
- (2) the *secure operating level of inertia for each inertia sub-network*, being the minimum level of *inertia* required to operate the *inertia sub-network* in a *secure operating state* when the *inertia sub-network* is *islanded*.
- (c) AEMO must *publish* the *inertia requirements* determined ~~for each inertia sub-network~~ together with the results of its assessment under clause 5.20B.3 in the *Inertia Report*.
- (d) If AEMO becomes aware of a material change to the power system likely to affect the inertia requirements, where the timing, occurrence or impact of the change was unforeseen, AEMO must as soon as reasonably practicable, revise and publish its determination of the forecast under paragraph (b).

### 5.20B.3 Inertia shortfalls

- (a) AEMO must, ~~as soon as practicable following~~ in conjunction with its determination of the *inertia requirements for an inertia sub-network* under clause 5.20B.2 (including any revision under clause 5.20B.2(d)), assess for each inertia sub-network:
- (1) the level of *inertia* typically provided in ~~the each~~ *inertia sub-network* having regard to typical patterns of *dispatched generation* in *central dispatch*;

- (2) whether in *AEMO's* reasonable opinion, there is or is likely to be an *inertia shortfall* in the *inertia sub-network* in each of the following ten years (commencing 2 December) and *AEMO's* forecast of the period over which the *inertia shortfall* will exist; and
  - (3) where *AEMO* has previously assessed that there was or was likely to be an *inertia shortfall*, whether in *AEMO's* reasonable opinion that *inertia shortfall* has been or will be remedied.
- (b) In making its assessment under paragraph (a) for an *inertia sub-network*, *AEMO* must take into account:
- (1) over what time period and to what extent the *inertia* that is typically provided in the *inertia sub-network* is or is likely to be below the *secure operating level of inertia*;
  - (2) the levels of *inertia* that are typically provided in adjacent *connected inertia sub-networks* and the likelihood of the *inertia sub-network* becoming *islanded*;
  - (2a) the *inertia minimum level allocation* for that *inertia sub-network* and adjacent *connected inertia sub-networks*; and
  - (3) any other matters that *AEMO* reasonably considers to be relevant in making its assessment.
- (c) ~~[Deleted]If *AEMO* assesses that there is or is likely to be an *inertia shortfall* in any *inertia sub-network*, *AEMO* must publish and give to the *Inertia Service Provider* for the *inertia sub-network* a notice of that assessment that includes *AEMO's* specification of the date by which the *Inertia Service Provider* must ensure the availability of *inertia network services* in accordance with clause 5.20B.4(b), which must not be earlier than 12 months after the notice is published unless an earlier date is agreed with the *Inertia Service Provider*.~~
- (d) ~~[Deleted]If *AEMO* assesses that an *inertia shortfall* in an *inertia sub-network* has been or will be remedied, *AEMO* must publish and give to the *Inertia Service Provider* for the *inertia sub-network* a notice of that assessment that includes *AEMO's* specification of the date from which the obligation of the *Inertia Service Provider* under clause 5.20B.4(b) ceases, which must not be earlier than 12 months after the notice is published unless an earlier date is agreed with the *Inertia Service Provider*.~~

#### 5.20B.4 Inertia Service Provider to make available inertia services

- (a) The *Inertia Service Provider* for an *inertia sub-network* is:
- (1) the *Transmission Network Service Provider* for the *inertia sub-network*;  
or
  - (2) if there is more than one *Transmission Network Service Provider* for the *inertia sub-network*, the *jurisdictional planning body* for the *participating jurisdiction* in which the *inertia sub-network* is located.
- (a1) The *Inertia Service Provider* for each *inertia sub-network* must make *inertia network services* available in each *inertia year* in accordance with paragraph (a2) that when enabled will provide *inertia* to meet the *binding inertia*



minimum level allocation for that inertia sub-network as adjusted for inertia support activities.

**Note**

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

(a2) For the purposes of paragraph (a1), an Inertia Service Provider for an inertia sub-network must:

(1) use reasonable endeavours to make the inertia network services available by the commencement of the inertia year;

(2) make a range and level of inertia network services available such that it is reasonably likely that inertia network services that provide the required level of inertia when enabled are continuously available, taking into account planned outages and the risk of unplanned outages; and

(3) ensure that the inertia network services that when enabled provide inertia up to the binding inertia minimum level allocation for the inertia year (as adjusted for inertia support activities if applicable) are qualifying inertia network services as specified in paragraph (e).

(b) ~~If a binding inertia shortfall period exists AEMO gives a notice under clause 5.20B.3(e) that AEMO has assessed that there is or is likely to be an inertia shortfall~~ in an inertia sub-network during an inertia year, the Inertia Service Provider for the inertia sub-network must make inertia network services available in accordance with paragraph (c) that when enabled will provide inertia to:

(1) the binding secure operating level of inertia for the inertia year; or

(2) the binding secure operating level of inertia for the inertia year as adjusted for inertia support activities, but not less than the binding minimum threshold level of inertia for the inertia year as adjusted for inertia support activities.

**Note**

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

(c) For the purposes of paragraph (b), an Inertia Service Provider for an inertia sub-network must:

(1) use reasonable endeavours to make the inertia network services available by the commencement of the relevant binding inertia shortfall period ~~date specified by AEMO in the notice under clause 5.20B.3(e);~~

(2) make a range and level of inertia network services available such that it is reasonably likely that inertia network services that provide the required level of inertia when enabled are continuously available, taking into account planned outages and the risk of unplanned outages;

(3) ensure that the inertia network services that when enabled provide inertia up to the binding minimum threshold level of inertia for the

- inertia year* (as adjusted for *inertia support activities* if applicable) are qualifying *inertia network services* as specified in paragraph (d);
- (4) ensure that the *inertia network services* that when *enabled* provide *inertia* beyond the *binding minimum threshold level of inertia for the inertia year* up to the *binding secure operating level of inertia for the inertia year* (as adjusted for *inertia support activities* if applicable), are qualifying *inertia network services* as specified in paragraph (e); and
- (5) maintain the availability of those *inertia network services* until the *relevant binding inertia shortfall period ends*~~date the *Inertia Service Provider's* obligation ceases, as specified by *AEMO* under clause *5.20B.3(d)*.~~
- (d) The *inertia network services* that qualify to provide *inertia* up to the *binding minimum threshold level of inertia* are:
- (1) *inertia network services* made available by the *Inertia Service Provider* investing in its *network* through the installation, commissioning and operation of:
- (i) a synchronous condenser; or
- (ii) other equipment approved by *AEMO* in accordance with clause *5.20B.4A(f)*; and
- (2) *inertia network services* made available to the *Inertia Service Provider* by a *Registered Participant* and provided by means of:
- (i) a synchronous generating unit or a synchronous condenser; or
- (ii) other equipment approved by *AEMO* in accordance with clause *5.20B.4A(f)*,
- in each case under an *inertia services agreement*.
- (e) The *inertia network services* that qualify to provide *inertia*:
- (1A) up to the *binding inertia minimum level allocation*; or
- (1B) beyond the *binding minimum threshold level of inertia* up to the *binding secure operating level of inertia*,
- are:
- (1) the *inertia network services* referred to in paragraph (d);
- (2) *inertia network services* made available by the *Inertia Service Provider* investing in its *network* other than those referred to in paragraph (d); and
- (3) *inertia network services* made available to the *Inertia Service Provider* by a *Registered Participant* under an *inertia services agreement* other than those referred to in paragraph (d).
- (f) An *Inertia Service Provider* required to make *inertia network services* available under paragraph (a1) or (b) must make available the least cost option or combination of options that will satisfy its obligation within the time referred to in subparagraph (a2)(1) or (c)(1) (as applicable) and for so long as the obligation to make the *inertia network services* available continues.



- (g) An *Inertia Service Provider* required to make *inertia network services* available under paragraph (a1) or (b) must prepare and *publish* information to enable potential providers of *inertia network services* to develop *non-network options* for consideration by the *Inertia Service Provider* including:
  - (1) a description of the requirement for *inertia network services* including timing;
  - (2) the technical characteristics that a *non-network option* would be required to deliver, such as the level of *inertia*, location, availability, response time and operating profile;
  - (3) a summary of potential options to make the *inertia network services* available identified by the *Inertia Service Provider*, including *network options* and *non-network options*; and
  - (4) information to assist providers of *non-network options* wishing to present proposals to the *Inertia Service Provider* including details of how to submit a proposal for consideration.
- (h) An *Inertia Service Provider* must provide information in its *Transmission Annual Planning Report* about:
  - (1) the activities undertaken to satisfy its obligation to make *inertia network services* available under paragraph (a1) and (b); and
  - (2) *inertia support activities* undertaken to reduce the *binding inertia minimum level allocation*, *binding minimum threshold level of inertia* or the *binding secure operating level of inertia*.
- (i) If the *Inertia Service Provider* proposes *network* investment for either of the purposes specified in paragraph (h), the *Inertia Service Provider* must provide the following information in its next *Transmission Annual Planning Report*:
  - (1) the date when the proposed relevant *network* investment became or will become operational;
  - (2) the purpose of the proposed relevant *network* investment;
  - (3) the total cost of the proposed relevant *network* investment; and
  - (4) the indicative total cost of any *non-network options* considered.
- (j) An *Inertia Service Provider* may include the cost of *inertia service payments* in the calculation of *network support payments* in accordance with Chapter 6A.

#### **5.20B.4A Inertia network service specification and approval of inertia network services**

- (a) *AEMO* must make and publish an *inertia network service specification* containing:
  - (1) a detailed description of each kind of *inertia network service*; and
  - (2) the performance parameters and requirements which must be satisfied in order for a service to qualify as the relevant *inertia network service* and also when an *Inertia Service Provider* provides the relevant kind of *inertia network service*.

- (b) AEMO may amend the inertia network service specification, from time to time.
- (c) AEMO must comply with the Rules consultation procedures when making or amending the inertia network service specification.
- (d) An amendment to the inertia network service specification must not take effect until at least 30 days after the amendment has been published.
- (e) For the purposes of clause 5.20B.4(d), AEMO may, at the request of an Inertia Service Provider, approve equipment by means of which inertia network services are to be made available by, or to, the Inertia Service Provider where the equipment:

  - (1) is not a synchronous generating unit or a synchronous condenser; and
  - (2) AEMO is satisfied the inertia network services provided by means of the equipment will contribute to the operation of the relevant inertia sub-network in a satisfactory operating state.
- (f) An Inertia Service Provider making a request under paragraph (e) must give AEMO:

  - (1) details of the proposed equipment by means of which an inertia network service will be made available;
  - (2) information about how the inertia network services provided by means of the proposed equipment will contribute to operation of the inertia sub-network in a satisfactory operating state in accordance with the circumstances described in clause 4.4A.3(b)(2) and (3) as applicable;
  - (3) any other information requested by AEMO in connection with the request.
- (g) AEMO may give or withhold its approval under clause 5.20B.4A(e) in its discretion and subject to any conditions determined by AEMO, provided that AEMO must have regard to the inertia network service specification in making its decision.

### **5.20B.5 Inertia support activities**

- (a) AEMO may at the request of an Inertia Service Provider approve activities (*inertia support activities*) under this clause and agree corresponding adjustments to the binding inertia minimum level allocation for the purposes of clause 5.20B.4(a1) or binding minimum threshold level of inertia or the binding secure operating level of inertia for the purposes of clause 5.20B.4(b) where the activities:

  - (1) are to be undertaken by the Inertia Service Provider or provided as a service to the Inertia Service Provider;
  - (2) are not *inertia network services*; and
  - (3) in the case of:

    - (i) a requested adjustment to the binding inertia minimum level allocation, AEMO is satisfied the activities will contribute to the operation of the inertia sub-network in a satisfactory operating state; or

(ii) a requested adjustment to the *binding minimum threshold level of inertia* or the *binding secure operating level of inertia*, AEMO is satisfied the activities will contribute to the operation of the *inertia sub-network* in a *satisfactory operating state* or *secure operating state* in the circumstances described in clause 4.4A.3(b)(2) and (3) 4.4.4(a) or (b) as applicable.

**Note**

If approved by AEMO under paragraph (a), inertia support activities may include installing or contracting for the provision of *frequency* control services, installing emergency protection schemes or contracting with *Generators* in relation to the operation of their *generating units* in specified conditions.

- (b) An adjustment to the *binding inertia minimum level allocation, binding minimum threshold level of inertia* or the *binding secure operating level of inertia* for *inertia support activities* will apply to the level determined by AEMO and only where and to the extent that the approved activity is *enabled* and performing in accordance with the conditions of any approval determined by AEMO.
- (c) An *Inertia Service Provider* making a request under paragraph (a) must give AEMO:
  - (1) details of the proposed *inertia support activity* and the other information about the *inertia support activity* consistent with the requirements of clause 5.20B.6(c);
  - (2) the proposed technical specification and performance standards and the information about arrangements to *enable* the *inertia support activity* consistent with the requirements of clause 5.20B.6(d);
  - (3) information about how the *inertia support activity* will, in the case of:
    - (i) a requested adjustment to the *binding inertia minimum level allocation, contribute to the operation of the inertia sub-network in a satisfactory operating state; or*
    - (ii) a requested adjustment to the *binding minimum threshold level of inertia* or the *binding secure operating level of inertia*, contribute to operation of the *inertia sub-network* in a *satisfactory operating state* or *secure operating state* in the circumstances described in clause 4.4A.3(b)(2) and (3) 4.4.4(a) or (b) as applicable;
  - (4) the *Inertia Service Provider's* proposal for calculating adjustments to be made and the times they will apply; and
  - (5) any other information requested by AEMO in connection with the request.
- (d) AEMO may give or withhold its approval under this clause in its discretion and subject to any conditions determined by AEMO.
- (e) The technical specification, performance standards and information referred to in paragraph (c) and any change to them must be approved by AEMO.
- (f) An *Inertia Service Provider* must obtain AEMO's approval under paragraph (c) before any change to the technical specification, performance standards or

arrangements to give instructions that apply to an *inertia support activity* comes into effect.

**Note**

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

**5.20B.6 Inertia network services information and approvals**

- (a) An *Inertia Service Provider* required to make *inertia network services* available under clause [5.20B.4\(a1\)](#) or clause [5.20B.4\(b\)](#) must prepare and give to *AEMO* and keep up to date, a schedule setting out:
  - ~~(1) the *inertia network services* made available by the *Inertia Service Provider* for the *inertia sub-network*; and~~
  - ~~(2) the *Inertia Service Provider's* proposed order of priority for the *inertia network services* to be enabled.~~
- (b) Where the *Inertia Service Provider* procures *inertia network services* from a *Generator* provided by means of a *synchronous generating unit* under an *inertia services agreement*, the *Inertia Service Provider* must register the *generating unit* with *AEMO* as an *inertia generating unit* and specify that the *generating unit* may be periodically used to provide *inertia network services* and will not be eligible to set *spot prices* when *constrained on* to provide *inertia* in accordance with clause 3.9.7(c).

**Note**

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

- (b1) An *Inertia Service Provider* must establish arrangements for each *inertia network service* it makes available to *AEMO* under the *Rules*, including under any relevant *inertia services agreement*, to ensure:
  - (1) that *inertia network service* is capable of being enabled by *AEMO* under clause 4.4A.1; and
  - (2) that *inertia network service* is only capable of being enabled by *AEMO*.
- (c)€ An *Inertia Service Provider* required to make *inertia network services* available under clause [5.20B.4\(a1\)](#) or clause [5.20B.4\(b\)](#) must give to *AEMO* and keep up to date the following details for each *inertia network service*:
  - (1) a description of the *inertia network service*, including:
    - (i) the nature of the *inertia network service*;
    - (ii) the *generating unit* or other *facilities* used to provide the *inertia network service*;
    - (iii) the purpose for which the *inertia network service* is being provided;
    - (iv) the location in the *transmission network* or *distribution network* of the *facilities* used to provide the *inertia network service*;

- (v) the quantity of *inertia* to be provided when the *inertia network service* is enabled and;
- (vi) any other information requested by *AEMO* in connection with the *inertia network service*;
- (2) information about the availability of the *inertia network service*, including:
  - (i) the times when, and the period over which, the *inertia network service* will be available to provide *inertia*; ~~and~~
  - (ii) any possible restrictions on the availability of the *inertia network service*; and
  - (iii) the costs to enable the *inertia network service*.
- (d) An *Inertia Service Provider* required to make *inertia network services* available under clause 5.20B.4(a1) or clause 5.20B.4(b) must prepare and submit to *AEMO* for approval under paragraph ~~(e)~~ the following details for each *inertia network service*:
  - (1) the technical specification and performance standards for the *inertia network service*; and
  - (2) the arrangements necessary for *AEMO* to give instructions to *enable* or cease the provision of the *inertia network service* including:
    - (i) the period of any notice that has to be given to the provider of the *inertia network service* for it to be *enabled*;
    - (ii) the response time to any instruction for the *inertia network service* to be *enabled* or to cease being provided; and
    - (iii) communication protocols between it, *AEMO* and the *Registered Participants* that provide *inertia network services*.
- ~~(e)~~ The technical specification, ~~performance standards and arrangements necessary for *AEMO* to give the instructions referred to in paragraph (d) and any change to them must be consistent with the *Rules* and approved by *AEMO*.~~
- (f) An *Inertia Service Provider* must ensure that *AEMO*'s approval is obtained under paragraph ~~(e)~~ before the *inertia network service* is first made available and in the case of a change, before the change comes into effect.

**Note**

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

- (g) *AEMO* must use reasonable endeavours to respond to the *Inertia Service Provider* within 20 *business days* following the receipt of a request for approval under paragraph ~~(e)~~ stating whether it gives its approval.
- (h) If *AEMO* does not approve the matters in a request for approval under paragraph ~~(e)~~:

- (1) *AEMO* must tell the *Inertia Service Provider* its reasons for withholding approval and may advise the *Inertia Service Provider* of the changes *AEMO* requires to be made; and
- (2) the *Inertia Service Provider* must amend its request to address the matters identified by *AEMO* and submit to *AEMO* a new request for approval.

## 5.20C System strength requirements

### 5.20C.1 Declaring system strength requirements

- (a) *AEMO* may from time to time declare *system strength nodes*, being locations on the *transmission network* of a *System Strength System Provider* at which:
  - (1) in relation to *AEMO*, clauses 4.2.6(g), [4.4.5\(a\)](#)~~4.4.5~~ and 4.6.1(b) apply; and
  - (2) in relation to a *System Strength Service Provider* for a *system strength node*, clause S5.1.14 applies.
- (b) *AEMO* must, by 1 December each year, determine the *system strength requirements* for each *system strength node*. In determining *system strength requirements*, *AEMO* must apply the *system strength requirements methodology*.
- (c) The *system strength requirements* to be determined for a *system strength node* are:
  - (1) the minimum *three phase fault level* for the *system strength node* applicable for the purposes of clauses 4.2.6(g), [4.4A.5–4.4.5\(a\)](#) and 4.6.1(b) for the following year (commencing 2 December); and
  - (2) *AEMO*'s forecast of the following matters for each of the following ten years (commencing 2 December):
    - (i) the minimum *three phase fault level* applicable at the *system strength node* for the purposes of clause S5.1.14(b)(1); and
    - (ii) the level and type of *inverter based resources* and *market network service facilities* projected by *AEMO* for the *system strength node* for the purposes of clause S5.1.14(b)(2).
- (d) *AEMO* must publish its declaration of *system strength nodes* under paragraph (a) and the *system strength requirements* determined for each *system strength node* in the *System Strength Report*.
- (e) If *AEMO* becomes aware of a material change to the *power system* likely to affect the *system strength requirements* for a *system strength node*, where the timing, occurrence or impact of the change was unforeseen, *AEMO* must as soon as reasonably practicable, revise and publish its determination of the minimum *three phase fault level* under paragraph (e)(1) and the forecast under paragraph (e)(2) for the *system strength node*.



**5.20C.2 [Deleted]**

**5.20C.3 System Strength Service Provider**

- (a) The *System Strength Service Provider* for a *region* is:
  - (1) the *Transmission Network Service Provider* for the *region*; or
  - (1) if there is more than one *Transmission Network Service Provider* for a *region*:
    - (i) the *jurisdictional planning body* for the *participating jurisdiction* in which the *region* is located, if that entity is also a *Transmission Network Service Provider*; or
    - (ii) otherwise, the *Co-ordinating Transmission Network Service Provider* for the *region*.
- (a1) In this clause, a *non-network option* includes a means by which an *identified need* can be fully or partly addressed by *network* expenditure which is undertaken by a *Network Service Provider* other than the *System Strength Service Provider* or by any other person.
- (b) [Deleted]
- (c) [Deleted]
- (d) [Deleted]
- (e) A *System Strength Service Provider* must prepare and *publish* information to enable potential providers of *system strength services* to develop *non-network options* for consideration by the *System Strength Service Provider* including:
  - (1) a description of the requirement for *system strength services* including timing;
  - (2) the technical characteristics that a *non-network option* would be required to deliver, such as the contribution to the *three phase fault level*, location, availability, response time and operating profile;
  - (3) a summary of potential options to make the *system strength services* available identified by the *System Strength Service Provider*, including *network options* and *non-network options*; and
  - (4) information to assist providers of *non-network options* wishing to present proposals to the *System Strength Service Provider* including details of how to submit a proposal for consideration.
- (f) A *System Strength Service Provider* must provide information in its *Transmission Annual Planning Report* about the *system strength nodes* for which it is the *System Strength Service Provider* including:
  - (1) the activities undertaken or planned to satisfy its obligations under clause S5.1.14 in relation to each *system strength node*;
  - (2) modelling methodologies, assumptions and results used by the *System Strength Service Provider* in planning the activities referred to in subparagraph (1); and
  - (3) the *System Strength Service Provider's* forecast of the *available fault level* at each *system strength node* over the period for which AEMO has

determined *system strength requirements*, where applicable determined in a manner consistent with the methodology in the *system strength impact assessment guidelines*.

- (f1) A *System Strength Service Provider* must consult with other *Network Service Providers* whose networks are connected to the transmission system of the *System Strength Service Provider* when preparing the information referred to in paragraph (f).
- (g) If the *System Strength Service Provider* proposes *network* investment for the purpose specified in paragraph (f), the *System Strength Service Provider* must provide the following information in its next *Transmission Annual Planning Report*:
  - (1) the date when the proposed relevant *network* investment became or will become operational;
  - (2) the purpose of the proposed relevant *network* investment;
  - (3) the total cost of the proposed relevant *network* investment;
  - (4) the indicative total costs of any *non-network options* considered.
- (h) [Deleted]

#### 5.20C.4 System strength services information and approvals

- (a) A *System Strength Service Provider* who makes *system strength services* available for the purposes of clause S5.1.14 must prepare and give to *AEMO* and keep up to date, a schedule setting out:
  - ~~(1) the *system strength services* available to contribute to the *three phase fault level* at each *system strength node*; and~~
  - ~~(2) the *System Strength Service Provider's* proposed order of priority for the *system strength services* to be enabled.~~
- (b) Where the *System Strength Service Provider* procures *system strength services* from a *Generator* provided by means of a *generating unit* under a *system strength services agreement*, the *System Strength Service Provider* must register the *generating unit* with *AEMO* as a *system strength generating unit* and specify that the *generating unit* may be periodically used to provide *system strength services* and will not be eligible to set *spot prices* when *constrained on* to provide *system strength services* in accordance with clause 3.9.7(c).

#### Note

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

- (b1) A *System Strength Service Provider* must establish arrangements for each *system strength service* it makes available to *AEMO* under the *Rules*, including under any relevant *system strength services agreement*, to ensure:
  - (3) that *system strength service* is capable of being enabled by *AEMO* under clause 4.4A.1; and
  - (4) that *system strength service* is only capable of being enabled by *AEMO*.



- (c)€ A *System Strength Service Provider* must give to *AEMO* and keep up to date the following details for each *system strength service* it makes available to *AEMO* under the *Rules*:
- (1) a description of the *system strength service*, including:
    - (i) the nature of the *system strength service*;
    - (ii) the *generating unit* or other *facilities* used to provide the *system strength service*;
    - (iii) the purpose for which the *system strength service* is being provided;
    - (iv) the location in the *transmission network* or *distribution network* of the *facilities* used to provide the *system strength service*;
    - (v) the contribution to the *three phase fault level* at each relevant *system strength node* and the *facility's connection point* when the *system strength service* is enabled; and
    - (vi) any other information (including models) requested by *AEMO* to assess the contribution of the *system strength service* referred to in subparagraph (v).
  - (2) information about the availability of the *system strength service*, including:
    - (i) the times when, and the period over which, the *system strength service* will be available to contribute to the *three phase fault level* at each relevant *system strength node*; ~~and~~
    - (ii) any possible restrictions on the availability of the *system strength service*; ~~and~~
    - (iii) costs to enable the *system strength service*.
- (d) A *System Strength Service Provider* must prepare and submit to *AEMO* the following details for each *system strength service* it makes available to *AEMO* under the *Rules*:
- (1) the technical specification and performance standards for the *system strength service*; and
  - (2) the arrangements necessary for *AEMO* to give instructions to *enable* or cease the provision of the *system strength service* including:
    - (i) the period of any notice that has to be given to the provider of the *system strength service* for it to be *enabled*;
    - (ii) the response time to any instruction for the *system strength service* to be *enabled* or to cease being provided; and
    - (iii) communication protocols between it, *AEMO* and the *Registered Participants* or other persons that provide *system strength services*.
- (e) The arrangements necessary for *AEMO* to give the instructions referred to in paragraph (d) and any change to them must be consistent with the *Rules* and approved by *AEMO*.

- (f) A *System Strength Service Provider* must ensure that *AEMO*'s approval is obtained under paragraph € before the *system strength service* is first made available and in the case of a change, before the change comes into effect.

**Note**

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

- (g) *AEMO* must use reasonable endeavours to respond to the *System Strength Service Provider* within 20 *business days* following the receipt of a request for approval under paragraph € stating whether it gives its approval.
- (h) If *AEMO* does not approve the matters in a request for approval under paragraph €:
- (1) *AEMO* must tell the *System Strength Service Provider* its reasons for withholding approval and may advise the *System Strength Service Provider* of the changes *AEMO* requires to be made; and
  - (2) the *System Strength Service Provider* must amend its request to address the matters identified by *AEMO* and submit to *AEMO* a new request for approval.

**CHAPTER 10**

## 10. Glossary

### *binding inertia minimum level allocation*

For an *inertia sub-network* at any time in an *inertia year*, the *forecast inertia minimum level allocation* for that *inertia sub-network* determined for the *inertia year* three years prior (that is, in the *inertia requirements* due to be determined by 1 December falling three years before the *inertia year* commenced and disregarding any revision under clause 5.20B.2(d)).

### *binding inertia shortfall period*

For an *inertia sub-network* in an *inertia year*, a *forecast inertia shortfall period* for the *inertia sub-network* assessed for the *inertia year* three years prior (that is, in assessment due to be made by 1 December falling three years before the *inertia year* commenced and disregarding any revision under clause 5.20B.2(d)).

### *binding minimum threshold level of inertia*

For an *inertia sub-network* at any time in an *inertia year*, the *forecast minimum threshold level of inertia* for that *inertia sub-network* determined for the *inertia year* three years prior (that is, in the *inertia requirements* due to be determined by 1 December falling three years before the *inertia year* commenced and disregarding any revision under clause 5.20B.2(d)).

### *binding secure operating level of inertia*

For an *inertia sub-network* at any time in an *inertia year*, the *forecast secure operating level of inertia* for that *inertia sub-network* determined for the *inertia year* three years prior (that is, in the *inertia requirements* due to be determined by 1 December falling three years before the *inertia year* commenced and disregarding any revision under clause 5.20B.2(d)).

### *directions compensation methodology*

The methodology developed and published by AEMO in accordance with clause 3.15.7(c3).

### ***enable***

*A market ancillary service is enabled when AEMO has selected the relevant generating unit or load for the provision of the market ancillary service and has notified the relevant Market Participant accordingly.*

*A system security service is enabled when AEMO has selected the relevant service and the service is contributing to achieving and maintaining the minimum system security requirements or the stable voltage waveform requirements. An inertia network service is enabled when AEMO has selected the relevant inertia network service and the service is providing inertia to an inertia sub-network.*

~~An activity approved by AEMO under clause 5.20B.5(a) is enabled when AEMO has selected the relevant activity and the activity is performing and available in accordance with any conditions of that approval.~~

~~A system strength service is enabled when AEMO has selected the relevant system strength service and the service is contributing to the three phase fault level at the relevant system strength node.~~

**forecast inertia minimum level allocation**

For an inertia sub-network for an inertia year, AEMO's forecast under clause 5.20B.2(b) of the inertia minimum level allocation for that inertia sub-network.

**forecast inertia shortfall period**

For an inertia sub-network for an inertia year, a period in the inertia year for which AEMO's forecast under clause 5.20B.3(a) determined that there is or is likely to be an inertia shortfall in the inertia sub-network.

**forecast minimum threshold level of inertia**

For an inertia sub-network for an inertia year, AEMO's forecast under clause 5.20B.2(b) of the minimum threshold level of inertia for that inertia sub-network.

**forecast secure operating level of inertia**

For an inertia sub-network for an inertia year, AEMO's forecast under clause 5.20B.2(b) of the secure operating level of inertia for that inertia sub-network.

***inertia***

Contribution to the capability of the power system to resist changes in frequency by means of an inertial response from a generating unit, network element or other equipment that is ~~electro-magnetically coupled with the power system and synchronised~~ to the frequency of the power system.

**inertia minimum level allocation**

Has the meaning in clause 5.20B.2(b)(1B).

**inertia network service specification**

Has the meaning in clause 5.20B.4A(a).

***inertia requirements***

The inertia minimum level allocation, minimum threshold level of inertia and the secure operating level of inertia for an inertia sub-network determined by AEMO under clause 5.20B.2(a).

***inertia service payment***

A payment by a Transmission Network Service Provider made under an inertia services agreement where:

- (a) the payment is made for inertia network services or inertia support activities to be made available or provided as a service to the Transmission Network Service Provider in its capacity as an Inertia Service Provider to (in the case of inertia network services) satisfy an obligation under clause 5.20B.4 or (in the case of inertia support activities) resulting in an adjustment to the binding minimum level allocation, binding minimum threshold level of inertia or the binding secure operating level of inertia; and
- (b) the inertia network services are made available or provided, or the inertia support activity is undertaken, in accordance with:

- (1) applicable technical specifications and performance standards approved by *AEMO*; ~~and~~
- (2) in the case of an *inertia support activity*, any conditions of *AEMO*'s approval under clause 5.20B.5(a); and
- (3) if *AEMO*'s approval is required under clause 5.20B.4A(f), any conditions of that approval.

### ***inertia shortfall***

A shortfall in the level of *inertia* typically provided in an *inertia sub-network* (having regard to typical patterns of *dispatched generation* in *central dispatch* and the *inertia minimum level allocation for that inertia sub-network*) compared to the *secure operating level of inertia* most recently determined by *AEMO* for the *inertia sub-network*.

### ***inertia year***

Each period of 12 months commencing 2 December.

### ***minimum system security requirements***

The requirements determined and published by *AEMO* under clause 4.4A.3(a).

### ***NMAS (non-market ancillary service)***

Any of the following services:

- (a) *NSCASs* and other services acquired by *Transmission Network Service Providers* under *connection agreements* or *network support agreements* to meet the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments* ~~\_(but to avoid doubt, excluding *inertia network services* and *system strength services*);~~ and
- (b) *SRASs* acquired by *AEMO* under clause 3.11.9, ~~and~~ *NSCASs* acquired by *AEMO* in the circumstances described in clause 3.11.3(c); and *transitional services* acquired by *AEMO* under clause 3.11.11.

#### **Note**

The use of *transitional services* expires on [10 years after commencement date]. See clause 11.xxx.3.

### ***NSCAS need***

- (a) ~~Subject to paragraphs (b) and (c),~~ *NSCAS* required to:
  - (1) maintain *power system security* and reliability of *supply* of the *transmission network* in accordance with the *power system security standards* and the *reliability standard*; and
  - (2) maintain or increase the *power transfer capability* of that *transmission network* so as to maximise the present value of net economic benefit to all those who produce, consume or transport electricity in the *market*.
- (b) ~~[Deleted] Any requirement for a service that satisfies paragraph (a) and is also capable of being made available as an *inertia network service* to address an *inertia shortfall* through the arrangements in rule 5.20B must be treated as an *inertia shortfall* and is not an *NSCAS need*.~~

- (c) ~~[Deleted]Any requirement for a service that satisfies paragraph (a) and is also capable of being made available as a system strength service is not an NSCAS need.~~

***NSCAS (network support and control ancillary service)***

A service ~~(excluding an inertia network service or system strength service)~~ with the capability to control the *active power* or *reactive power* flow into or out of a *transmission network* to address an *NSCAS need*.

***schedule of benchmark values for directions***

Has the meaning in clause 3.15.7(c4).

***stable voltage waveform requirements***

Has the meaning in clause 4.4A.1(b).

***synchronise***

The act of *synchronising* a *generating unit*, *other equipment* or a *scheduled network service* to the *power system*.

***synchronising***

To electrically *connect* a *generating unit*, *other equipment* or a *scheduled network service* to the *power system*.

***System Security Service Provider***

Each of the following:

- (a) a *System Strength Service Provider*;
- (b) an *Inertia Service Provider*;
- (c) a *NSCAS Provider*; and
- (d) a *Transitional Services Provider*.

**Note**

The use of *transitional services* expires on [10 years after commencement date]. See clause 11.xxx.3.

***system security services***

Has the meaning given under clause 4.4A.2.

***System Security Services Procedures***

The procedures published by *AEMO* under clause 4.4A.6.

***system-wide minimum level of inertia***

The *system-wide minimum level of inertia* determined by *AEMO* and referred to in clause 5.20B.2(b)(1A).

***transitional services***

A service provided by *plant*, *equipment* or *facilities* to meet a *power system security need* that *AEMO* has as a result of the transition of the *power system* to a greater proportion of *inverter based resources*.

**Note**

The use of *transitional services* expires on [10 years after commencement date]. See clause 11.xxx.3.

**Transitional Services Guideline**

The guideline developed and published by AEMO in accordance with clause 3.11.12(b).

**Transitional Services Objective**

Has the meaning in clause 3.11.12(a).

**transitional services preferred tenderers**

Persons that submitted tenders for *transitional ancillary services* that are deemed to be non-competitive, as selected by AEMO in accordance with clause 3.11.11(e).

**Transitional Services Procurement Objective**

Has the meaning in clause 3.11.11(b).

**Transitional Services Provider**

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



**CHAPTER 11**

## 11. Savings and Transitional Rules

### 11.xxx.1 Definitions

In this rule 11.xxx:

Amending Rule means [ ].

commencement date means [the date that Schedule [x] of the Amending Rule commences].

expiry date means [the date that is ten years after the commencement date].

transitional services framework means all provisions, and associated definitions, in the *Rules* relating to *transitional services*.

### 11.xxx.2 AEMC review of transitional services framework

(a) The AEMC must complete a review of the transitional services framework within seven years of the commencement date.

(b) In conducting its review under paragraph (a), the AEMC must:

(1) publish terms of reference for its review;

(2) consider whether the transitional services framework is fit for purpose and should remain in place following the expiry date; and

(3) follow the *Rules consultation procedures*.

#### **Note**

This clause does not preclude the AEMC from conducting a review in accordance with section 45 of the NEL.

### 11.xxx.3 Expiry of transitional services framework

(a) The transitional services framework expires on the expiry date.