

**NEMMCO**

**National Electricity  
Market  
Management Company  
Limited**  
ABN 94 072 010 327

# Semi-Dispatch of Significant Intermittent Generation

## *Addendum A1*

### *Proposed Rule Changes (clean)*

#### *Baseline*

*National Electricity Rules Version 13,  
Effective 15 March 2007*

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## CHAPTER 2

## 2. Registered Participants and Registration

### 2.2 Generator

#### 2.2.1 Registration as a Generator

- (a) Subject to clause 2.2.1(c), a person must not engage in the activity of owning, controlling or operating a *generating system* that is *connected* to a *transmission or distribution system* unless that person is registered by *NEMMCO* as a *Generator*.
- (b) A person who otherwise *supplies* electricity to a *transmission or distribution system* may, on application for registration by that person in accordance with clause 2.9, be registered by *NEMMCO* as a *Generator*.
- (c) *NEMMCO* may, in accordance with guidelines issued from time to time by *NEMMCO*, exempt a person or class of persons from the requirement to register as a *Generator*, subject to such conditions as *NEMMCO* deems appropriate, where (in *NEMMCO*'s opinion) an exemption is not inconsistent with the *market objective*.
- (d) Without limitation, an exemption may be given which only relieves a person or class of persons from the requirement to register as a *Generator* in relation to certain specified *generating systems* or classes of *generating systems*.
- (e) To be eligible for registration as a *Generator*, a person must:
  - (1) obtain the approval of *NEMMCO* to classify each of the *generating units* that form part of the *generating system* that the person owns, operates or controls, or from which it otherwise sources electricity, as a *scheduled generating unit*, a *semi-scheduled generating unit* or a *non-scheduled generating unit*;
  - (2) classify the *generating units* in accordance with *NEMMCO*'s approval as referred to in subparagraph (1); and
  - (3) satisfy *NEMMCO* that each *generating system* will be capable of meeting or exceeding its *performance standards*.
- (f) Except in relation to a proposed *generating unit*, a person must also classify each of those *generating units* as either a *market generating unit* or a *non-market generating unit*.
- (f1) A *Generator* may also classify one or more of its *generating units* as an *ancillary service generating unit* where it has obtained the approval of *NEMMCO* to do so.
- (g) Nothing in clause 2.2.1(e) or (f) requires the classification of any *generating unit* which forms part of a *generating system* in respect of which an exemption under clause 2.2.1(c) applies.

## 2.2.2 Scheduled Generator

- (a) Unless *NEMMCO* approves its classification as a *semi-scheduled generating unit* or as a *non-scheduled generating unit*, a *generating unit* which has a *nameplate rating* of 30 MW or greater or is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of 30 MW or greater may only be classified as a *scheduled generating unit*.
- (b) A person must not classify a *generating unit* as a *scheduled generating unit* unless it has obtained the approval of *NEMMCO* to do so. *NEMMCO* must approve the classification if it is satisfied that the person:
  - (1) has submitted data in accordance with schedule 3.1; and
  - (2) has adequate communications and telemetry to support the issuing of *dispatch instructions* and the audit of responses.
- (b1) In relation to an application under clause 2.2.2(b) to classify as a *scheduled generating unit* a *generating unit* with a *nameplate rating* of less than 30 MW, or a *generating unit* that is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of less than 30 MW, *NEMMCO* may approve the classification on such terms and conditions as *NEMMCO* considers appropriate.
- (c) A person must comply with any terms and conditions imposed by *NEMMCO* as part of an approval under clause 2.2.2(b1).
- (d) **[Deleted]**
- (e) A *Generator* is taken to be a *Scheduled Generator* only in so far as its activities relate to any *scheduled generating unit*.
- (f) A *Scheduled Generator* must operate any *scheduled generating unit* in accordance with the co-ordinated *central dispatch* process operated by *NEMMCO* under the provisions of Chapter 3.
- (g) As described in Chapter 3, a *Scheduled Generator* must notify *NEMMCO* of the availability of each *scheduled generating unit* in respect of each *trading interval*.
- (h) A *Scheduled Generator* may submit to *NEMMCO* a schedule of *dispatch offers* for each *scheduled generating unit* in respect of each *trading interval* for *dispatch* by *NEMMCO*.

## 2.2.2A Semi-Scheduled Generator

- (a) Unless *NEMMCO* approves its classification as a *scheduled generating unit* or as a *non-scheduled generating unit*, a *generating unit* which has a *nameplate rating* of 30 MW or greater or is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of 30 MW or greater may only be classified as a *semi-scheduled generating unit*.
- (b) A person must not classify a *generating unit* as a *semi-scheduled generating unit* unless it has obtained the approval of *NEMMCO* to do so. *NEMMCO* must approve the classification if it is satisfied that the output of the *generating unit* is *intermittent* and that the person:
  - (1) has submitted data in accordance with schedule 3.1; and
  - (2) has adequate communications and telemetry to support the issuing of *dispatch instructions* and the audit of responses.
- (c) In relation to an application under clause 2.2.2A(a) to classify as a *semi-scheduled generating unit* a *generating unit* with a *nameplate rating* of less than 30 MW, or a *generating unit* that is part of a group of *generating units connected* at a common *connection point* with a combined *nameplate rating* of less than 30 MW, *NEMMCO* may approve the classification on such terms and conditions as *NEMMCO* considers appropriate.
- (d) A person must comply with any terms and conditions imposed by *NEMMCO* as part of an approval under clause 2.2.2A(b).
- (e) A *Generator* is taken to be a *Semi-Scheduled Generator* only in so far as its activities relate to any *semi-scheduled generating unit*.
- (f) A *Semi-Scheduled Generator* must operate any *semi-scheduled generating unit* in accordance with the co-ordinated *central dispatch* process operated by *NEMMCO* under the provisions of Chapter 3.
- (g) As described in Chapter 3, a *Semi-Scheduled Generator* must notify *NEMMCO* of the availability of each *semi-scheduled generating unit* in respect of each *trading interval*.
- (h) A *Semi-Scheduled Generator* may submit to *NEMMCO* a schedule of *dispatch offers* for each *semi-scheduled generating unit* in respect of each *trading interval* for *dispatch* by *NEMMCO*.

### 2.2.3 Non-Scheduled Generator

- (a) Unless *NEMMCO* approves its classification as a *scheduled generating unit* or as a *semi-scheduled generating unit*, a *generating unit* with a *nameplate rating* of less than 30 MW (not being part of a group of *generating units* described in clause 2.2.2(a)) may only be classified as a *non-scheduled generating unit*.
- (b) A person must not classify a *generating unit* as a *non-scheduled generating unit* unless it has obtained the approval of *NEMMCO* to do so. *NEMMCO* must approve the classification if it is satisfied that:
  - (1) the primary purpose for which the relevant *generating unit* operates is local use and the aggregate *sent out generation* at its *connection point* rarely, if ever, exceeds 30 MW; or
  - (2) the physical and technical attributes of the relevant *generating unit* are such that it is not practicable for it to participate in *central dispatch*.
- (c) If, in relation to an application under clause 2.2.3(b), in *NEMMCO*'s opinion it is necessary for any reason (including *power system security*) for the relevant *Generator* to comply with some of the obligations of a *Scheduled Generator* or a *Semi-Scheduled Generator* for that *generating unit*, *NEMMCO* may approve the classification on such terms and conditions as *NEMMCO* considers reasonably necessary.
- (d) A person must comply with any terms and conditions imposed by *NEMMCO* under clause 2.2.3(c).
- (e) **[Deleted]**
- (f) A *Generator* is taken to be a *Non-Scheduled Generator* only in so far as its activities relate to any *non-scheduled generating unit*.
- (g) Subject to clause 3.8.2(e), the *non-scheduled generating units* of a *Generator* do not participate in the co-ordinated *central dispatch* process operated by *NEMMCO*.

## 2.11 Participant Fees

### 2.11.3 Budgeted revenue requirements

- (a) *NEMMCO* must prepare and *publish* before the beginning of each *financial year* a budget of the revenue requirements for *NEMMCO* for that *financial year*.
- (b) The budget prepared by *NEMMCO* under clause 2.11.3(a) must take into account and separately identify projected revenue requirements in respect of:
  - (1) *NEMMCO's* procurement of *non-market ancillary services*;
  - (2) *NEMMCO's* expenditures in relation to its *power system* operation activities, including meeting its obligations in terms of *power system security* and the facilitation and operation of the central bidding and dispatch processes in accordance with the *Rules*;
  - (2A) *NEMMCO's* expenditures in relation to *inter-network tests*;
  - (3) *NEMMCO's* expenditures in the collection, storage and processing of *metering data*;
  - (4) *NEMMCO's* expenditures in the facilitation of the billing and *settlement of market transactions*;
  - (5) *NEMMCO's* other expenditure requirements, operating costs and margin;
  - (6) *NEMMCO's* obligation to provide funds to the *AEMC* to meet the approved *Advocacy Panel* funding requirements in accordance with clause 8.10.5;
  - (7) any revenue shortfall or excess from each of the requirements specified under clause 2.11.3(b)(1)-(5) from the previous *financial year*; and
  - (8) the funding requirements of the *Participant compensation fund* in accordance with clause 3.16 (which requirements must only be recovered from *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers*).

## **2.12 Interpretation of References to Various Registered Participants**

- (a) A person may register in more than one of the categories of *Registered Participant*.
- (b) Notwithstanding anything else in the *Rules*, a reference to:
  - (1) a “*Generator*” applies to a person registered as a *Generator* only in so far as it is applicable to matters connected with the person’s *scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units* or *non-market generating units*;
  - (2) a “*Scheduled Generator*”, “*Semi-Scheduled Generator*”, “*Non-Scheduled Generator*”, “*Market Generator*” or “*Non-Market Generator*” applies to a person only in so far as it is applicable to matters connected with the person’s *scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units* or *non-market generating units* respectively;
  - (3) a “*Customer*” applies to a person registered as a *Customer* only in so far as it is applicable to matters connected with the person’s *first-tier loads, second-tier loads* or *market loads*;
  - (4) a “*First Tier Customer*”, “*Second Tier Customer*” or “*Market Customer*” applies to a person only in so far as it is applicable to matters connected with the person’s *first-tier loads, second-tier loads* or *market loads* respectively;
  - (4A) a “*Trader*” applies to a person only in so far as it is applicable to matters connected with the person’s activities as a *Trader*;
  - (4B) a “*Reallocator*” applies to a person only in so far as it is applicable to matters connected with the person’s activities as a *Reallocator*;
  - (5) a “*Network Service Provider*” applies to a person registered as a *Network Service Provider* only in so far as it is applicable to matters connected with the person’s *network services, including market network services* and *scheduled network services*;
  - (6) a “*Market Network Service Provider*” or “*Scheduled Network Service Provider*” applies to a person only in so far as it is applicable to matters connected with the person’s *market network services* or *scheduled network services* respectively;
  - (7) a “*Market Participant*” applies to a person who is a *Market Participant* and:
    - (i) where that person is registered as a *Market Generator*, in so far as it is applicable to matters connected with the person’s *market generating units* or *ancillary services generating units*; and
    - (ii) where that person is registered as a *Market Customer*, in so far as it is applicable to matters connected with the person’s *market loads* or *market ancillary service loads*; and

- (iii) where that person is registered as a *Market Network Service Provider*, in so far as it is applicable to matters connected with the person's *market network services*; and
  - (iv) where that person is registered in any category of *Market Participant* additional to a *Market Generator* and/or a *Market Customer* and/or a *Market Network Service Provider*, to the extent to which the reference would otherwise apply to the person if it were not taken to be a *Market Generator*, *Market Customer* or *Market Network Service Provider*; and
- (8) a "*Registered Participant*" applies to a person who is registered under Chapter 2 and:
- (i) where that person is registered as a *Generator*, in so far as it is applicable to matters connected with any of the *Generator's scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units* and *non-market generating units*;
  - (ii) where that person is registered as a *Customer*, in so far as it is applicable to matters connected with any of the *Customer's first-tier loads, second-tier loads* or *market loads*; and
  - (iii) where that person is registered in any other *Registered Participant* category, to the extent to which the reference would apply to the person if it were not registered in another *Registered Participant* category.
- (c) In clause 2.12, "matter" includes any assets, liabilities, acts, omissions or operations (whether past, present or future).

## CHAPTER 3

### 3. Market Rules

#### 3.7 Projected Assessment of System Adequacy

##### 3.7.1 Administration of PASA

- (a) *NEMMCO* must administer medium term and short term *projected assessment of system adequacy processes* to be known as *PASA*.
- (b) The *PASA* is a comprehensive program of information collection, analysis, and disclosure of medium term and short term *power system security* prospects so that *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* are properly informed to enable them to make decisions about *supply*, demand and *outages of transmission networks* in respect of periods up to 2 years in advance.
- (c) On a weekly basis *NEMMCO* must:
  - (1) collect and analyse information from all *Scheduled Generators*, *Semi-Scheduled Generators*, *Market Customers*, *Transmission Network Service Providers* and *Market Network Service Providers* about their intentions for:
    - (i) *generation*, *transmission* and *Market Network Service* maintenance scheduling;
    - (ii) intended *plant* availabilities;
    - (iii) *energy constraints*;
    - (iv) other *plant* conditions which could materially impact upon *power system security*; and
    - (v) significant changes to *load* forecasts previously notified to *NEMMCO*,for the following 24 months; and
  - (2) following analysis and assessment, *publish* information that will:
    - (i) assist *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to plan any scheduled work on *plant*; and
    - (ii) inform the *market* of possible *power system security* problems.
- (d) *NEMMCO* must use its reasonable endeavours to ensure that it provides to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* sufficient information to allow *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to undertake maintenance and *outage* planning without violating *power system security* and to allow the *market* to operate effectively with a minimal amount of intervention by *NEMMCO*.

### 3.7.2 Medium term PASA

- (a) The *medium term PASA* covers the 24 month period commencing from the *day 8 days* after the *day* of publication with a daily resolution, and must be reviewed and issued every week by *NEMMCO* in accordance with the *timetable*.
- (b) *NEMMCO* may publish additional updated versions of the *medium term PASA* in the event of *changes* which, in the judgment of *NEMMCO*, are materially significant and should be communicated to *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants*.
- (c) The following *PASA* inputs are to be prepared by *NEMMCO*:
  - (1) forecast *load* which is:
    - (i) to indicate for each *region* the most probable *peak load*, time of the peak, and daily *energy* on the basis of past trends, day type and special events including all anticipated *scheduled load* and other *load* except pumped storage *loads*;
    - (ii) subsequently to be adjusted by an amount anticipated in the forecast as *scheduled load* by *load* bidders;
    - (iii) an indicative half hourly *load* profile for each day type for each *region* for each month of the year;
  - (2) reserve requirements of each *region* determined in accordance with the *medium term capacity reserve standards* set out in the *power system security and reliability standards*;
  - (3) forecast *inter-regional network constraints* and *intra-regional network constraints* known to *NEMMCO* at the time;
  - (4) *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *day*.
- (d) The following *medium term PASA* inputs must be submitted by each relevant *Scheduled Generator, Semi-Scheduled Generators* or *Market Participant* in accordance with the *timetable*:
  - (1) *PASA availability* of each *scheduled generating unit, semi-scheduled generating unit, scheduled load* or *scheduled network service* for each *day*; and
  - (2) weekly *energy constraints* applying to each *generating unit* or *scheduled load*.
- (e) *Network Service Providers* must provide to *NEMMCO* an outline of planned *network outages* in accordance with the *timetable* and provide to *NEMMCO* any other information on planned *network outages* that is reasonably requested by *NEMMCO* to assist *NEMMCO* to meet its obligations under clause 3.7.2(f)(4).
- (f) *NEMMCO* must prepare and *publish* the following information in respect of each day covered by the *medium term PASA* in accordance with clause 3.13.4:
  - (1) forecasts of the most probable peak *power system load* plus required *reserve*, adjusted to make allowance for *scheduled load*, for each *region* and for the total *power system*;

- (1A) the aggregated MW allowance (if any) made by *NEMMCO* for *generation from non-scheduled generating systems* in each forecast of the most probable peak *power system load* referred to in clause 3.7.2(f)(1);
- (1B) in respect of each forecast of the most probable peak *power system load* referred to in clause 3.7.2(f)(1), a value that is the sum of that forecast and the relevant aggregated MW allowance referred to in clause 3.7.2(f)(1A);
- (2) forecasts of the most probable *energy consumption* for each *region* and for the total *power system*;
- (3) aggregate *generating unit PASA availability* for each *region*, calculated by adding the following categories:
  - (i) the capacity of *scheduled generating units* that are able to operate at the full offered *PASA availability* on a continuous basis to meet forecast *power system load*;
  - (ii) an allocation of *generation* that cannot be *generated* continuously at the full offered *PASA availability* of the *scheduled generating units* for the period covered due to specified weekly *energy constraints*;
  - (iii) the capacity of *semi-scheduled generating units* to meet forecast *power system load*, this capacity being the lesser of the offered *PASA availability* and the corresponding *unconstrained intermittent generation forecast* prepared by *NEMMCO*; and
  - (iv) an allocation of *generation* that cannot be *generated* continuously at the full capacity of the *semi-scheduled generating units* as defined in paragraph (iii) for the period covered due to specified weekly *energy constraints*;
- (4) identification and quantification of:
  - (i) any projected *violations of power system security*;
  - (ii) any *days* on which *low reserve* or *lack of reserve* conditions are forecast to apply;
  - (iii) where a projected *supply deficit* in one *region* can be supplemented by a surplus in another *region* (dependent on forecast *interconnector transfer capabilities*);
  - (iv) forecast *interconnector transfer capabilities* and the discrepancy between forecast *interconnector transfer capabilities* and the forecast capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only; and
  - (v) when and where *network constraints* may become binding on the *dispatch of generation or load*.
- (g) *NEMMCO* must document the procedure it uses for preparation of the *medium term PASA* and make it available to all *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants* on a cost recovery basis.

### 3.7.3 Short term PASA

- (a) The *short term PASA* must be issued at least daily by *NEMMCO* in accordance with the *timetable*.
- (b) The *short term PASA* covers the period of six *trading days* starting from the end of the *trading day* covered by the most recently *published pre-dispatch schedule* with a half hourly resolution.
- (c) *NEMMCO* may *publish* additional updated versions of the *short term PASA* in the event of *changes* which, in the judgement of *NEMMCO*, are materially significant and should be communicated to *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants*.
- (d) The following *short term PASA inputs* are to be prepared by *NEMMCO*:
  - (1) forecast *load* which is to include:
    - (i) the most probable half hourly *profile* on the basis of past trends, day type, and special events; and
    - (ii) all *scheduled load* and other *load* except for pumped storage *loads*, which must subsequently be adjusted in accordance with *dispatch offers* for *scheduled load*;
  - (2) *reserve* requirements for each *region* determined in accordance with the *short term capacity reserve standards*;
  - (3) anticipated *inter-regional network constraints* and *intra-regional network constraints* known to *NEMMCO* at the time; and
  - (4) *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* for each *half hour*.
- (e) The following *short term PASA inputs* must be submitted by each relevant *Scheduled Generator, Semi-Scheduled Generator* and *Market Participant* in accordance with the *timetable* and must represent the *Scheduled Generator's, Semi-Scheduled Generator's* or *Market Participant's* current intentions and best estimates:
  - (1) availability of each *scheduled generating unit, semi-scheduled generating unit, scheduled load* or *scheduled network service* for each *trading interval* under expected market conditions;
  - (1A) *PASA availability* of each *scheduled generating unit, semi-scheduled generating unit, scheduled load* or *scheduled network service* for each *trading interval*;
  - (2) *scheduled generating unit* or *semi-scheduled generating unit synchronisation* and *de-synchronisation* times for *slow start generating units* with a *nameplate rating* of 30 MW or more; and
  - (3) projected daily *energy* availability for *energy constrained scheduled generating units, energy constrained semi-scheduled generating units* and *energy constrained scheduled loads*.
- (f) If *NEMMCO* considers it reasonably necessary for adequate *power system* operation and the maintenance of *power system security, Registered Participants* who may otherwise be exempted from providing inputs for the *PASA* process must do so to the extent specified by *NEMMCO*.

- (g) *Network Service Providers* must provide to *NEMMCO* an outline of planned *network outages* in accordance with the *timetable* and provide to *NEMMCO* any other information on planned *network outages* that is reasonably requested by *NEMMCO* to assist *NEMMCO* to meet its obligations under clause 3.7.3(h)(5).
- (h) *NEMMCO* must prepare and *publish* the following information as *short term PASA* outputs for each *trading interval* in the period covered in accordance with clause 3.13.4(c):
  - (1) forecasts of the most probable *power system load* plus required *reserve* adjusted to make allowance for *scheduled load*, for each *region* and for the total *power system*;
  - (2) forecasts of *power system load* for each *region* with 10% and 90% probability of exceedence;
  - (3) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;
  - (4) aggregate *generating unit* availability for each *region* calculated by adding the following categories:
    - (i) the capacity of *scheduled generating units* that are able to operate at the full offered availability on a continuous basis to meet forecast *power system load*; and
    - (ii) an allocation of *generation* that cannot be *generated* continuously at the offered availability of the *scheduled generating units* for the period covered due to specified daily *energy constraints*;
    - (iii) the capacity of *semi-scheduled generating units* to meet forecast *power system load*, this capacity being the lesser of the offered availability and the corresponding *unconstrained intermittent generation forecast* prepared by *NEMMCO*; and
    - (iv) an allocation of *generation* that cannot be *generated* continuously at the full capacity of the *semi-scheduled generating units* as defined in paragraph (iii) for the period covered due to specified daily *energy constraints*;
  - (4A) aggregate *generating unit PASA availability* for each region;
  - (4B) the aggregated MW allowance (if any) made by *NEMMCO* for generation from *non-scheduled generating systems* in each forecast:
    - (i) of the most probable peak *power system load* referred to in clause 3.7.3(h)(1); and
    - (ii) referred to in clauses 3.7.3(h)(2), (3), (4) and (4A);
  - (4C) in respect of each forecast:
    - (i) of the most probable peak *power system load* referred to in clause 3.7.3(h)(1);
    - (ii) referred to in clauses 3.7.3(h)(2), (3), (4) and (4A),  
a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.7.3(4B); and

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- (5) identification and quantification of:
- (i) any projected *violations of power system security*;
  - (ii) any *trading intervals* for which *low reserve* or *lack of reserve* conditions are forecast to apply;
  - (iii) where a projected *supply* deficit in one *region* can be supplemented by a surplus in another *region* (dependent on forecast *interconnector* transfer capabilities);
  - (iv) forecast *interconnector* transfer capabilities and the discrepancy between forecast *interconnector* transfer capabilities and the forecast capacity of the relevant *interconnector* in the absence of outages on the relevant *interconnector* only; and
  - (v) when and where *network constraints* may become binding on the *dispatch* of *generation* or *load*.
- (i) In the event that in performing the *short-term PASA NEMMCO* identifies any projected *low reserve* or *lack of reserve* conditions in respect of a *participating jurisdiction*, then *NEMMCO* must use its reasonable endeavours to advise the *Jurisdictional Co-ordinator* for that *participating jurisdiction* of any potential requirements during such conditions to shed *sensitive loads*.
- (j) *NEMMCO* must document the procedure it uses for preparation of the *short term PASA* and make it available to all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* on a cost recovery basis.
- (k) **[Deleted]**

## 3.8 Central Dispatch and Spot Market Operation

### 3.8.1 Central Dispatch

- (a) *NEMMCO* must operate a *central dispatch* process to *dispatch scheduled generating units, semi-scheduled generating units, scheduled loads, scheduled network services and market ancillary services* in order to balance *power system supply and demand*, using its reasonable endeavours to maintain *power system security* in accordance with Chapter 4 and to maximise the value of *spot market trading* on the basis of *dispatch offers and dispatch bids*.
- (b) The *central dispatch* process should aim to maximise the value of *spot market trading* i.e. to maximise the value of *dispatched load* based on *dispatch bids* less the combined cost of *dispatched generation* based on *generation dispatch offers, dispatched network services* based on *network dispatch offers*, and *dispatched market ancillary services* based on *market ancillary service offers* subject to:
  - (1) *dispatch offers, dispatch bids and market ancillary service offers*;
  - (2) *constraints* due to availability and *commitment*;
  - (3) *non-scheduled load* requirements in each *region*;
  - (4) *power system security* requirements determined as described in Chapter 4 and the *power system security and reliability standards*;
  - (5) *intra-regional network constraints* and *intra-regional losses*;
  - (6) *inter-regional network constraints* and *inter-regional losses*;
  - (7) *constraints* consistent with *registered bid and offer data*;
  - (8) current levels of *dispatched generation, load and market network services*;
  - (9) *constraints* imposed by *ancillary services* requirements;
  - (10) arrangements designed to ensure pro-rata loading of tied *registered bid and offer data*;
  - (11) ensuring that as far as reasonably practical, in relation to a *direction or dispatch of plant* under a *reserve contract*:
    - (A) the number of *Affected Participants* is minimised; and
    - (B) the effect on *interconnector flows* is minimized; and
  - (12) *constraints* due to *unconstrained intermittent generation forecasts* for *semi-scheduled generating units*.
- (c) *NEMMCO* must establish procedures to allow relaxation of *power system constraints* listed in clause 3.8.1(b) in order to resolve infeasible *dispatch solutions*, subject to the following principles:
  - (1) the procedures are developed in consultation with *Registered Participants* to achieve a reasonable *dispatch* outcome while maintaining consistency with *NEMMCO's* obligations to maintain *power system security* and the pricing principles listed in clause 3.9.1; and

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- (2) *NEMMCO* must report to *Registered Participants* any events requiring the relaxation of these *constraints*.
  - (d) *NEMMCO* must develop and *publish* a *dispatch algorithm* to be used by *NEMMCO* for the purpose of *central dispatch* and pricing in accordance with clauses 3.8 and 3.9.
  - (e) *NEMMCO* must use the *dispatch algorithm* to determine the *loading level* in MW for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* in each *dispatch interval* in accordance with the principles set out in clause 3.8.1(b).
  - (e1) *NEMMCO* must use the *dispatch algorithm* to determine the quantity of each *market ancillary service* which will be *enabled* for each *ancillary service generating unit* or *ancillary service load*.
  - (e2) When *NEMMCO* determines the quantity of each *market ancillary service* which will be *enabled*, *NEMMCO* must determine:
    - (1) the required quantity of each *market ancillary service* that may be sourced from any *region* (referred to as the “*global market ancillary service requirement*”); and
    - (2) any required quantity of such *market ancillary service* which must only be sourced from one or more nominated *regions* (referred to as a “*local market ancillary service requirement*”).
  - (f) *NEMMCO* may investigate from time to time:
    - (1) the scope for further development of the *dispatch algorithm* beyond the minimum requirements specified in clause 3.8.1(b); and
    - (2) the sufficiency of the *dispatch algorithm* in meeting the minimum requirements specified in clause 3.8.1(b),and following compliance with the *Rules consultation procedures*, *publish* a report setting out its recommendations.

### 3.8.2 Participation in central dispatch

- (a) A *Generator* must submit *generation dispatch offers* in respect of each of its *scheduled generating units* and *semi-scheduled generating units* for each *trading day* in accordance with clause 3.8.6.
- (b) *Generation dispatch offers* for a *scheduled generating unit* or *semi-scheduled generating unit* must include a specified *self-dispatch level* and may include prices and MW quantities for increased or decreased levels of *generation* above or below this *self-dispatch level*.
- (b1) A *Scheduled Network Service Provider* must submit *network dispatch offers* in respect of each of its *scheduled network services* for each *trading day* in accordance with clause 3.8.6A.
- (c) Subject to clause 3.8.2(d), *dispatch bids* may be submitted by *Market Participants* in respect of *scheduled loads*, in accordance with clause 3.8.7, and may specify prices and MW quantities for any *trading interval* either for reductions or increases in *load*.
- (c1) *Market ancillary service offers* may be submitted by *Ancillary Service Providers* in respect of *market ancillary services* in accordance with clause 3.8.7A.
- (d) *Dispatch bids* and *market ancillary service offers* will only be included in the *central dispatch* process by *NEMMCO* if it is satisfied that adequate communication and/or telemetry is available to support the issuing of *dispatch instructions* and the audit of responses.
- (e) If *NEMMCO* considers it reasonably necessary for adequate system operation and the maintenance of *power system security*, *Registered Participants* who may otherwise be exempted from participating in the *central dispatch* process must do so to the extent and in the capacity specified by *NEMMCO*.

### 3.8.3 Bid and offer aggregation guidelines

- (a) *Scheduled Generators, Semi-Scheduled Generators or Market Participants* who wish to aggregate their *scheduled generating units, semi-scheduled generating units, scheduled network services or scheduled loads* for the purpose of *central dispatch and settlements* must apply to NEMMCO to do so.
- (b) NEMMCO must approve applications for aggregation if the following conditions are fulfilled by the *Scheduled Generator, Semi-Scheduled Generator or Market Participant*:
  - (1) aggregated *scheduled generating units, aggregated semi-scheduled generating units or aggregated scheduled loads* must be *connected* at a single site with the same *intra-regional loss factor* and be operated by a single *Scheduled Generator, Semi-Scheduled Generator or Market Participant*;
  - (1a) aggregated *scheduled network services* must be *connected* at the same two sites, have the same *intra-regional loss factors*, have the same *distribution loss factors* where applicable and be operated by the same *Scheduled Generator, Semi-Scheduled Generator or Market Participant*; and
  - (2) *power system security* must not be materially affected by the proposed aggregation.
- (c) Notwithstanding that one or more of the conditions set out in clause 3.8.3(b) may not have been fulfilled by the *Scheduled Generator, Semi-Scheduled Generator or Market Participant*, NEMMCO may approve an application for aggregation provided that such aggregation would not materially distort *central dispatch*.
- (d) For the purposes of chapter 3 and clause 4.9, unless the context requires otherwise, a reference to a *scheduled generating unit, semi-scheduled generating unit, scheduled load or scheduled network service* for which aggregation is approved under clause 3.8.3 is a reference to the aggregated *scheduled generating unit, aggregated semi-scheduled generating unit, aggregated scheduled load or aggregated scheduled network service*, respectively.
- (e) NEMMCO must evaluate applications for aggregation and reply within 20 *business days* of receipt of the application setting out whether the application is to be approved and the conditions that apply to the proposed approval.
- (f) *Scheduled Generators, Semi-Scheduled Generators and Market Participants* that have been granted aggregated status must, if required by NEMMCO, declare individual *scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load* availability and operating status to NEMMCO in the PASA process under clause 3.7 to allow *power system security* to be effectively monitored.
- (g) NEMMCO must provide reasons to a *Scheduled Generator, Semi-Scheduled Generator or Market Participant* whose application for aggregation is denied by NEMMCO.
- (h) **[Deleted]**

- (i) *NEMMCO* must notify *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants* of newly approved aggregations.
- (j) *NEMMCO* must maintain a database of aggregated *scheduled generating units*, aggregated *semi-scheduled generating units*, aggregated *scheduled network services* and aggregated *scheduled loads* and their components.

### 3.8.4 Notification of scheduled capacity

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

- (a) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify NEMMCO of the available capacity of each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* for each *trading interval* of the *trading day*;
- (b) subsequent *changes* may only be made to the information provided under clause 3.8.4(c), (d) and (e) in accordance with clause 3.8.22;
- (c) for *scheduled generating units* and *semi-scheduled generating units*, two *days* ahead of each *trading day*:
  - (1) a *MW available capacity* profile that specifies the *MW capacity* available for *dispatch* for each of the 48 *trading intervals* in the *trading day*;
  - (2) estimated *commitment* or *decommitment* times;
  - (3) daily *energy* availability for *energy constrained generating units*; and
  - (4) *ramp rate constraints*;
- (d) for *scheduled loads*, two *days* ahead of each *trading day*:
  - (1) a *MW available capacity* profile that specifies the *MW capacity* available for *dispatch* for each of the 48 *trading intervals* in the *trading day*;
  - (2) daily *energy* availability for *energy constrained scheduled loads*; and
  - (3) *ramp rate constraints*;
- (e) for *scheduled network services*, two *days* ahead of each *trading day*:
  - (1) a *MW capacity* profile that specifies the *power transfer capability* in each direction available for *dispatch* for each of the 48 *trading intervals* in the *trading day*; and
  - (2) *ramp rate constraints*.

### 3.8.6 Generating unit offers for dispatch

The following requirements apply to all *dispatch offers* for *scheduled generating units* and *semi-scheduled generating units*:

- (a) *dispatch offers* must contain the *Scheduled Generator's* or *Semi-Scheduled Generator's* intended *self-dispatch level* for each *trading interval*, and may contain up to 10 *price bands* which may be either for possible *dispatch* above the intended *self-dispatch level* or for possible *off-loading* below the intended *self-dispatch level* by *dispatch instruction*;
- (b) the *dispatch offer* must specify for each of the 48 *trading intervals* in the *trading day*:
  - (1) a MW capacity for the intended *self-dispatch level*;
  - (2) an incremental MW amount for each *price band* specified in the *dispatch offer*; and
  - (3) a MW/min *ramp rate* capability;
- (c) the MW quantities specified are to apply at the terminals of the *scheduled generating unit* or *semi-scheduled generating unit* or, with NEMMCO's agreement, at any other point in the *Scheduled Generator's* or *Semi-Scheduled Generator's* electrical installation or on the *network*;
- (d) a *dispatch offer* which specifies a *self-dispatch level* of more than zero must specify at least one *price band* for *off-loading* below the intended *self-dispatch level* and the total MW quantity in *price bands* specified for *off-loading* in each *trading interval* must equal the MW quantity of the *self-dispatch level* for that *trading interval* to enable possible *off-loading* to a zero *dispatch level*;
- (e) the *dispatch offer* must specify a *loading price* or an *off-loading price* for each *price band* specified in the *dispatch offer*, in dollars and whole cents per MWh, and this price is to apply to the *price band* throughout the *trading day*;
- (f) prices specified for each *price band* specified in the *dispatch offer* must increase monotonically with an increase in available MWs;
- (g) prices specified are to apply at the *scheduled generating unit's* or *semi-scheduled generating unit's connection point* and for the purposes of *central dispatch* shall be referred to the *regional reference node* to which that *connection point* is assigned as follows:

$$RP = DOP \div LF$$

where

RP is the price specified in the *dispatch offer* when referred to the appropriate *regional reference node*;

DOP is the price as specified in the *dispatch offer*; and

LF where the *scheduled generating unit's* or *semi-scheduled generating unit's connection point* is a *transmission network connection point*, is the *intra-regional loss factor* at that *connection point*, or where the *scheduled generating unit's* or *semi-scheduled generating unit's connection point* is a *distribution network connection point*, is the product of the *distribution loss factor* at that *connection point* multiplied by the *intra-regional loss*

- factor at the transmission network connection point to which it is assigned;*
- (h) *loading prices* offered must be equal to or greater than \$0/MWh and may not exceed the product of *VoLL* multiplied by the *intra-regional loss factor* at the *Scheduled Generator's* or *Semi-Scheduled Generator's* *transmission network connection point* for the *generating unit*;
  - (i) *off-loading prices* must be less than \$0/MWh, i.e. negative in sign and may not be less than the product of the *market floor price* multiplied by the *intra-regional loss factor* at the *Scheduled Generator's* or *Semi-Scheduled Generator's* *transmission network connection point* for the *generating unit*;
  - (j) a *loading price* specified for a *price band* is to be interpreted as the minimum price at which up to the specified MW increment is to be loaded in the *central dispatch* process;
  - (k) **[Deleted]**
  - (l) an *off-loading price* specified for a *price band* is to be interpreted as the maximum price payable to NEMMCO by the *Scheduled Generator* or *Semi-Scheduled Generator* in respect of the *generating unit's* *sent out generation* with the *generating unit's* output reduced below its specified *self-dispatch level* in the *central dispatch* process by an amount less than the specified MW increment;
  - (m) the MW quantity specified in each *price band* in each *trading interval* must be specified in whole MW; and
  - (n) the *dispatch offer* may specify the daily *energy* available for *energy constrained generating units*.

### 3.8.8 Validation of dispatch bids and offers

- (a) If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is applicable), *NEMMCO* must make available to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* who submitted the *dispatch offer*, *dispatch bid* or *market ancillary service offer* the following information without delay:
  - (1) acknowledgement of receipt of a valid *dispatch offer*, *dispatch bid* or *market ancillary service offer*; and
  - (2) the data contained in the *dispatch offer*, *dispatch bid* or *market ancillary service offer* as it will be used by *NEMMCO* in the *central dispatch* process.
- (b) It is the responsibility of each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* to check that the data contained in its *dispatch offer*, *dispatch bid* or *market ancillary service offer* as received and to be used by *NEMMCO* in the *central dispatch* process is correct.
- (c) If a *dispatch offer*, *dispatch bid* or *market ancillary service offer* is not made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is applicable), *NEMMCO* must not include that *dispatch offer*, *dispatch bid* or *market ancillary service offer* in the *central dispatch* process and must without delay notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* submitting the *dispatch offer*, *dispatch bid* or *market ancillary service offer* of its invalidity and provide to that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* details of the invalid data.
- (d) If any details contained within a *dispatch offer*, *dispatch bid* or *market ancillary service offer* are inconsistent with the *registered bid and offer data* provided by the relevant *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* then *NEMMCO* has the right to treat that *dispatch offer*, *dispatch bid* or *market ancillary service offer* as invalid and if it does so must notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* without delay.

### 3.8.9 Default offers and bids

- (a) *Scheduled Generators, Semi-Scheduled Generators and Market Participants* may, at any time, submit a *dispatch offer*, a *dispatch bid* or a *market ancillary service offer* in respect of a *scheduled generating unit, semi-scheduled generating unit, scheduled load, scheduled network service, ancillary service generating unit* or *ancillary service load* to apply from a specified future trading day.
- (b) A *Scheduled Generator, Semi-Scheduled Generator or Market Participant* may vary or withdraw a *default dispatch bid, default dispatch offer or market ancillary service offer* at any time prior to the deadline for submissions of *dispatch offers, dispatch bids and market ancillary service offers* for a trading day in accordance with the *timetable*.
- (c) Subject to any procedures *published* in accordance with clause 3.8.9(d), *default dispatch offer, default dispatch bid or market ancillary service offer* applicable to a trading day must be included by NEMMCO in the *central dispatch* process when the deadline for submission of *dispatch offers, dispatch bids and market ancillary service offers* for that trading day arrives in accordance with the *timetable* if, and only if, no later valid *dispatch offer, dispatch bid or market ancillary service offer* has been submitted pursuant to clauses 3.8.6, 3.8.6A, 3.8.7, 3.8.7A or 3.8.9(b).
- (d) NEMMCO, in consultation with *Scheduled Generators, Semi-Scheduled Generators and Market Participants* in accordance with the *Rules consultation procedures*, must develop and *publish* procedures to determine the circumstances when NEMMCO may use a prior *dispatch offer or dispatch bid* lodged by a *Scheduled Generator, Semi-Scheduled Generator or Market Participant* as a substitute for a *default dispatch offer or default dispatch bid*.
- (e) NEMMCO may disregard a *default dispatch offer or a default dispatch bid* and substitute a prior *dispatch offer or dispatch bid or market ancillary service offer* lodged by a *Scheduled Generator, Semi-Scheduled Generator or a Market Participant* determined in accordance with a procedure developed under clause 3.8.9(d) as input to *PASA, pre-dispatch and central dispatch*.

### **3.8.10 Network constraints**

- (a) In accordance with the *NEMMCO power system security responsibilities* and any other standards set out in Chapter 4, *NEMMCO* must determine any *constraints* on the *dispatch* of *scheduled generating units, semi-scheduled generating units, scheduled network services, scheduled loads, ancillary service generating units* or *ancillary service loads* which may result from planned *network outages*.
- (b) *NEMMCO* must represent *intra-regional network constraints* and *inter-regional network constraints* as inputs to the *dispatch* process in a form that can be reviewed after the *trading interval* in which they occurred.
- (c) The process used by *NEMMCO* to derive the *network constraints* must be clearly documented and made available to *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants*.

### **3.8.14 Dispatch under conditions of supply scarcity**

*NEMMCO* must ensure that, during times of *supply* scarcity, the actions set out below occur in the following sequence:

- (a) subject to any adjustments which may be necessary to implement action under clause 3.8.14(c), all valid *dispatch bids* and *dispatch offers* submitted by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* are *dispatched*, including those priced at *VoLL*;
- (b) subject to any adjustments which may be necessary to implement action under clause 3.8.14(c), after all valid *dispatch bids* and *dispatch offers* submitted by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* have been exhausted, *dispatch bids* or *dispatch offers* submitted by *NEMMCO* in respect of *plant* or *scheduled network services* under contracts for the provision of *reserves* are *dispatched*; and
- (c) any further corrective actions required are implemented in accordance with clauses 4.8.5B and 4.8.9.

### **3.8.16 Equal priced dispatch bids and dispatch offers**

If there are *scheduled generating units*, *semi-scheduled generating units* or *scheduled loads*, in the same *region*, for which the prices submitted in *dispatch bids* or *dispatch offers* for a particular *trading interval* result in identical prices at their *regional reference node*, then the MW quantities specified in the relevant *price bands* of those *dispatch bids* or *dispatch offers* must be *dispatched* on a pro-rata basis, where this can be achieved without imposing undue costs on any party, or violating other constraints.

### 3.8.17 Self-commitment

- (a) *Slow start generating units* are *generating units* which are unable to *synchronise* and increase *generation* within 30 minutes of receiving an instruction from *NEMMCO*.
- (b) *Slow start generating units* must *self-commit* to be eligible for *dispatch*.
- (c) A *Generator* may only *self-commit* a *scheduled generating unit* or *semi-scheduled generating unit* in accordance with this clause.
- (d) A *Scheduled Generator* or a *Semi-Scheduled Generator* has a right to *synchronise* its *generating unit* to the *power system* and have *NEMMCO dispatch* that *generating unit* subject to the *dispatch* procedures as set out in this clause 3.8.
- (e) A *Scheduled Generator* or a *Semi-Scheduled Generator* must advise *NEMMCO* of its intention to *self-commit* and *synchronise* a *generating unit* with a *nameplate rating* of 30 MW or more. Unless otherwise agreed with *NEMMCO*, the *Generator* must advise this intention through the *PASA* and *pre-dispatch* processes by submitting an amended *available capacity* profile of the relevant *scheduled generating unit* or *semi-scheduled generating unit* into the *market information bulletin board*.
- (f) The exact time of *synchronisation* may be subject to directions from *NEMMCO* in accordance with Chapter 4.
- (g) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify *NEMMCO* of any changes to *self-commitment* decisions without delay.
- (h) *NEMMCO* must notify all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* of any changes to *self-commitment* decisions without delay.

### **3.8.18 Self-decommitment**

- (a) A *Generator* may only *self-decommit* a *scheduled generating unit* or *semi-scheduled generating unit* in accordance with this clause.
- (b) *Scheduled Generators* and *Semi-Scheduled Generators* must notify *NEMMCO* of their planned *self-decommitment* decisions in relation to *slow start generating units* at least 2 days in advance of *dispatch*.
- (b1) A *Scheduled Generator* or a *Semi-Scheduled Generator* must advise *NEMMCO* of its intention to *self-decommit* and *de-synchronise* a *generating unit* with a *nameplate rating* of 30 MW or more. Unless otherwise agreed with *NEMMCO*, the *Generator* must advise this intention through the *PASA* and *pre-dispatch* processes by submitting an amended *available capacity* profile of the relevant *scheduled generating unit* or *semi-scheduled generating unit* into the *market information bulletin board*.
- (c) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify *NEMMCO* as soon as practicable of any changes in their *self-decommitment* decisions.
- (d) *NEMMCO* must notify all *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* of any changes to *self-decommitment* decisions as soon as practicable.

### 3.8.19 Dispatch inflexibilities

- (a) If a *Scheduled Generator* or *Market Participant* reasonably expects one or more of its *scheduled generating units*, *scheduled network services* or *scheduled loads* to be unable to operate in accordance with *dispatch instructions* in any *trading interval* due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *scheduled generating unit*, *scheduled network service* or *scheduled load*, it must advise NEMMCO through the PASA process or in its *dispatch offer* or *dispatch bid* in respect of that *scheduled generating unit*, *scheduled network service* or *scheduled load*, as appropriate under this Chapter, that the *scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible* in that *trading interval* and must specify a fixed *loading level* at which the *scheduled generating unit*, *scheduled network service* or *scheduled load* is to be operated in that *trading interval*.
- (a1) If a *Semi-Scheduled Generator* reasonably expects one or more of its *semi-scheduled generating units* to be unable to operate in accordance with *dispatch instructions* in any *trading interval* due to abnormal *plant* conditions or other abnormal operating requirements in respect of that *semi-scheduled generating unit*, it must advise NEMMCO through the PASA process or in its *dispatch offer* in respect of that *semi-scheduled generating unit*, as appropriate under this Chapter, that the *semi-scheduled generating unit* is *inflexible* in that *trading interval* and must specify a maximum *loading level* at or below which the *semi-scheduled generating unit* is to be operated in that *trading interval*.
- (b) Where a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* advises NEMMCO that a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible* in accordance with clause 3.8.19(a) or clause 3.8.19(a1) the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must:
- (1) provide NEMMCO with a brief, verifiable and specific reason why the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible* at the same time as it advises NEMMCO of the *inflexibility*; and
  - (2) provide to the AER, upon written request, in accordance with the guidelines issued by the AER from time to time in accordance with the *Rules consultation procedures* such additional information to substantiate and verify the reason for such *inflexibility* as the AER may require from time to time. The AER must provide information provided to it in accordance with this clause 3.8.19(b)(2) to any *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*.
- (c) Other than in *trading intervals* for which it has been specified by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* in the relevant *dispatch offer* or *dispatch bid* for a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* that the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* is *inflexible*, then NEMMCO will *dispatch* the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* in accordance with the prices and *price bands* specified in the relevant *dispatch offer* or *dispatch bid*.

- (d) In respect of *scheduled loads*, *scheduled generating units* or *semi-scheduled generating units* which are not *slow start generating units*, *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* may provide *NEMMCO*, as part of the *registered bid and offer data* in respect of those *scheduled loads* or *generating units*, with a *dispatch inflexibility profile*.
- (e) A *dispatch inflexibility profile* for a *generating unit* must contain the following parameters to indicate its MW capacity and time related *inflexibilities*:
  - (1) The time, T1, in minutes, following the issue of a *dispatch instruction* by *NEMMCO* to increase its loading from 0 MW, which is required for the *plant* to begin to vary its *dispatch* level from 0 MW in accordance with the instruction;
  - (2) The time, T2, in minutes, that the *plant* requires after T1 (as specified in clause 3.8.19(e)(1)) to reach a specified minimum MW *loading level*;
  - (3) The time, T3, in minutes, that the *plant* requires to be operated at or above its minimum *loading level* before it can be reduced below that level;
  - (4) The time, T4, in minutes, following the issue of a *dispatch instruction* by *NEMMCO* to reduce loading from the minimum *loading level* (specified under clause 3.8.19(e)(2)) to zero, that the *plant* requires to completely comply with that instruction.
  - (5) T1, T2, T3 and T4 must all be equal to or greater than zero.
  - (6) The sum (T1 + T2) must be less than or equal to 30 minutes.
  - (7) The sum (T1 + T2 + T3 + T4) must be less than 60 minutes.
- (e1) A *dispatch inflexibility profile* for a *scheduled load* must contain parameters to indicate its MW capacity and time related *inflexibilities*.
- (f) *NEMMCO* must use reasonable endeavours not to issue a *dispatch instruction* which is inconsistent with a *Scheduled Generator's*, *Semi-Scheduled Generator's* or *Market Participant's dispatch inflexibility profile*.

### 3.8.20 Pre-dispatch schedule

- (a) Each *day*, in accordance with the *timetable*, NEMMCO must prepare and *publish a pre-dispatch schedule* covering each *trading interval* of the period commencing from the next *trading interval* after the current *trading interval* up to and including the final *trading interval* of the last *trading day* for which all valid *dispatch bids* and *dispatch offers* have been received in accordance with the *timetable* and applied by the *pre-dispatch* process.
- (b) The *pre-dispatch* process is to have a resolution of one *trading interval* and no analysis will be made of operations within the *trading interval*, other than to ensure that *contingency capacity reserves* are adequate as set out in Chapter 4.
- (c) NEMMCO must determine the *pre-dispatch schedule* for each *trading interval* on the basis of *dispatch bids*, *dispatch offers* and *market ancillary service offers* submitted for that *trading interval*, NEMMCO's forecast power system load for each *region* for that *trading interval*, NEMMCO's unconstrained intermittent generation forecast for each *semi-scheduled generating unit* for that *trading interval*, and by using a process consistent with the principles for *central dispatch* as set out in clause 3.8.1.
- (d) In determining the *pre-dispatch schedule* NEMMCO shall not take account of any *dispatch inflexibility profile* submitted in accordance with clause 3.8.19.
- (e) Any inputs made to the *pre-dispatch* process by NEMMCO for the purpose of achieving a physically realisable schedule or to satisfy *power system security* requirements must be made prior to release of the *pre-dispatch schedule* and recorded by NEMMCO in a manner suitable for audit.
- (f) The *pre-dispatch schedule* must include the details set out in clause 3.13.4(f).
- (g) Each *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* and *Market Customer* which has classified a *scheduled load* and *Market Participant* (which has classified an *ancillary service generating unit* or *ancillary service load*) must ensure that it is able to *dispatch* its plant as required under the *pre-dispatch schedule* and is responsible for changing inputs to the *central dispatch* process, if necessary to achieve this, via the rebidding provisions under clause 3.8.22.
- (h) The *pre-dispatch schedule* must be re-calculated and the results re-*published* by NEMMCO regularly in accordance with the *timetable*, or more often if a change in circumstances is deemed by NEMMCO to be likely to have a significant effect on the operation of the *market*.
- (i) NEMMCO must fully document the operation of the *pre-dispatch* process, including the principles adopted in making calculations required to be included and all such documentation must be made available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* at a fee to be set by NEMMCO to cover its costs of supplying such documentation.
- (j) The following *pre-dispatch* outputs relating specifically to a *generating unit*, *scheduled network service*, *scheduled load* or *ancillary service load* operated by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must be made available electronically to that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* on a confidential basis:

- (1) the scheduled times of *commitment* and *de-commitment* of individual *slow start generating units*;
  - (2) scheduled half hourly *loading* for each scheduled entity;
  - (3) scheduled provision of *ancillary services*;
  - (4) scheduled *constraints* for the provision of *ancillary services*; and
  - (5) scheduled *constraints* due to *network* limitations.
- (k) Where the *pre-dispatch schedule* may have failed to maximise the joint value of *energy* and *ancillary services pre-dispatch* outputs of a *scheduled generating unit* or *semi-scheduled generating unit*, due to the *scheduled generating unit* or *semi-scheduled generating unit* operating outside its *enablement limit*, *NEMMCO* must notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* operating the *scheduled generating unit* or *semi-scheduled generating unit*, electronically on a confidential basis.

### 3.8.21 On-line dispatch process

- (a) *Dispatch bids and dispatch offers* must be *centrally dispatched* by NEMMCO using the *dispatch algorithm*.
- (a1) A *dispatch interval* is to be five minutes in duration.
- (b) The *dispatch algorithm* is to be run by NEMMCO for each *dispatch interval*. If the *dispatch algorithm* is not successfully run for any *dispatch interval* then the values of the last successful run of the *dispatch algorithm* must be used for that *dispatch interval*.
- (c) *Central dispatch* results in the setting of *dispatch prices* and *ancillary services prices* for each *dispatch interval* and *spot prices* for each *trading interval* in accordance with clause 3.9.
- (d) Where possible, *dispatch instructions* will be issued electronically via the *automatic generation control system* or via an electronic display in the *Scheduled Generator's, Semi-Scheduled Generator's* or *Market Participant's plant control room*. NEMMCO may issue *dispatch instructions* in some other form if in its reasonable opinion the methods described in this clause 3.8.21(d) are not possible.
- (e) A *Scheduled Generator, Semi-Scheduled Generator* or *Market Participant* must ensure it has facilities to receive *dispatch instructions* in the manner described in this clause.
- (f) *Dispatch instructions* that are issued via the *automatic generation control system* are to be issued progressively at intervals of no more than 5 minutes following re-evaluation of *central dispatch* to achieve a prompt and smooth implementation of the outcomes of each *central dispatch* update.
- (g) With the exception of instructions issued by telephone, all *dispatch instructions* and the times at which they are issued are to be logged automatically and *dispatch instructions* that are issued by telephone must be recorded by NEMMCO.
- (h) NEMMCO may modify or override the *dispatch algorithm* outcome in accordance with the requirements of clause 4.8.9 or due to *plant* not conforming to *dispatch instructions* and in such circumstances NEMMCO must record the details of the event and the reasons for its action for audit purposes.
- (i) **[Deleted]**
- (j) If a *scheduled load, scheduled generating unit* or *semi-scheduled generating unit*, in respect of which a *dispatch inflexibility profile* has been notified to NEMMCO in accordance with clause 3.8.19, is *dispatched* from 0 MW in any *dispatch interval* by the *central dispatch* process, then the specified *dispatch inflexibility profile* must be used by NEMMCO as a *constraint* on the *dispatch* of that *plant* for the relevant subsequent *dispatch intervals*.
- (k) A *scheduled load* or *generating unit* whose *dispatch* is *constrained* in any *dispatch interval* due to a *dispatch inflexibility profile* submitted under clause 3.8.19 cannot be used as the basis for setting the *dispatch price* in that *dispatch interval* at any location.
- (l) NEMMCO must fully document the operation of the process described in this clause 3.8.21, including the software, algorithms, and the principles adopted in

making judgments where they are required in the process and all such documentation must be made available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* at a price reflective of costs incurred by *NEMMCO* in providing such documentation.

- (m) Where the *central dispatch* process may have failed to *dispatch* a *scheduled generating unit* or *semi-scheduled generating unit* to maximise the joint value of *energy* and *ancillary services* due to the *scheduled generating unit* or *semi-scheduled generating unit* operating outside its *enablement limit*, *NEMMCO* must notify the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* operating the *scheduled generating unit* or *semi-scheduled generating unit* on a confidential basis.

### 3.8.22 Rebidding

- (a) Prices for each *price band* that are specified in *dispatch bids*, *dispatch offers* and *market ancillary service offers* are firm and no changes to the price for any *price band* are to be accepted under any circumstances.
- (b) Subject to clauses 3.8.22(c) and 3.8.22A, a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may vary its available capacity, daily *energy constraints*, *dispatch inflexibilities* and *ramp rates* of *generating units*, *scheduled network services* and *scheduled loads*, and the *response breakpoints*, *enablement limits* and response limits of *market ancillary services*.
- (c) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must provide:
  - (1) all *rebids* to *NEMMCO* electronically unless otherwise approved by *NEMMCO*;
  - (2) to *NEMMCO*, at the same time as the *rebid* is made:
    - (i) a brief, verifiable and specific reason for the *rebid*; and
    - (ii) the time at which the event(s) or other occurrence(s) adduced by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* as the reason for the *rebid* occurred;
  - (3) to the *AER*, upon written request, in accordance with guidelines published by the *AER* from time to time under this clause 3.8.22 in accordance with the *Rules consultation procedures* such additional information to substantiate and verify the reason for a *rebid* as the *AER* may require from time to time. The *AER* must provide information provided to it in accordance with this clause 3.8.22(c)(3) to any *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* that requests such information, except to the extent that the information can be reasonably claimed to be *confidential information*. The guidelines developed by the *AER* under this clause 3.8.22(c)(3) must include:
    - (i) the amount of detail to be included in the information provided to *NEMMCO* under clause 3.8.22(c)(2); and
    - (ii) procedures for handling claims by *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* in accordance with clause 3.8.22(c)(3) or 3.8.19(b)(2) that information provided to the *AER* by such *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* under those clauses is *confidential information*.

The *AER* must publish the guidelines developed under this clause 3.8.22 and may amend such guidelines from time to time.
- (d) *NEMMCO* must:
  - (1) subject to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* complying with clause 3.8.22(c)(1) and (c)(2)(i) and (ii), accept the *rebid*; and

- (2) *publish*, in accordance with clause 3.13.4(p), the time the *rebid* was made and the reason provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* under clause 3.8.22(c)(2)(i).

### **3.8.22A Variation of offer, bid or rebid**

- (a) *Scheduled Generators, Semi-Scheduled Generators and Market Participants* must make *dispatch offers, dispatch bids and rebids* in good faith.
- (b) In clause 3.8.22A(a) a *dispatch offer, dispatch bid or rebid* is taken to be made in good faith if, at the time of making such an offer, bid or *rebid*, a *Scheduled Generator, Semi-Scheduled Generator or Market Participant* has a genuine intention to honour that offer, bid or *rebid*, if the material conditions and circumstances upon which the offer, bid or *rebid* were based remain unchanged until the relevant *dispatch interval*.
- (c) A *Scheduled Generator, Semi-Scheduled Generator or Market Participant* may be taken to have contravened clause 3.8.22A(a) notwithstanding that, after all the evidence has been considered, the intention of the *Scheduled Generator, Semi-Scheduled Generator or Market Participant* is ascertainable only by inference from the conduct of the *Scheduled Generator, Semi-Scheduled Generator or Market Participant*, or of any other person, or from relevant circumstances.

### 3.8.23 Failure to conform to dispatch instructions

- (a) If a *scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load* fails to respond to a *dispatch instruction* within a tolerable time and accuracy (as determined in *NEMMCO's* reasonable opinion):
- (1) the *scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load* (as the case may be) is to be declared and identified as non-conforming; and
  - (2) the *scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load* (as the case may be) cannot be used as the basis for setting *spot prices*.
  - (3) **[Deleted]**
- (a1) To avoid doubt:
- (1) in a *semi-dispatch interval*, if a *semi-scheduled generating unit's* actual *generation* is less than the *dispatch cap* specified in a *dispatch instruction* at the target time, this does not constitute a *semi-scheduled generating unit* failing to respond to that *dispatch instruction*; and
  - (2) in a *non-semi-dispatch interval*, a *semi-scheduled generating unit* need not respond to a *dispatch instruction* to the extent that the *dispatch instruction* relates to the *semi-scheduled generating unit's* *generation*.
- (b) If a *scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load* is identified as non-conforming under clause 3.8.23(a):
- (1) *NEMMCO* must advise the *Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer* that the *generating unit, scheduled network service or scheduled load* is identified as non-conforming, and request a reason for the non-compliance with the *dispatch instruction*, which reason is to be logged;
  - (2) if in *NEMMCO's* opinion modification of *plant* parameters is necessary or desirable, *NEMMCO* must request the *Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer* to submit modified *plant* parameters to satisfy *NEMMCO* that a realistic real time *dispatch* schedule can be carried out;
  - (3) should a *Scheduled Generator or Semi-Scheduled Generator* fail to meet the requests set out in clauses 3.8.23(b)(1) and (2) or if *NEMMCO* is not satisfied that the *generating unit* will respond to future *dispatch instructions* as required, *NEMMCO* must direct the *generating unit's* output to follow, as far as is practicable, a specified output profile to be determined at its discretion by *NEMMCO*;
  - (4) should a *Scheduled Network Service Provider* fail to meet the requests set out in clauses 3.8.23(b)(1) and (2) or if *NEMMCO* is not satisfied that the *scheduled network service* will respond to future *dispatch instructions* as required, *NEMMCO* must direct the *scheduled network service* to follow, as far as is practicable, a specified transfer profile to be determined at its discretion by *NEMMCO*; and

- (5) should a *Market Customer* not meet the requests set out in clauses 3.8.23(b)(1) and (2) within a reasonable time of the request, or if *NEMMCO* is not satisfied that the *scheduled load* will respond to future *dispatch instructions* as required, *NEMMCO* acting reasonably may invoke a *default dispatch bid* lodged by the relevant *Market Customer* or apply *constraints* as it deems appropriate.
- (c) Until a *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* satisfactorily responds to the requests under clauses 3.8.23(b)(1) and (2) and *NEMMCO* is satisfied that the *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) will respond to future *dispatch instructions* as required, the *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) continues to be non-conforming.
- (d) If a *generating unit*, *scheduled network service* or *scheduled load* (as the case may be) continues to be non-conforming after a reasonable period of time, *NEMMCO* must prepare a report setting out the details of the non-conformance and forward a copy of the report to the *Scheduled Generator*, *Semi-Scheduled Generator*, *Scheduled Network Service Provider* or *Market Customer* (as the case may be) and the *AER*.
- (e) The direction referred to in clauses 3.8.23(b)(3) and (4) must remain in place until the *Scheduled Generator*, *Semi-Scheduled Generator* or *Scheduled Network Service Provider* (whichever is relevant) satisfies *NEMMCO* of rectification of the cause of the non-conformance.
- (f) If an *ancillary service generating unit* or *ancillary service load* is enabled to provide a *market ancillary service* and fails to respond in the manner contemplated by the *market ancillary service specification* (as determined in *NEMMCO*'s reasonable opinion), then:
- (1) the *ancillary service generating unit* or *ancillary service load* is to be declared and identified as non-conforming;
  - (2) *NEMMCO* must advise the relevant *Market Participant* that the *ancillary service generating unit* or *ancillary service load* is identified as non-conforming, and request a reason for the non-conformance. The relevant *Market Participant* must promptly provide a reason if requested to do so, and the reason is to be logged; and
  - (3) *NEMMCO* may set a fixed level for the relevant *ancillary service* (in this clause 3.8.23 called the 'fixed constraint') for the *ancillary service generating unit* or *ancillary service load* and the relevant *Market Participant* must ensure that the *ancillary service generating unit* or *ancillary service load* complies with the fixed constraint set by *NEMMCO*.
- (g) *NEMMCO* must lift the fixed constraint in respect of an *ancillary service generating unit* or *ancillary service load* when *NEMMCO* is reasonably satisfied (as a result of a test or otherwise) that the *ancillary service generating unit* or *ancillary service load* is capable of responding in the manner contemplated by the *market ancillary service specification*.
- (h) In assessing a report of non-conformance with a *dispatch instruction* by a *scheduled load*, the *AER* shall have regard to whether a *default dispatch bid*

had been lodged with *NEMMCO* and was, or could have reasonably been, applied in the circumstances applicable to that *scheduled load*.

### **3.9 Price Determination**

#### **3.9.7 Pricing for constrained on scheduled generating units and semi-scheduled generating units**

- (a) In the event that an *intra-regional network constraint* causes a *scheduled generating unit* or *semi-scheduled generating unit* to be *constrained on* in any *dispatch interval*, that *generating unit* must comply with *dispatch instructions* from *NEMMCO* in accordance with its availability as specified in its *dispatch offer* but may not be taken into account in the determination of the *dispatch price* in that *dispatch interval*.
- (b) A *Scheduled Generator* or *Semi-Scheduled Generator* that is *constrained on* in accordance with clause 3.9.7(a) is not entitled to receive from *NEMMCO* any compensation due to its *dispatch price* being less than its *dispatch offer price*.

## 3.12A **Mandatory restrictions**

### 3.12A.1 **Restriction offers**

- (a) *NEMMCO* must develop, and may vary from time to time, in accordance with the *Rules consultation procedures* a *mandatory restrictions* trading system. The trading system must include:
- (1) procedures for the acquisition by *NEMMCO* of capacity the subject of *restriction offers*;
  - (2) the standard terms and conditions upon which *NEMMCO* shall accept a *restriction offer*;
  - (3) the criteria to be applied by *NEMMCO* in the appointment of an appropriately qualified independent expert for the purposes of clause 3.12A.7(g)(ii); and
  - (4) procedures for the rebidding and *dispatch* of capacity the subject of an *accepted restriction offer*.
- (b) The *restriction offer procedures* must take into account the following principles:
- (1) *NEMMCO* may accept a *restriction offer* for all or part of the capacity of a *scheduled generating unit, semi-scheduled generating unit* or *scheduled network service*, as recorded in the *registered bid and offer data* for that *scheduled generating unit, semi-scheduled generating unit* or *scheduled network service*.
  - (2) *NEMMCO* must use its reasonable endeavours to acquire capacity from valid *restriction offers* or to terminate in whole or part an *accepted restriction offer* in a manner that minimises the estimated *restriction shortfall amount*.
  - (3) *NEMMCO* may at any time terminate an *accepted restriction offer* in whole or in part by providing 4 hours notice to the relevant *Scheduled Generator, Semi-Scheduled Generator* or *Scheduled Network Service Provider* that an *accepted restriction offer* is so terminated.
  - (4) The submission of *restriction offers* must be made in the form and by the means set out in procedures developed and *published* by *NEMMCO* for the purpose of the submission of *restriction offers*.
  - (5) If a *restriction offer* is made in accordance with the *restriction offer procedures*, *NEMMCO* must make available to the parties who submitted the *restriction offer* the following information without delay:
    - (i) acknowledgment of receipt of a valid *restriction offer*; and
    - (ii) notification detailing why a *restriction offer* is invalid, if appropriate.
  - (6) If any details contained within a *restriction offer* are inconsistent with the *registered bid and offer data* provided by the relevant party then *NEMMCO* has the right to reject that *restriction offer* as invalid.
  - (7) A valid *restriction offer* must set out for each *trading interval* of a *trading day*:

- (i) the price offered in \$/MWh or as otherwise permitted by the *restriction offer procedures*; and
  - (ii) MW amount for that *trading interval* being offered.
- (8) *NEMMCO* must only accept *restriction offers* from *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers* with a *connection point* located in the *region* in which *mandatory restrictions* apply or are proposed to apply.
- (c) The standard terms and conditions developed by *NEMMCO* pursuant to clause 3.12A.1(a)(2) must take into account the following principles:
  - (1) All capacity the subject of the *restriction offer* must be available for immediate *dispatch* in the *central dispatch* process at all times.
  - (2) An *accepted restriction offer* is binding and may only be revoked or varied if the *Scheduled Generator*, *Semi-Scheduled Generator* or *Scheduled Network Service Provider* notifies *NEMMCO* in accordance with the *restriction offer procedures* of a revocation or variation. Immediately upon receipt of such notification *NEMMCO* must amend the *accepted restriction offer* to reduce the capacity of the *accepted restriction offer* by the notified capacity. Such capacity must not be *dispatched* by *NEMMCO* pursuant to a *dispatch offer* for such capacity during the remainder of the *trading day* in which the *accepted restriction offer* was revoked or varied in accordance with this clause 3.12.A.1(c) provided that such capacity may be re-offered as a *restriction offer*.
  - (3) A *restriction offer* may be amended or revoked in accordance with the *restriction offer procedures* at any time prior to it becoming an *accepted restriction offer*.

#### **3.12A.4 Rebid of capacity under restriction offers**

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

### 3.12A.5 Dispatch of restriction offers

- (a) In a *dispatch interval* NEMMCO may only *dispatch* the capacity of a *scheduled generating unit, semi-scheduled generating unit or scheduled network service* in accordance with the procedures for the rebidding and *dispatch* of capacity the subject of an *accepted restriction offer* developed by NEMMCO in consultation with *Registered Participants*. Such procedures must as far as reasonably practical incorporate the following principles:
  - (i) *dispatch* of *accepted restriction offers* only after all the capacity of *scheduled loads, scheduled generating units, semi-scheduled generating units and scheduled network services* contained in valid *dispatch offers* and *dispatch bids* have been *dispatched*;
  - (ii) recognise any requirement for advance notice or action for *Generators* to operate at minimum *generation*, provide advance notice to *loads* or obtain capacity of *market network services* that are under *direction* or *reserve contracts*;
  - (iii) be consistent with the price of *accepted restriction offers* in accordance with clause 3.12A.6; and
  - (iv) minimise the *restriction shortfall amount*.
- (b) Notwithstanding the provisions of this clause 3.12A.5, at no time is NEMMCO required to *dispatch* the capacity of a *Scheduled Generator, Semi-Scheduled Generator or Scheduled Network Service Provider* the subject of an *accepted restriction offer* if such *dispatch* would prevent NEMMCO from meeting its obligations for system security.

### 3.12A.7 Determination of funding restriction shortfalls

- (a) *NEMMCO* is entitled to the *trading amount* received by *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers* from the *dispatch* of capacity the subject of an *accepted restriction offer* in accordance with 3.15.10B.
- (b) *NEMMCO* must, as soon as reasonably practicable following the end of a *mandatory restriction period*, calculate:
  - (i) the aggregate amount payable to *NEMMCO* pursuant to clause 3.12A.7(a) from all *accepted restriction offers* in that *mandatory restriction period*;
  - (ii) the aggregate amount payable by *NEMMCO* pursuant to all *accepted restriction offers* in that *mandatory restriction period*; and
  - (iii) the sum of the amount determined under clause 3.12A.7(b)(i) less the amount determined under clause 3.12A.7(b)(ii) (the '*restriction shortfall amount*').
- (b1) The maximum amount payable to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* for any *accepted restriction offer* of that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* during a *mandatory restriction period* is the aggregate of the maximum possible *spot price* for each *trading interval* within the *mandatory restriction period*, being *VoLL* or an *administered price cap* as the case may be, multiplied by the capacity of the *accepted restriction offer* in MWh for each corresponding *trading interval*.
- (c) Notwithstanding any other provisions of the *Rules*, the absolute value of the *restriction shortfall amount* must not exceed the sum of the maximum possible *spot price* for a *trading interval*, being *VoLL* or an *administered price cap* as the case may be, multiplied by the aggregate of the capacity of all *accepted restriction offers* in MWh for that *trading interval* for all *trading intervals* in the *mandatory restriction period*.
- (d) Notwithstanding any other provision of the *Rules*, if the *restriction shortfall amount* is capped pursuant to clause 3.12A.7(c) and the *restriction shortfall amount* calculated pursuant to clause 3.12A.7 is a negative number, then the amount payable by *NEMMCO* pursuant to each *accepted restriction offer* is to be reduced pro-rata until clause 3.12A.7(c) is satisfied.
- (e) If the *restriction shortfall amount* is a negative number, *Market Customers* in the relevant *region* must pay to *NEMMCO* an amount determined in accordance with clause 3.12A.7(f) or 3.12A.7(g).
- (f) If the *restriction shortfall amount* is between minus \$100,000 and \$0, then each *Market Customer* in the relevant *region* must pay to *NEMMCO* an amount determined in accordance with the following formula:

$$MCP = RSA \quad \times \quad \frac{(AGE)}{(AAGE)}$$

Where:

MCP is the amount payable by a *Market Customer* in accordance with this clause 3.12A.7(f).

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh.

(g) If the *restriction shortfall amount* is less than minus \$100,000:

(i) each *Market Customer* in the relevant *region* must pay to *NEMMCO* an amount determined in accordance with the following formula:

$$RCP = (RSA + IE) \times (RD/TRD)$$

Where

RCP is the amount payable to *NEMMCO* by a *Market Customer* in that *region* following the cessation of the *mandatory restriction period*.

RSA is the *restriction shortfall amount* incurred by *NEMMCO* upon the cessation of the *mandatory electricity restriction period*.

RD is the *Market Customer's restriction demand reduction*.

TRD is the sum of RD for all *Market Customers* in the relevant *region*.

IE is the amount of the independent expert's final tax invoice delivered to *NEMMCO* in accordance with clause 3.12A.7(i)(11) plus any amounts payable by *NEMMCO* on behalf of the independent expert as determined by the *dispute resolution panel* established in accordance with clause 3.12A.7(m); and

(ii) *NEMMCO* must within 10 days of the end of a *mandatory restriction period* appoint an appropriately qualified independent expert as *NEMMCO's* agent to determine the *restriction demand reduction* claimed by each *Market Customer* in a *region* for the purposes of clause 3.12A.7(g).

(h) If the *restriction shortfall amount* is a positive number then *NEMMCO* must pay to *Market Customers* in the relevant *region* an amount equal to:

$$RCRP = RSA \times \frac{(AGE)}{(AAGE)}$$

Where:

RCRP is the payment to be made by *NEMMCO* to *Market Customers* pursuant to this clause 3.12A.7.

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh.

(i) When appointing the independent expert under clause 3.12A.7(g), *NEMMCO* must include as part of the independent expert's terms of appointment the following requirements:

(1) The independent expert must prepare a statement of the principles which the independent expert believes should be followed in determining the *restriction demand reduction* of *Market Customers*.

(2) Within 5 *business days* of his or her appointment, the independent expert must provide *NEMMCO* with details of his or her estimated fees and costs.

(3) Within 5 *business days* of his or her appointment, the independent expert must provide the statement prepared under clause 3.12A.7(i)(1) to all *Market Customers* in the relevant *region* and request that each *Market Customer* in the relevant *region* provide him or her with details of the *restriction demand reduction* claimed by that *Market Customer* and such additional information specified by the independent expert to fulfil its obligations.

(4) The independent expert must offer to meet with and consult each *Market Customer* who may be liable to make a payment to *NEMMCO* pursuant to clause 3.12A.7(g).

(5) The independent expert must within 30 *business days* of his or her appointment or such later date as approved by *NEMMCO* in its sole discretion:

(i) *publish* a draft report; and

(ii) provide each *Market Customer* in the relevant *region* with a draft statement.

(6) The draft report must contain:

(i) the *restriction shortfall amount* based upon the independent expert's estimated fees and costs; and

(ii) the methodology used by the independent expert in determining the *restriction demand reduction* of each *Market Customer* in a *region*.

The draft report must not contain details pertaining to individual *Market Customers*.

(7) A draft statement provided to a *Market Customer* must contain:

(i) the *Market Customer's restriction demand reduction* as determined by the independent expert;

(ii) the estimated amount payable by that *Market Customer* under clause 3.12A.7(g), based upon the independent experts estimated fees and costs; and

- (iii) information showing how the estimated amount referred to in clause 3.12A.7(i)(7)(ii) was calculated.
- (8) The independent expert must within 50 *business days* of his or her appointment or such later date as approved by *NEMMCO* in its sole discretion make any necessary amendments to his or her draft report and draft statements following consultation with *Market Customers*, and:
  - (i) *publish* his or her final report; and
  - (ii) provide each *Market Customer* in the relevant *region* with a final statement.
- (9) The independent expert's final report must contain the information set out in clause 3.12A.7(i)(6).
- (10) A final statement provided to a *Market Customer* by the independent expert must contain the information set out in clause 3.12A.7(i)(7).
- (11) The independent expert must provide *NEMMCO* with his or her final tax invoice for services rendered at the time of publication of the final report.
- (i1) Each *Market Customer* must within 10 *business days* of the independent expert requesting information in accordance with clause 3.12A.7(i)(3) deliver to the independent expert all such information.
- (i2) The independent expert may request a *Market Customer* to provide further information that he or she requires to prepare either the draft or final report or a draft or final statement within 5 *business days* of the request being made.
- (j) A *Market Customer* must not unreasonably withhold information sought by the independent expert and must use its reasonable endeavours to provide the independent expert with the information required within the relevant timeframe specified in this clause 3.12A.7.
- (k) If a *Market Customer* has not provided the independent expert with information required under this clause 3.12A.7 within the specified time period, then the independent expert is entitled to make such assumptions concerning that information as he or she thinks appropriate.
- (l) Subject to the review process specified in clause 3.12A.7(m), a determination made by an independent expert appointed under clause 3.12A.7(g) binds all *Market Customers*.
- (m) Following the publication of the independent expert's final report, a *Market Customer* may request the *Adviser* to establish a *dispute resolution panel* to redetermine that *Market Customer's restriction demand reduction* only if the *Market Customer* reasonably believes that the independent expert's determination:
  - (1) has incorrectly assessed the *restriction demand reduction* of that *Market Customer* by more than 10%; or
  - (2) was made negligently or in bad faith.
- (n) The determination of a *dispute resolution panel* established under clause 3.12A.7(m):
  - (1) binds all *Market Customers* and each *Market Customer* must comply with a determination of the *dispute resolution panel*; and

- (2) may only order reimbursement of the reasonable fees and expenses incurred by a *Market Customer* in disputing the independent expert's determination and no other amounts.
- (o) Any amounts determined by the *dispute resolution panel* as payable by *NEMMCO* on behalf of the independent expert for the reasonable fees and expenses incurred by a *Market Customer* in disputing the independent expert's determination must be included on the next statement provided under clauses 3.15.14 and 3.15.15.

### 3.12A.9 Review by AEMC

- (a) The *AEMC* must, in accordance with clause 3.12A.9(b), conduct a review of the operation of the provisions applicable to *mandatory restrictions* including:
  - (1) the integration of *restriction offers* and *mandatory restrictions* into the *market*; and
  - (2) any other matters which the *AEMC* reasonably believes are relevant to the operation of clauses 3.12A.1 to 3.12A.8 and clause 3.15.10B.
- (b) The review conducted by the *AEMC* in accordance with clause 3.12A.9(a) must:
  - (1) include an analysis of:
    - (i) the accuracy of the forecast demand reduction due to restrictions and the impact any error had on the resulting *spot price*;
    - (ii) whether the impact on the *spot price* resulting from an error in the forecast demand reduction due to restrictions adversely affects one group of *Scheduled Generators*, *Semi-Scheduled Generators* or *Market Participants* over another group;
    - (iii) the *restriction offer* prices for contracts accepted by *NEMMCO* in meeting the *mandatory restriction schedule* including a comparison with the expected revenue the capacity subject to the *restriction offer* would have earned in the *spot market* taking into account the circumstances in which *restriction offers* were made;
  - (2) be conducted in accordance with the *Rules consultation procedures*; and
  - (3) commence following the first application of the *mandatory restrictions* where the estimated effect in MW of *mandatory restrictions* on a *region's* demand met or exceeded 10% of that *region's* estimated demand for the same period.
- (c) **[Deleted]**

### **3.13 Market Information**

#### **3.13.1 Provision of information**

- (a) In addition to any specific obligation or power of *NEMMCO* under the *Rules* to provide information, *NEMMCO* must make available to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* on request any information concerning the operation of the *market* not defined by the *AEMC* or the *Rules* as confidential or commercially sensitive and may charge a fee reflecting the cost of providing any information under this clause 3.13.1(a).
- (b) *NEMMCO* must make information available to the public on request in respect of the *regional reference price* at any *regional reference node* and, where requested and available, reasons for any significant movements in prices.

### 3.13.2 Systems and procedures

- (a) Information must be provided to *NEMMCO* and by *NEMMCO* on the *electronic communication system* unless otherwise approved by *NEMMCO*. In circumstances where the *electronic communication system* is partially or wholly unavailable then information will, to the extent of that unavailability, be provided to *NEMMCO* and by *NEMMCO* by means of the backup procedures specified by *NEMMCO* from time to time.
- (b) Information must be provided by using the templates supplied in the *electronic communication system* unless otherwise approved by *NEMMCO*.
- (c) Where approved by *NEMMCO*, information may be transmitted to and from *NEMMCO* and the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* concerned in any agreed format.
- (d) If possible, information provided to *NEMMCO* must be *time stamped* by *NEMMCO* on receipt by *NEMMCO* of the information by the *electronic communication system* and, if stamped, is deemed to be provided at the time indicated by the *time stamp*.
- (e) Information that is *published* by *NEMMCO* is deemed to be *published* when the information is placed on the *market information bulletin board*.
- (f) The *market information bulletin board* must be accessible by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* via the *electronic communication system* subject to applicable security requirements.
- (g) Information *published* or notified to a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* must be capable of being reviewed by that *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* and be capable of being downloaded from the *market information bulletin board* to the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* via the *electronic communication system*.
- (h) All *Scheduled Generators*, *Semi-Scheduled Generator* and *Market Participants* must notify *NEMMCO* of, and *NEMMCO* must *publish*, any *changes* to submitted information within the times prescribed in the *timetable*.
- (i) *NEMMCO* must make a copy of all *changes* to the data available to each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* for verification and resubmission by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* as necessary.
- (j) All revisions must be provided on the *electronic communication system* and in the same format as the original information.
- (k) A *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* may withhold information from *NEMMCO* which must otherwise be provided under the *Rules* if:
  - (1) the information is of a confidential or commercially-sensitive nature and is not information of a kind that, in the reasonable opinion of the *AEMC*, is fundamental to the efficient operation of the *market*; or
  - (2) disclosure of the information would have the likely effect of causing detriment to the person required to provide it unless, in the reasonable

opinion of the *AEMC*, the public benefit resulting from the provision of the information outweighs that detriment.

- (l) **[Deleted]**
- (m) Nothing in clause 3.13.2(k) allows a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* to avoid providing information to *NEMMCO* under the *Rules* where that information is generally available.

### 3.13.3 Standing data

- (a) *NEMMCO* must establish, maintain, update and *publish*:
  - (1) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* and a list of all applications to become a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*, including the *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* information as set out in schedule 3.1;
  - (2) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* who will cease to be *Scheduled Generators*, *Semi-Scheduled Generator* or *Market Participants* and the time that each listed *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* will cease to be a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant*;
  - (3) a list of all of the *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* who are or are going to be suspended and the time at which each listed *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* was suspended or will be suspended.
- (b) All *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must provide *NEMMCO* with the *registered bid and offer data* relevant to their *scheduled loads*, *scheduled network services* and *generating units* in accordance with schedule 3.1.
- (c) All *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* will be required to provide *NEMMCO* with information as set out below:
  - (1) forecasts for *connection points* as prescribed in clause 5.6.1; and
  - (2) *metering* information for *settlements* purposes as prescribed in Chapter 7.
- (d) *Network Service Providers* are to maintain a register of data provided by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* for planning and design purposes in accordance with schedule 5.7 of Chapter 5 and are to provide a copy of this register of data to *NEMMCO* on request and in a form specified by *NEMMCO*.
- (e) *Network Service Providers* must, without delay, notify and provide *NEMMCO* with details of any additions or *changes* to the register of data described in clause 3.13.3(d).
- (f) Each year, by a date to be specified by *NEMMCO*, *Network Service Providers* must provide *NEMMCO* with the following information:
  - (1) expected *network capability* under normal, *outage* and emergency conditions;
  - (2) electrical data sufficient to allow *power system* modelling under steady state and dynamic conditions, this data to be made available in hard copy and an acceptable industry standard electronic format approved by *NEMMCO*; and
  - (3) operating procedures and practices for *network* operation and maintenance.

- (g) *Network Service Providers* must notify *NEMMCO* of any *changes* to the information provided under clause 3.13.3(f) as soon as practicable.
- (h) *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants* must notify *NEMMCO* of any *changes* to *registered bid and offer data* one month prior to the implementation of *planned changes* and without unreasonable delay in the event of *unplanned changes*.
- (i) *Network Service Providers* must notify *NEMMCO* of any *changes* or additions to technical data one month prior to the implementation of *planned changes* and without unreasonable delay in the event of *unplanned changes*.
- (j) *NEMMCO* must conduct an annual review of *Scheduled Generator, Semi-Scheduled Generator* and *Market Participant registered bid and offer data* in consultation with *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants* and *Scheduled Generators, Semi-Scheduled Generators* and *Market Participants* must advise *NEMMCO* of any required *changes* to the data.
- (k) Subject to the requirements relating to disclosure of information under clause 5.3.8(a), a *Registered Participant* may request from *NEMMCO*:
  - (1) *registered bid and offer data*;
  - (2) information that is reasonably required by the *Registered Participant* to carry out *power system* studies (including load flow and dynamic simulations) for planning and operational purposes including:
    - (i) historical information relating to the operating conditions of the *power system* that is not *confidential information*;
    - (ii) information and data provided to *NEMMCO* under paragraphs (f)(1), (f)(3) and (g); and
    - (iii) details of the shared *transmission* and *distribution network* impedance data and other technical data as listed in schedules 5.5.3 and 5.5.4; and
  - (3) operation and maintenance procedures and practices for *transmission network* or *distribution network* operation, developed for the purposes of schedule 5.1 sufficient to enable the *Registered Participant* to carry out *power system* modelling under normal, *outage* and emergency conditions.
- (l) Where *NEMMCO* holds information requested under paragraph (k), it must be provided to the *Registered Participant* as soon as practicable.
- (m) Where special approvals or exemptions have been granted by *NEMMCO*, including approval to aggregate *generating units, market network services, loads* for *central dispatch*, or exemptions from *central dispatch*, details of such special arrangements must be *published* by *NEMMCO*.
- (n) *NEMMCO* must determine and *publish intra-regional loss factors* in accordance with clause 3.6.2 by 1 April each year and whenever changes occur.
- (o) *Network Service Providers* must advise *NEMMCO* of their *distribution loss factors*, duly authorised by the appropriate *Jurisdictional Regulator*, and

*NEMMCO* must *publish* such *distribution loss factors* in accordance with clause 3.6.3(i).

- (p) *NEMMCO* must *publish* on a quarterly basis details of:
- (1) *interconnector* transfer capability; and
  - (2) the discrepancy between *interconnector* transfer capability and the capacity of the relevant *interconnector* in the absence of *outages* on the relevant *interconnector* only,

for each day of the preceding quarter for all *interconnectors*.

### **Statement of opportunities**

- (q) By 31 October in each year, *NEMMCO* must prepare and *publish* at a reasonable charge to cover the cost of production, a *statement of opportunities*, including at least the following information for the subsequent 10 year period:
- (1) projections of aggregate MW demand and *energy* requirements for each *region*;
  - (2) generating capabilities of existing *generating units* and *generating units* for which formal commitments have been made for construction or installation;
  - (3) planned *plant* retirements;
  - (4) a summary of *network capabilities* and *constraints* based upon *Annual Planning Reports*; and
  - (5) operational and economic information about the *market* to assist planning by:
    - (i) *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*; and
    - (ii) potential *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*.
- (r) If after the publication of the most recent *statement of opportunities*, significant new information becomes available to *NEMMCO* relating to:
- (1) the matters covered by paragraphs (q)(1),(2) and (3); or
  - (2) the matters covered by clause 5.6.5(c)(8) and (9),
- NEMMCO* must, as soon as practicable, *publish* that information in a descriptive form that is consistent with the *statement of opportunities*.
- (s) In preparing a *statement of opportunities* *NEMMCO* may seek the assistance of the *Inter-regional Planning Committee*.
- (t) As soon as practicable after a *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Participant* or *Network Service Provider* becomes aware of any information required for *publication* by *NEMMCO* under paragraph (q), that information must be provided to *NEMMCO* by that *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Participant* or *Network Service Provider*.

### 3.13.4 Spot market

- (a) Each week, in accordance with the *timetable*, NEMMCO must *publish* details of the outcome of the *medium term PASA*.
- (b) The details to be *published* by NEMMCO under clause 3.13.4(a) must include the information specified in clause 3.7.2(f).
- (c) Each *day*, in accordance with the *timetable*, NEMMCO must *publish* details of the outcome of the *short term PASA* for each *trading interval* covered.
- (d) The details of the *short term PASA published* each *day* by NEMMCO under clause 3.13.4(c) must include the information specified in clause 3.7.3(h).
- (e) Each *day*, in accordance with the *timetable*, NEMMCO must *publish* a half hourly *pre-dispatch schedule* for the period described in clause 3.8.20(a).
- (f) Details of the *pre-dispatch schedule* to be *published* must include the following for each *trading interval* in the period covered:
  - (1) forecasts of the most probable peak *power system load* plus required *reserve* for each *region* and for the total *power system*;
  - (2) forecasts of the most probable *energy* consumption for each *region* and for the total *power system*;
  - (3) forecast *inter-regional loss factors*;
  - (4) aggregate *generating plant* availability for each *region* and aggregate availability of each type of *market ancillary service* for each *region*;
  - (5) projected *supply* surpluses and deficits for each *region*, including shortages of *reserve* and projected *market ancillary service* surpluses and deficits for each *region*;
- (5A) the aggregated MW allowance (if any) made by NEMMCO for generation from *non-scheduled generating systems* in each forecast:
  - (i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);
  - (ii) referred to in clause 3.13.4(f)(2);
  - (iii) of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and
  - (iv) of projected *supply* surpluses and deficits referred to in clause 3.13.4(f)(5) but not including shortages of *reserve* or projected *market ancillary service* surpluses and deficits for each *region*.
- (5B) in respect of each forecast:
  - (i) of the most probable peak *power system load* referred to in clause 3.13.4(f)(1);
  - (ii) referred to in clause 3.13.4(f)(2);
  - (iii) of aggregate *generating plant* availability referred to in clause 3.13.4(f)(4); and

- (iv) of projected *supply* surpluses and deficits referred to in clause 3.13.4(f)(5) but not including shortages of *reserve* or projected *market ancillary service* surpluses and deficits for each *region*,  
a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.13.4(f)(5A); and
- (6) identification and quantification of:
  - (i) when and where the projected conditions are found to be inadequate;
  - (ii) any *trading intervals* for which *low reserve* or *lack of reserve* conditions are forecast to apply;
  - (iii) where a projected *supply* deficit in one *region* can be supplemented by a surplus in a neighbouring *region* (dependent on forecast *interconnector* capacities) and the expected *interconnector flow*;
  - (iv) forecast *interconnector* transfer capabilities and the projected impact of any *inter-network tests* on those transfer capabilities; and
  - (v) when and where *network constraints* may become binding on the *dispatch* of *generation* or *load*.
- (g) Each *day*, in accordance with the *timetable*, *NEMMCO* must *publish* forecasts of *spot prices* and *ancillary service prices* at each *regional reference node* for each *trading interval* or *dispatch interval* (as applicable) of the period described in clause 3.8.20(a), with such forecasts being based on the *pre-dispatch schedule* information.
- (h) Together with its forecast *spot prices*, *NEMMCO* must *publish* details of the expected sensitivity of the forecast *spot prices* to changes in the forecast *load* or *generating unit* availability.
- (i) In accordance with the *timetable* or more often if there is a *change* in circumstances which in the opinion of *NEMMCO* results in a significant *change* in forecast *spot price*, or in any event no more than 3 hours after the previous such publication, *NEMMCO* must prepare and *publish* updated *pre-dispatch schedules* and *spot price forecasts*, including the details specified in clause 3.13.4(f).
- (j) If *NEMMCO* considers there to be a significant change in a forecast *spot price*, *NEMMCO* must identify and *publish* the cause of such a change in terms of the aggregate *supply* and demand situation and any *network constraints* in or between the affected *region(s)*.
- (k) *NEMMCO* must specify and *publish* its criteria for a significant change in forecast *spot price* for the purposes of activating an update in the *published* forecasts.
- (k1) In accordance with the *timetable* or no more than 3 hours after the last such notification, *NEMMCO* must notify electronically on a confidential basis each *Semi-Scheduled Generator* of the *unconstrained intermittent generation forecast* data used for the last *pre-dispatch schedule* published by *NEMMCO* under clause 3.13.4(e) and relating specifically to the *Semi-Scheduled Generator's semi-scheduled generating units*.

- (l) Within 5 minutes of each time *NEMMCO* runs the *dispatch algorithm*, *NEMMCO* must *publish* the *dispatch price* for each *regional reference node* calculated in accordance with clause 3.9.2 and the *ancillary service price* for each *market ancillary service* for each *regional reference node* calculated in accordance with clause 3.9.2A.
- (m) Within 5 minutes of the conclusion of each *trading interval*, *NEMMCO* must *publish* the *regional reference prices* for each *region* for that *trading interval*.
- (n) Each *day*, in accordance with the *timetable*, *NEMMCO* must *publish* the actual *regional reference prices*, *ancillary service prices*, *regional* and *total interconnected system loads and energies*, *inter-regional flows*, *inter-regional loss factors* and details of any *network constraints* for each *trading interval* in the previous *trading day*.
- (o) Within 2 *business days* of an event whereby a *scheduled generating unit* or *semi-scheduled generating unit* has been *constrained off* or *constrained on* in the *central dispatch* by a *network constraint* within its own *region*, *NEMMCO* must advise the *Scheduled Generator* or *Semi-Scheduled Generator* and the *Network Service Provider*, with whom the relevant *Scheduled Generator* or *Semi-Scheduled Generator* has a *connection agreement* in respect of that *scheduled generating unit* or *semi-scheduled generating unit*, of the following information:
  - (1) the *dispatch intervals* in which the *constraint* applied; and
  - (2) *NEMMCO's* reasonable estimate of the MW quantities at which the *scheduled generating unit* or *semi-scheduled generating unit* would otherwise have been *dispatched* in each relevant *trading interval* in accordance with its *dispatch offer* and in the absence of the *network constraint*.
- (p) Each *day*, in accordance with the *timetable*, *NEMMCO* must *publish* details of final *dispatch offers*, *dispatch bids* and *market ancillary service offers* received and actual availabilities of *generating units*, *scheduled network services*, *scheduled loads* and *market ancillary services* for the previous *trading day*, including:
  - (1) the number and times at which *rebids* were made, and the reason provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* for each *rebid* under clause 3.8.22(c)(2).
  - (2) identification of the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* submitting the *dispatch bid*, *dispatch offer* or *market ancillary offer*;
  - (3) the *dispatch bid* or *dispatch offer prices*;
  - (4) quantities for each *trading interval*;
  - (5) the *ramp rate* of each *generating unit*, *scheduled load* and *scheduled network service* as measured by *NEMMCO's* telemetry system; and
  - (6) identification of *trading intervals* for which the *plant* was specified as being *inflexible* in accordance with clause 3.8.19 and the reasons provided by the *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* in accordance with clause 3.8.19(b)(1).

- (q) Each *day*, in accordance with the *timetable*, NEMMCO must *publish* details of actual *generation*, *dispatched generation*, *dispatched network service* or *dispatched load* for each *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* and *scheduled load*, respectively, and *unconstrained intermittent generation forecast* data for each *semi-scheduled generating unit* and as *regional totals*, in each *trading interval* for the previous *trading day*.
- (r) Each *day*, in accordance with the *timetable*, NEMMCO must publish details of actual *generation* for each *non-scheduled generating unit* or *non-scheduled generating system*, in each *trading interval* for the previous *trading day*.
- (s) Where NEMMCO *publishes* details as referred to in clause 3.13.4(r), the requirement to *publish* applies only to data available to NEMMCO.
- (t) NEMMCO may, in *publishing* the details referred to in clause 3.13.4(s), *publish* aggregated information of actual *generation* for *non-scheduled generating units* or *non-scheduled generating systems* that have a *nameplate rating* that is less than 30 MW.
- (u) Each time NEMMCO runs the *dispatch algorithm* it must, within 5 minutes, *publish* for the relevant *dispatch interval*:
  - (1) details of any MW allowance made by NEMMCO for *generation* from *non-scheduled generating systems* in its forecast regional demand;
  - (2) for each *regional reference node* the sum of the actual *generation* for each *non-scheduled generating unit* or *non-scheduled generating system*; and
  - (3) for each *regional reference node*, a value that is the sum of the *regional demand* value used by NEMMCO in its *dispatch algorithm* to calculate the *dispatch price* referred to in clause 3.13.4(1) and the sum of the actual *generation* referred to in clause 3.13.4(u)(2).
- (v) Where NEMMCO *publishes* the information referred to in clause 3.13.4(u), the requirement for NEMMCO to *publish* applies only to data available to NEMMCO.
- (w) Each *day*, in accordance with the *timetable*, NEMMCO must *publish* details of any operational irregularities arising on the previous *trading day* including, for example, any circumstances in which there was *prima facie* evidence of a failure to follow *dispatch instructions*.
- (x) Each *trading interval*, NEMMCO must, for each *regional reference node*, *publish* the demand for that *trading interval*, both inclusive and exclusive of the aggregate actual *generation* from *non-scheduled generating systems*.

### 3.13.7 Monitoring of significant variation between forecast and actual prices by AER

- (a) The *AER* must, after consulting with the *AEMC*, specify and make available to *Registered Participants* and the public, criteria which the *AER* will use to determine whether there is a significant variation between the *spot price forecast* published by *NEMMCO* in accordance with clause 3.13.4 and the actual *spot price* in any *trading interval*. The *AER* must, in accordance with these criteria, monitor in each *trading interval* whether any such significant variation has occurred.
- (b) The *AER* must prepare and publish a report in respect of each three month period commencing on 1 January, 1 April, 1 July and 1 October in each year. The report must:
  - (1) be published no later than 4 weeks after the end of each three month period;
  - (2) identify and review each occasion when, in accordance with the criteria specified under clause 3.13.7(a), the *AER* considers that a significant price variation has occurred;
  - (3) state why the *AER* considers that the significant price variation occurred;
  - (4) be available to members of the public on request; and
  - (5) be provided to the *AEMC*.
- (c) The *ACCC* or the *AEMC* may request the *AER* to report to it on a particular *market* outcome. If the *ACCC* or the *AEMC* makes a request of this type, the *AER* may provide a report on that *market* outcome. The report must review the *market* outcome raised by the *ACCC* or the *AEMC* (as the case may be) and state why the *AER* considers that the *market* outcome occurred.
- (d) The *AER* must, within 20 *business days* of the end of a week in which the *spot price* exceeded \$5,000/MWh in a *trading interval* or *trading intervals*, prepare and *publish* a report which must for each *trading interval* in which the *spot price* exceeded \$5,000/MWh in that week:
  - (1) describe the significant factors that contributed to the *spot price* exceeding \$5,000/MWh, including the withdrawal of *generation* capacity and *network* availability;
  - (2) assess whether *rebidding* pursuant to clause 3.8.22 contributed to the *spot price* exceeding \$5,000/MWh; and
  - (3) identify the marginal *scheduled generating units* and *semi-scheduled generating units* for the *dispatch intervals* in the relevant *trading interval* and all *scheduled generating units* and *semi-scheduled generating units* for which any *dispatch offer* for the *trading interval* was equal to or greater than \$5,000/MWh and compare these *dispatch offers* to relevant *dispatch offers* in previous *trading intervals*.
- (e) Where
  - (1) prices at a *regional reference node* for a *market ancillary service* over a period significantly exceed the relevant *spot price* for *energy*; and

- (2) prices for that *market ancillary service* exceed \$5,000 for a number of *trading intervals* within that period,

the *AER* must prepare and publish a report which:

- (3) describes the significant factors that contributed to the *market ancillary service* prices exceeding \$5,000/MWh;
- (4) identifies any linkages between *spot prices* in the *energy market* and *market ancillary service* prices contributing to the occurrence; and
- (5) assesses whether *rebidding* pursuant to clause 3.8.22 contributed to prices exceeding \$5,000/Mwh.

### **3.14 Administered Price Cap and Market Suspension**

#### **3.14.6 Compensation due to the application of an administered price, VoLL or market floor price**

- (a) *Scheduled Generators* and *Semi-Scheduled Generators* may claim compensation from *NEMMCO* in respect of *scheduled generating units* or *semi-scheduled generating units* if, due to the application of an *administered price cap* during either an *administered price period* or *market suspension*, the resultant *spot price* payable to *dispatched generating units* in any *trading interval* is less than the price specified in their *dispatch offer* for that *trading interval*.
- (a1) A *Scheduled Network Service Provider* may claim compensation from *NEMMCO* in respect of a *scheduled network service* if, due to the application of an *administered price cap*, *VoLL*, the *market floor price* or an *administered price floor*, the resultant revenue receivable in respect of *dispatched network services* in any *trading interval* is less than the minimum requirement specified by its *network dispatch offer* for that *trading interval*.
- (a2) A *Market Participant* which submitted a *dispatch bid* may claim compensation from *NEMMCO* in respect of a *scheduled load* if, due to the application of an *administered price floor* during either an *administered price period* or *market suspension*, the resultant *spot price* in any *trading interval* is greater than the price specified in the *dispatch bid* for that *trading interval*.
- (a3) In respect of an *ancillary service generating unit* or an *ancillary service load*, a *Market Participant* may claim compensation from *NEMMCO* if, due to the application of an *administered price cap*, the resultant *ancillary service price* for that *ancillary service generating unit* or *ancillary service load* in any *dispatch interval* is less than the price specified in the relevant *market ancillary service offer*.
- (b) Notification of an intent to make a claim under clause 3.14.6(a), 3.14.6(a1), 3.14.6(a2) or 3.14.6(a3) must be submitted to both *NEMMCO* and the *AEMC* within 2 *business days* of the *trading interval* in which *dispatch prices* were adjusted in accordance with clause 3.9.5 or notification by *NEMMCO* that an *administered price period* or period of *market suspension* has ended.
- (c) The *AEMC* must determine whether it is appropriate in all the circumstances for compensation to be payable by *NEMMCO* and, if so, the *AEMC* must determine an appropriate amount of compensation.
- (d) Before making a determination, the *AEMC* must request the *Adviser* to establish a three member panel from the group of persons referred to in clause 8.2.2(e) to make recommendations on the matters to be determined by the *AEMC*.
- (e) The panel must conduct itself on the same basis as a *DRP* under clauses 8.2.6A to 8.2.6D and make its recommendations within the period specified for the making of a determination under clause 8.2.6D(b). The panel must base its recommendations on its assessment of a fair and reasonable amount of compensation taking into account:
  - (1) all the surrounding circumstances;

- (2) the actions of any relevant *Registered Participants* and *NEMMCO*;
  - (3) in the case of a claim by a *Scheduled Generator* or *Semi-Scheduled Generator*, the difference between the *spot price* applicable due to the application of the *administered price cap* and the price specified by the *Scheduled Generator* or *Semi-Scheduled Generator* in its *dispatch offer*;
  - (4) in the case of a claim by a *Scheduled Network Service Provider*, the difference between the revenue receivable by the *Scheduled Network Service Provider* for the *dispatched network services* as the result of the application of the *administered price cap*, *VoLL* or an *administered price floor* and the minimum revenue requirement specified in its *network dispatch offer*;
  - (5) in the case of a *Market Participant* which submitted a *dispatch bid*, the difference between the *spot price* applicable due to the application of the *administered price floor* and the price specified by the *Market Participant* in its *dispatch bid*;
  - (6) in the case of a claim in respect of an *ancillary service generating unit*, the difference between the *ancillary service price* applicable due to the application of the *administered price cap* and the price specified by the *ancillary service generating unit* in its *market ancillary service offer*; and
  - (7) in the case of a claim in respect of an *ancillary service generating unit*, the difference between the *ancillary service price* applicable due to the application of the *administered price floor* and the price specified by the *ancillary service load* in its *market ancillary service offer*.
- (f) [Deleted]

### 3.15 Settlements

#### 3.15.6A Ancillary service transactions

- (a) In each *trading interval*, in relation to each *enabled ancillary service generating unit* or *enabled ancillary service load*, an ancillary services transaction occurs, which results in a *trading amount* for the relevant *Market Participant* determined in accordance with the following formula:

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

where:

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

EA (in MW) = the amount of the relevant *market ancillary service* which the *ancillary service generating unit* or *ancillary service load* has been *enabled* to provide in the *dispatch interval*; and

ASP (in \$ per MW per hour) = the *ancillary service price* for the *market ancillary service* for the *dispatch interval* for the *region* in which the *ancillary service generating unit* or *ancillary service load* has been *enabled*.

- (b) In each *trading interval*, in relation to each *Market Participant* which provides *non-market ancillary services* under an *ancillary services agreement*, an ancillary services transaction occurs, which results in a *trading amount* for the relevant *Market Participant* determined in accordance with that agreement.
- (c) 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:

$$TA = TNCASP \times \frac{TCE}{ATCE} \times -1$$

where:

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

TNCASP (in \$) = all amounts payable by *NEMMCO* in respect of the *trading interval* under *ancillary services agreements* in respect of the provision of *NCAS*;

TCE (in MWh) = the *customer energy* for the *Market Customer* for the *trading interval*; and

ATCE (in MWh) = the aggregate *customer energy* figures for all *Market Customers* for the *trading interval*.

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

$$TA = \frac{TSRP}{2} \times \frac{TGE}{ATGE} \times -1$$

where:

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

TSRP (in \$) = the total of all amounts payable by *NEMMCO* in respect of the *trading interval* under *ancillary services agreements* in respect of the provision of *system restart ancillary services*;

TGE (in MWh) = the *generator energy* for the *Market Generator* for the *trading interval*; and

ATGE (in MWh) = the aggregate of the *generator energy* figures for all *Market Generators* for the *trading interval*.

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

$$TA = \frac{TSRP}{2} \times \frac{TCE}{ATCE} \times -1$$

where:

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

TSRP (in \$) = has the meaning given in clause 3.15.6A(d);

TCE (in MWh) = the *customer energy* for the *Market Customer* for the *trading interval*; and

ATCE (in MWh) = the aggregate of the *customer energy* figures for all *Market Customers* for the *trading interval*.

- (f) The total amount calculated by *NEMMCO* under clause 3.15.6A(a) for each of the *fast raise service*, *slow raise service* or *delayed raise service* in respect of each *dispatch interval* which falls within the *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *NEMMCO* must:

- (1) allocate for each *region* and for each *dispatch interval* within the relevant *trading interval* the proportion of the total amount calculated by *NEMMCO* 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 requirements pro-rata to the respective marginal prices for each such service;*

- (2) calculate for each relevant *dispatch 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 ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(f)(1); and
- (3) allocate for each relevant *dispatch interval* the sum of the costs of the *global market ancillary service requirement* and each *local 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* in each *region* during the *trading interval*.

For the purpose of this clause 3.15.6A(f) *RTCRSP* is the sum of:

- (i) the *global market ancillary service requirement* cost for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3); and
- (ii) all *local market ancillary service requirement* costs for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(f)(3).

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

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

where:

- |                |   |  |
|----------------|---|--|
| TA (in \$)     | = | the <i>trading amount</i> to be determined (which is a negative number);   |
| RTCRSP (in \$) | = | the total of all amounts calculated by <i>NEMMCO</i> as appropriate to recover from the given <i>region</i> as calculated in this clause 3.15.6A(f) for the <i>fast raise service, slow raise service or delayed raise service</i> in respect of <i>dispatch intervals</i> which fall in the <i>trading interval</i> ; |
| TGE (in MWh)   | = | the <i>generator energy</i> figures for the <i>Market Generator</i> in that <i>region</i> for the <i>trading interval</i> ; and  |
| RATGE (in MWh) | = | the aggregate of the <i>generator energy</i> figures for all <i>Market Generators</i> in that <i>region</i> for the <i>trading interval</i> .  |

- (g) The total amount calculated by *NEMMCO* under clause 3.15.6A(a) for each of the *fast lower service*, *slow lower service* or *delayed lower service* in respect of each *dispatch interval* which falls within the *trading interval* must be allocated to each *region* in accordance with the following procedure and the information provided under clause 3.9.2A(b). *NEMMCO* must:
- (1) allocate for each *region* and for each *dispatch interval* within the relevant *trading interval* the proportion of the total amount calculated by *NEMMCO* 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 requirements* pro rata to the respective marginal prices of each such service;
  - (2) calculate for each relevant *dispatch 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 ancillary service requirement* for all *regions*, as determined pursuant to clause 3.15.6A(g)(1); and
  - (3) allocate for each relevant *dispatch interval* the sum of the costs of the *global market ancillary service requirement* and each *local ancillary service requirement* calculated in clause 3.15.6A(g)(2) to each *region* as relevant to that requirement pro-rata to the aggregate of the *customer energy* figures for all *Market Customers* in each *region* during the *trading interval*.

For the purpose of this clause 3.15.6A(g) *RTCLSP* is the sum of:

- (i) the *global market ancillary service requirement* cost for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3); and
- (ii) all *local market ancillary service requirement* costs for that *region*, for all *dispatch intervals* in the relevant *trading interval*, as determined pursuant to clause 3.15.6A(g)(3).

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

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

where:

- TA (in \$) = the *trading amount* to be determined (which is a negative number);
- RTCLSP (in \$) = the total of all amounts calculated by *NEMMCO* as appropriate to recover from the given *region* as calculated in this clause 3.15.6A(g) for the *fast lower service*, *slow lower service* or *delayed lower service* in respect of *dispatch intervals* which fall in the *trading interval*;

- TCE (in MWh) = the *customer energy* for the *Market Customer* in that *region* for the *trading interval*; and
- RATCE (in MWh) = the aggregate of the *customer energy* figures for all *Market Customers* in that *region* for the *trading interval*.

- (h) In each *trading interval*, in relation to each *Market Generator* 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* or *Market Customer* determined in accordance with the following formula:

$$TA = PTA \times -1$$

and

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

*dispatch interval* in the *trading interval*

where:

- TA (in \$) = the *trading amount* to be determined (which is a negative number);
- TSFCAS (in \$) = the total of all amounts calculated by *NEMMCO* under clause 3.15.6A(a) for the *regulating raise service* or the *regulating lower service* in respect of a *dispatch interval*;
- MPF (a number) = the factor last set by *NEMMCO* for the *Market Generator* or *Market Customer*, as the case may be, under clause 3.15.6A(j); and
- AMPF (a number) = the aggregate of the MPF figures for all *Market Participants* for the *dispatch interval*.

- (i) In each *trading interval*, in relation to each *Market Customer* for whom the *trading amount* is not calculated in accordance with the formula in clause 3.15.6A(h), an ancillary services transaction occurs, which results in a *trading amount* for that *Market Customer* determined in accordance with the following formula:

$$TA = PTA \times \frac{TCE}{ATCE} \times -1$$

and

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

*dispatch interval* in the *trading interval*

where:

TA (in \$)	=	the <i>trading amount</i> to be determined (which is a negative number);
TSFCAS (in \$)	=	has the meaning given in clause 3.15.6A(h);
MPF (a number)	=	the aggregate of the factor set by <i>NEMMCO</i> under clause 3.15.6A(j) for <i>Market Customers</i> , for whom the <i>trading amount</i> is not calculated in accordance with the formula in clause 3.15.6A(h);
AMPF (a number)	=	the aggregate of the MPF figures for all <i>Market Participants</i> for the <i>dispatch interval</i> ;
TCE (in MWh)	=	the <i>customer energy</i> for the <i>Market Customer</i> for the <i>trading interval</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 clause 3.15.6A(h), for the <i>trading interval</i> .

- (j) *NEMMCO* must determine 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).
- (k) *NEMMCO* must prepare a procedure for determining contribution factors for use in clause 3.15.6A(j) 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) 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 *NEMMCO*; and
  - (4) a *Registered Participant* which has classified a *scheduled generating unit*, *scheduled load*, *ancillary service generating unit* or *ancillary service load* (called a 'Scheduled Participant') will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *dispatch interval*:
    - (a) the Scheduled Participant achieves its *dispatch target* at a uniform rate;
    - (b) the Scheduled Participant is *enabled* to provide a *market ancillary service* and responds to a control signal from *NEMMCO* to *NEMMCO's* satisfaction; or

- (c) the Scheduled Participant is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services* in a way that tends to reduce the aggregate deviation.
- (5) a *Semi-Scheduled Generator* will not be assessed as contributing to the deviation in the *frequency* of the *power system* if within a *dispatch interval*, the *semi-scheduled generating unit*:
  - (i) ramps its actual *generation* at a uniform rate over a *semi-dispatch interval* to the *dispatch cap*;
  - (ii) ramps its actual *generation* at a uniform rate over a *non-semi-dispatch interval*;
  - (iii) is *enabled* to provide a *market ancillary service* and responds to a control signal from *NEMMCO* to *NEMMCO's* satisfaction; or
  - (iv) is not *enabled* to provide a *market ancillary service*, but responds to a need for *regulation services* in a way that tends to reduce the aggregate deviation.
- (l) *NEMMCO* may amend the procedure referred to in clause 3.15.6A(j) from time to time.
- (m) *NEMMCO* must comply with the *Rules consultation procedures* when making or amending the procedure referred to in clause 3.15.6A(j).
- (n) *NEMMCO* 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*, *NEMMCO* must *publish* the factors determined in accordance with clause 3.15.6A(j) 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).
- (o) In this clause 3.15.6A:
  - (1) '*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;
  - (2) a *connection point* is an *applicable connection point* of a *Market Generator* if:
    - (A) the *Market Generator* is *financially responsible* for the *connection point*; and
    - (B) the *connection point* connects a *market generating unit* to the *national grid*;
  - (3) '*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*; and

- (4) a *connection point* is a *relevant connection point* of a *Market Customer* if:
  - (A) the *Market Customer* is *financially responsible* for the *connection point*; and
  - (B) the *load* at that *connection point* has been classified (or is deemed to be classified) as a *market load*.

### 3.15.7 Payment to Directed Participants

- (a) Subject to clause 3.15.7(b), *NEMMCO* must pay compensation to *Directed Participants* calculated in accordance with clauses 3.15.7, 3.15.7A and 3.15.7B, as the case may be, for any service which the *Directed Participant* was required to provide in order to comply with the *direction*.
- (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 3.15.17(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:

$$\text{DCP} = \text{AMP} \times \text{DQ}$$

where:

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

AMP = the price below which are 90% of the *spot prices* or *market ancillary service prices* (as the case may be) for the relevant service provided by *Scheduled Generators*, *Semi-Scheduled Generators*, *Scheduled Network Service Providers* or *Market Customers* in the *region* to which the *direction* relates, for the 12 months immediately preceding the *trading day* in which the *direction* was issued; and

DQ = is either:

- (A) the difference between the total *adjusted gross energy* delivered or consumed by the *Directed Participant* and the total *adjusted gross energy* that would have been delivered or consumed by the *Directed Participant* had the *direction* not been issued; or
  - (B) the amount of the relevant *market ancillary service* which the *Directed Participant* has been *enabled* to provide in response to the *direction*.
- (d) If at the time *NEMMCO* issues a *direction*, the *Directed Participant* had submitted a valid *dispatch bid*, *dispatch offer* or *rebid* for *dispatch* of the service that is to be *dispatched* in accordance with the *direction*, 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* as appropriate.
  - (e) *NEMMCO* must, in accordance with the *intervention settlement timetable*, advise each *Directed Participant* in writing of the amount the *Directed*

*Participant* is entitled to receive pursuant to clause 3.15.7(c) or clause 3.15.7(d).

### **3.15.7A Payment to Directed Participants for services other than energy and market ancillary services**

- (a) Subject to clause 3.15.7(d) and clause 3.15.7B, *NEMMCO* must compensate each *Directed Participant* for the provision of services pursuant to a *direction* other than *energy* and *market ancillary services*, at the fair payment price of the services determined in accordance with this clause 3.15.7A.
- (b) Subject to clause 3.15.7A(e) and clause 3.15.7A(e1), *NEMMCO* must, in accordance with the *intervention settlement timetable* and any guidelines developed by *NEMMCO* in accordance with the *Rules consultation procedures*, determine if in *NEMMCO*'s reasonable opinion, an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the *direction* within a reasonable time period.
- (b1) If *NEMMCO* determines pursuant to clause 3.15.7A(b) that an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the *direction* within a reasonable time period it must as soon as reasonably practicable after making such determination *publish* its determination and, subject to clause 3.15.7A(e1), appoint an independent expert, in accordance with the *intervention settlement timetable*, to determine the fair payment price for the services provided pursuant to the *direction*.
- (c) *NEMMCO* must include as part of the terms of appointment of an independent expert the following requirements:
  - (1) that the independent expert must, in determining the fair payment price of the relevant service for the purposes of clause 3.15.7A, take into account:
    - (i) other relevant pricing methodologies in Australia and overseas, including but not limited to:
      - (A) other electricity markets;
      - (B) other markets in which the relevant service may be utilised; and
      - (C) relevant contractual arrangements which specify a price for the relevant service;
    - (ii) the following principles:
      - (A) the disinclination of *Scheduled Generators*, *Semi-Scheduled Generators*, *Market Generators*, *Scheduled Network Service Providers* or *Market Customers* to provide the service the subject of the *direction* must be disregarded;
      - (B) the urgency of the need for the service the subject of the *direction* must be disregarded;
      - (C) the *Directed Participant* is to be treated as willing to supply at the market price that would otherwise prevail for the directed services the subject of the *direction* in similar demand and supply conditions; and

- (D) the fair payment price is the market price for the directed services the subject of the *direction* that would otherwise prevail in similar demand and supply conditions;
- (2) that the independent expert must determine and *publish* a draft report, in accordance with the *intervention settlement timetable*, setting out:
  - (i) a description of the services provided in response to the *direction*;
  - (ii) the independent expert's draft determination of each fair payment price for the services provided;
  - (iii) the methodology and assumptions used by the independent expert in making the draft determination of the fair payment price; and
  - (iv) a request for submissions from interested parties on the matters set out in the draft report;
- (3) that the independent expert must, in accordance with the *intervention settlement timetable*, determine the fair payment price for the services provided, taking into account the submissions received, and must prepare and *publish* a final report setting out:
  - (i) the description of the services provided in response to the *direction*;
  - (ii) the independent expert's determination of the fair payment price for the services provided;
  - (iii) the methodology and assumptions used by the independent expert in making the determination of each fair payment price; and
  - (iv) summaries of the submissions made by interested parties;
- (4) that the independent expert must deliver to *NEMMCO* a final tax invoice for the services rendered at the time he or she *publishes* the final report; and
- (5) that a report *published* by the independent expert pursuant to clause 3.15.7A(c) must not disclose *confidential information* or the identity of a *Directed Participant*.
- (d) In accordance with the *intervention settlement timetable*, *NEMMCO* must calculate the compensation payable to the *Directed Participant* using the fair payment price *published* by the independent expert under clause 3.15.7A(c)(3).
- (e) The fair payment price determined in accordance with clause 3.15.7A(c)(3) is to be the fair payment price for that service to be applied in all future occurrences where there is a *direction* for that service at any time within a period of 12 calendar months from the date on which the determination of that price was published.
- (e1) *NEMMCO* must not appoint an independent expert under clause 3.15.7A(b1) in respect of a *direction* for a service in respect of which:
  - (1) there is a determination of an independent expert in place in accordance with clause 3.15.7A(e) in relation to that service; or
  - (2) *NEMMCO* has appointed an independent expert to determine the fair payment price for that service under clause 3.15.7A and the independent expert has not yet made a determination of the fair payment price.

In these circumstances, *NEMMCO* must apply to the subsequent *direction* the fair payment price for that service determined, or to be determined, by the independent expert.

- (f) Within 1 *business day* of calculating the compensation payable pursuant to clause 3.15.7A(a) by application of clause 3.15.7A(e) or pursuant to clause 3.15.7A(d), *NEMMCO* must advise the relevant *Directed Participant* in writing of the amount of compensation.
- (g) The determination of a fair payment price pursuant to clause 3.15.7A(c)(1) and the calculation of compensation payable to *Directed Participants* pursuant to clause 3.15.7A(d) is final and binding.

### 3.15.7B Claim for additional compensation by Directed Participants

- (a) Subject to clauses 3.15.7B(a1) and 3.15.7B(a4), a *Directed Participant* entitled to compensation pursuant to clause 3.15.7 or clause 3.15.7A may, in accordance with the *intervention settlement timetable*, make a written submission to *NEMMCO* claiming an amount equal to the sum of:
- (1) the aggregate of the loss of revenue and additional net direct costs incurred by the *Directed Participant* in respect of a *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*, as the case may be, as a result of the provision of the service under *direction*; less
  - (2) the amount notified to that *Directed Participant* pursuant to clause 3.15.7(c) or clause 3.15.7A(f); less
  - (3) the aggregate amount the *Directed Participant* is entitled to receive in accordance with clause 3.15.6(c) for the provision of a service rendered as a result of the *direction*.
- (a1) Subject to clause 3.15.7B(a4), if *NEMMCO* determines pursuant to clause 3.15.7A(a) that an independent expert could not reasonably be expected to determine within a reasonable period of time the relevant fair payment price, a *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *NEMMCO* claiming compensation from *NEMMCO* for the provision of services under the *direction* equal to:
- (1) loss of revenue and additional net direct costs which the *Directed Participant* incurred as a result of the provision of services under the *direction*; and
  - (2) a reasonable rate of return on the capital employed in the provision of the service determined by reference as far as reasonably practicable to rates of return for the provision of similar services by similar providers of such services.
- (a2) Subject to clause 3.15.7B(a4), if a *Directed Participant* entitled to compensation pursuant to clause 3.15.7(d) considers that the amount notified pursuant to clauses 3.15.7(e) is less than the amount it is entitled to receive pursuant to that clause, the *Directed Participant* may, in accordance with the *intervention settlement timetable*, make a written submission to *NEMMCO* requesting compensation from *NEMMCO* for that difference.
- (a3) For the purposes of the calculation of additional net direct costs pursuant to clause 3.15.7B(a)(1) and clause 3.15.7B(a1)(1), the additional net direct costs incurred by the *Directed Participant* in respect of that *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*, as the case may be, includes without limitation:
- (1) fuel costs in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*;
  - (2) incremental maintenance costs in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*;

- (3) incremental manning costs in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*;
  - (4) acceleration costs of maintenance work in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*, where such acceleration costs are incurred to enable the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services* to comply with the *direction*;
  - (5) delay costs for maintenance work in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network service*, where such delay costs are incurred to enable the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network service* to comply with the *direction*;
  - (6) other costs incurred in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services*, where such costs are incurred to enable the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network service* to comply with the *direction*; and
  - (7) any compensation which the *Directed Participant* receives or could have obtained by taking reasonable steps in connection with the *scheduled generating unit, semi-scheduled generating unit* or *scheduled network services* being available.
- (a4) In respect of a single *intervention price trading interval*, a *Directed Participant* may only make a claim pursuant to clauses 3.15.7B(a), 3.15.7B(a1) or 3.15.7B(a2) if the amount of the claim in respect of that *intervention price trading interval* is greater than \$5,000.
- (b) The submissions pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) must:
- (1) itemise each component of a claim;
  - (2) contain sufficient data and information to substantiate each component of a claim for loss of revenue and additional direct costs incurred and the reasonable rate of return, as the case may be; and
  - (3) be signed by an authorised officer of the applicant certifying that the written submission is true and correct.
- (c) *NEMMCO* must, in accordance with the *intervention settlement timetable*:
- (1) refer an *affected participant's adjustment claim* or *market customer's additional claim* to an independent expert to determine such claim in accordance with clause 3.12.11A if the claim is equal to or greater than \$20,000 and the *additional intervention claim* that includes that claim is equal to or greater than \$100,000; and
  - (2) determine in its sole discretion if all other claims by a *Directed Participant* in respect of that *direction* pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) are reasonable and if so pay the amount claimed in accordance with clause 3.15.10C.

- (d) If *NEMMCO* considers that a claim by a *Directed Participant* under clause 3.15.7B(a) or 3.15.7B(a1) or 3.15.7B(a2) is unreasonable, it must, in accordance with the *intervention settlement timetable*:
  - (1) advise the *Directed Participant* of its determination in writing, setting out its reasons; and
  - (2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.11A.

### 3.15.10 Administered price, VoLL or market floor price compensation payments

- (a) In the event that the *AEMC* awards compensation to a *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Participant* which submitted a *dispatch bid* or *Scheduled Network Service Provider* in accordance with clause 3.14.6, then *NEMMCO* must determine an amount which shall be payable by all *Market Customers* who purchased electricity from the *spot market* in a region in which the *regional reference price* was affected by the imposition of an *administered price* or *VoLL*, or *market floor price* in the *trading interval* or *trading intervals* in respect of which such compensation has been awarded.
- (b) *NEMMCO* shall determine the amounts payable for each relevant *trading interval* by each of the affected *Market Customers* under clause 3.15.10(a) as follows:

$$\frac{APC \times E_i}{\Sigma E_i}$$

where

*APC* is the total amount of any compensation payments awarded by the *AEMC* to *Scheduled Generators*, *Semi-Scheduled Generators*, *Market Participants* which submitted *dispatch bids* or *Scheduled Network Service Providers* in respect of that *trading interval* in accordance with clause 3.14.6.

*E<sub>i</sub>* is the sum of all of the *Market Customer's adjusted gross energy* amounts, determined in accordance with clauses 3.15.4 and 3.15.5, in respect of each *trading interval* in the *billing period* and each *connection point* for which the *Market Customer* is *financially responsible* in any *region* or *regions* affected by the imposition of an *administered price* or *VoLL* or *market floor price*.

$\Sigma E_i$  is the sum of all amounts determined as "*E<sub>i</sub>*" in accordance with this clause 3.15.10 for all *Market Customers* in all *regions* affected by the imposition of an *administered price* or *VoLL* or *market floor price* in that *trading interval*.

- (c) Within 15 *business days* of being notified by the *AEMC* that compensation is to be paid to a *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Participant* which submitted a *dispatch bid* or *Scheduled Network Service Providers* in accordance with clause 3.14.6, *NEMMCO* shall include in statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable by or to *Market Participants* as determined in accordance with this clause 3.15.10.

### 3.15.10B Restriction contract amounts

- (a) If clause 3.12A.7(g) applies then *NEMMCO* must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after the end of the relevant *mandatory restriction period* separate details of amounts payable:

- (1) by *Market Customers* in the relevant *region* in which the *mandatory restrictions* apply an amount equal to:

$$EMCP = RSA \quad \times \quad \frac{(AGE)}{(AAGE)}$$

Where:

EMCP is the payment to be made by *Market Customers* to *NEMMCO*.

RSA is the *restriction shortfall amount*.

AGE is the *adjusted gross energy* of a *Market Customer* in that *region* for the *mandatory restriction period* expressed in MWh.

AAGE is the aggregate of the *adjusted gross energy* of all *Market Customers* in that *region* for the *mandatory restriction period* expressed in MWh;

- (2) by *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers* to *NEMMCO* in accordance with clause 3.12A.7(a); and
- (3) the amounts payable by *NEMMCO* to the *Scheduled Generators*, *Semi-Scheduled Generators* or *Scheduled Network Service Providers* pursuant to *accepted restriction offers*.
- (b) Immediately upon the later of the publication of the independent expert's final report in accordance with clause 3.12A.7(i)(8) and the determination of a *dispute resolution panel* pursuant to clause 3.12A.7(m), if any, *NEMMCO* must include in the next statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable:
- (i) by a *Market Customer* equal to the amount as determined in accordance with clause 3.12A.7(g)(i) less the amount determined in accordance with clause 3.15.10B(a)(1), if such number is positive together with interest on such amount calculated by applying the *bank bill rate* on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b); and
- (ii) to a *Market Customer* equal to the amount determined in accordance with clause 3.15.10B(a)(1) less the amount determined in accordance with clause 3.12A.7(g)(i), if such number is positive together with interest on such amount calculated by applying the *bank bill rate* on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b).
- (c) If clauses 3.12A.7(f) or 3.12A.7(h) apply then *NEMMCO* must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after

the end of the relevant *mandatory restriction period* separate details of any amounts payable:

- (i) by or to *Market Customers* as determined in accordance with clauses 3.12A.7(e) or 3.12A.7(h) respectively;
- (ii) by *Scheduled Generators, Semi-Scheduled Generators* and *Scheduled Network Service Providers* to *NEMMCO* in accordance with clause 3.12A.7(a); and
- (iii) the amounts payable by *NEMMCO* to the *Scheduled Generators, Semi-Scheduled Generators* or *Scheduled Network Service Providers* pursuant to all *accepted restriction offers*.

### **3.16 Participant compensation fund**

#### **3.16.1 Establishment of Participant compensation fund**

- (a) *NEMMCO* must continue to maintain, in the books of the corporation, a fund called the *Participant compensation fund* for the purpose of paying compensation to *Scheduled Generators*, *Semi-Scheduled Generators* and *Scheduled Network Service Providers* as determined by the *dispute resolution panel* for *scheduling errors* under this Chapter 3.
- (b) *NEMMCO* must pay to the *Participant compensation fund* that component of *Participant fees* under clause 2.11 attributable to the *Participant compensation fund*.
- (c) The funding requirement for the *Participant compensation fund* for each *financial year* is the lesser of:
  - (1) \$1,000,000; and
  - (2) \$5,000,000 minus the amount which *NEMMCO* reasonably estimates will be the balance of the *Participant compensation fund* at the end of the relevant *financial year*.
- (d) The *Participant compensation fund* is to be maintained by *NEMMCO* and is the property of *NEMMCO*.
- (e) Any interest paid on money held in the *Participant compensation fund* will accrue to and form part of the *Participant compensation fund*.
- (f) *NEMMCO* must pay from the *Participant compensation fund* all income tax on interest earned by the *Participant compensation fund* and must pay from the *Participant compensation fund* all bank account debit tax, financial institutions duty and bank fees in relation to the *Participant compensation fund*.
- (g) Upon ceasing to be a *Scheduled Generator*, a *Scheduled Generator* is not entitled to a refund of any contributions made to the *Participant compensation fund*.
- (g1) Upon ceasing to be a *Semi-Scheduled Generator*, a *Semi-Scheduled Generator* is not entitled to a refund of any contributions made to the *Participant compensation fund*.
- (h) Upon ceasing to be a *Scheduled Network Service Provider*, a *Scheduled Network Service Provider* is not entitled to a refund of any contributions made to the *Participant compensation fund*.

### 3.16.2 Dispute resolution panel to determine compensation

- (a) Where a *scheduling error* occurs, a *Market Participant* may apply to the *dispute resolution panel* for a determination as to compensation under this clause 3.16.2.
- (b) Where a *scheduling error* occurs, the *dispute resolution panel* may determine that compensation is payable to *Market Participants* and the amount of any such compensation payable from the *Participant compensation fund*.
- (c) A determination by the *dispute resolution panel* as to compensation must be consistent with this clause 3.16.2.
- (d) A *Scheduled Generator* who receives an instruction in respect of a *scheduled generating unit* to operate at a lower level than the level at which it would have been instructed to operate had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (d1) A *Semi-Scheduled Generator* who receives an instruction in respect of a *semi-scheduled generating unit* to operate at a lower level than the level at which it would have been instructed to operate had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (e) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer less *power* on the *scheduled network service* than it would have been instructed to transfer had the *scheduling error* not occurred, will be entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (f) A *Scheduled Generator* who receives a *dispatch instruction* in respect of a *scheduled generating unit* to operate at a level consistent with a *dispatch offer price* (with reference to the relevant *regional reference node*) which is higher than the *dispatch price*, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (f1) A *Semi-Scheduled Generator* who receives a *dispatch instruction* in respect of a *semi-scheduled generating unit* to operate at a level consistent with a *dispatch offer price* (with reference to the relevant *regional reference node*) which is higher than the *dispatch price*, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (g) A *Scheduled Network Service Provider* who receives an instruction in respect of its *scheduled network services* to transfer *power* on the *scheduled network service* consistent with a *network dispatch offer price* but receives less net revenue than would be expected under clause 3.8.6A(f) due to adjustment of the *spot price* for a trading interval under clause 3.9.2B, is entitled to receive in compensation an amount determined by the *dispute resolution panel*.
- (h) In determining the level of compensation to which *Market Participants* are entitled in relation to a *scheduling error*, the *dispute resolution panel* must:
  - (1) Where the entitlement to compensation arises under clauses 3.16.2(f) or 3.16.2(f1), determine compensation on the basis of the actual loading level and not the *dispatch instruction* applicable to the relevant *scheduled*

- generating unit* or *semi-scheduled generating unit* for that *dispatch interval*;
- (2) Where the entitlement to compensation arises under clause 3.16.2(g), determine compensation on the basis of the actual loading level and not the *dispatch instruction* applicable to the relevant *scheduled network service* for that *dispatch interval*;
  - (3) Use the *spot price* as determined under clause 3.9, including any *spot prices* that have been adjusted in accordance with clause 3.9.2B;
  - (4) Take into account the current balance of the *Participant compensation fund* and the potential for further liabilities to arise during the year;
  - (5) Recognise that the aggregate liability in any year in respect of *scheduling errors* cannot exceed the balance of the *Participant compensation fund* that would have been available at the end of that year if no compensation payments for *scheduling errors* had been made during that year.
- (i) The manner and timing of payments from the *Participant compensation fund* are to be determined by the *dispute resolution panel*.
  - (j) To the maximum extent permitted by law, *NEMMCO* is not liable in respect of a *scheduling error* except out of the *Participant compensation fund* as contemplated in this clause 3.16.2.

### ***Schedule 3.1 - Registered Bid and Offer Data***

The *registered bid and offer data* are the standard data requirements for verification and compilation of *dispatch bids* and *dispatch offers* on the *trading day* schedule. All *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must notify NEMMCO of their *registered bid and offer data* in accordance with this schedule 3.1 in respect of each of their *scheduled loads*, *scheduled generating units* and *semi-scheduled generating units* at least six weeks prior to commencing participation in the *market*.

*Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* must review their *registered bid and offer data* annually in accordance with the *timetable* advised by NEMMCO and provide details of any *changes* to NEMMCO.

*Registered bid and offer data* may be updated by a *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Participant* at any time but may be subject to audit at NEMMCO's request.

A copy of all *changes* to the data must be returned to each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* for verification and resubmission by the *Scheduled Generator* or *Market Participant* as necessary.

*Registered bid and offer data* may include tolerance levels.

### **Scheduled Generating Unit Data:**

Data	Units of Measurement
<b>Power station information:</b>	
node number/identifier	
total station registered capacity	MW
total station <i>sent out</i> capacity at registered capacity	MW
daily <i>energy constraint</i> , if applicable	MWh per day
<b>Generating unit information:</b>	
full <i>load</i>	MW ( <i>generated and sent out</i> )
normal or technical minimum <i>load</i>	MW ( <i>generated and sent out</i> )
additional emergency <i>generation</i> above registered capacity	MW
normal and maximum <i>ramp rates</i>	MW/minute
response time to full <i>load</i> from cold standby	Minutes
aggregation data	
capability chart	
notice to <i>synchronise</i>	minutes
minimum shutdown time	minutes
maximum shutdowns per day	

### **Semi-Scheduled Generating Unit Data:**

Data	Units of Measurement
<b>Power station information:</b>	
node number/identifier	
total station registered capacity	MW
total station <i>sent out</i> capacity at registered capacity	MW
daily <i>energy constraint</i> , if applicable	MWh per day
<b>Generating unit information:</b>	
full <i>load</i>	MW ( <i>generated and sent out</i> )
normal or technical minimum <i>load</i>	MW ( <i>generated and sent out</i> )

additional emergency <i>generation</i> above registered capacity	MW
normal and maximum <i>ramp rates</i>	MW/minute
response time to full <i>load</i> from cold standby	minutes
aggregation data	
capability chart	
notice to <i>synchronise</i>	minutes
minimum shutdown time	minutes
maximum shutdowns per day	

### **Scheduled Load Data:**

<b>Data</b>	<b>Units of Measurement</b>
node number/identifier	
<i>normally on or normally off</i>	
<i>maximum load</i>	MW
daily <i>energy constraint</i> if applicable	MWh per day
normal and maximum <i>ramp rates</i>	MW/min
aggregation data	

### **Scheduled Network Service Data:**

<b>Data</b>	<b>Units of Measurement</b>
node number/identifier for <i>connection points A and B</i>	
Registered <i>power transfer capability</i> to node 1 (may be seasonal etc)	MW
Registered <i>power transfer capability</i> to node 2 (may be seasonal etc).	MW
Additional transient <i>power transfer capability</i> in each direction	MW
Normal and maximum transfer <i>ramp rates</i> (if applicable)	MW/min
Loss vs flow as piecewise linear relationships for each direction which, taken together, are convex over the entire range of <i>power transfer capabilities</i> in both directions	
Aggregation data	

### **Dispatch Inflexibility Profile**

<b>Data</b>	<b>Units of Measurement</b>
Time for response from receipt of <i>dispatch</i> instruction from zero <i>load</i> , T1 (see clause 3.8.19(e)(1))	minutes
Time after T1 required to reach minimum loading level (see clause 3.8.19(e)(2))	minutes
Time after T2 for which <i>plant</i> must operate at	minutes

or above the minimum <i>loading level</i> (see clause 3.8.19(e)(3))	
Time required by <i>plant</i> to reduce from its minimum <i>loading level</i> to zero (see clause 3.8.19(e)(4))	minutes
minimum <i>loading level</i> (see clauses 3.8.19(e)(2),(3),(4))	MW

### **Aggregation Data**

Where *dispatch bids* or *dispatch offers* are submitted for aggregated *generating units*, *market network services* or *loads* as approved by NEMMCO under clause 3.8.3 then, unless otherwise exempted by NEMMCO, each *Scheduled Generator*, *Semi-Scheduled Generator* and *Market Participant* must provide the information required in accordance with this schedule 3.1 for each *generating unit*, *market network service* or *load* included in those *dispatch bids* or *dispatch offers* both separately and in aggregated form.

## 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 *NEMMCO* 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 *NEMMCO* 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, scheduled loads, scheduled network services* and *ancillary services* by *NEMMCO*.
- (b) By virtue of this Chapter and the *National Electricity Law*, *NEMMCO* has responsibility to maintain and improve *power system security*. This Chapter also requires the *Jurisdictional System Security Coordinator* for each *participating jurisdiction* to advise *NEMMCO* of the requirements of the *participating jurisdiction* regarding *sensitive loads* and priority of *load shedding* and requires *NEMMCO* to provide copies of the relevant *load shedding procedures* to the *Jurisdictional System Security Coordinator*.

## 4.3 Power System Security Responsibilities and Obligations

### 4.3.1 Responsibility of NEMMCO for power system security

The *NEMMCO 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 *NEMMCO* 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*, *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*, *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 and reliability 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*) to allow a prompt restoration or recovery of *power system security*, taking into account under-frequency initiated *load shedding* capability provided under *connection agreements* or otherwise;
- (l) to determine the required levels of *short term capacity reserves* and *medium term capacity reserves* in accordance with the *power system security and*

*reliability standards*, and to assess the availability of the actual *short term capacity reserve* and actual *medium term capacity reserve* in accordance with the *projected assessment of system adequacy (PASA)*, described in Chapter 3, which would be available to supplement utilised *contingency capacity reserves* and, if necessary, initiate action in relation to the trading in *reserves* in accordance with Chapter 3;

- (m) to make available to *Registered Participants* 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 where the *short term capacity reserve* and/or *medium term capacity reserve* is assessed as being less than that determined in accordance with the *short term capacity reserve standard* or *medium term capacity reserve standard* respectively;
- (n) to refer to *Registered Participants*, as *NEMMCO* deems appropriate, information of which *NEMMCO* 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 *NEMMCO*;
- (o) to utilise resources and services provided or procured as *ancillary services* or otherwise to maintain or restore the *satisfactory operating state* of the *power system*;
- (p) to procure adequate *system restart ancillary services* in accordance with clause 3.11.4A to enable *NEMMCO* to co-ordinate a response to a *major supply disruption*;
- (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 *NEMMCO*, 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*.

## **4.4 Power System Frequency Control**

### **4.4.2 Operational frequency control requirements**

To assist in the effective control of *power system frequency* by *NEMMCO* the following provisions apply:

- (a) *NEMMCO* may give *dispatch instructions* in respect of *scheduled generating units, semi-scheduled generating units, scheduled loads, scheduled network services* and *market ancillary services* pursuant to clause 4.9.
- (b) Each *Generator* must ensure that all of its *generating units* have responsive *speed governor systems* in accordance with the requirements of schedule 5.2, so as to automatically share in changes in *power system demand* or loss of *generation* as it occurs through response to the resulting excursion in *power system frequency*.
- (c) *NEMMCO* must use its reasonable endeavours to arrange to be available and specifically allocated to *regulating duty* such *generating plant* as *NEMMCO* considers appropriate which can be automatically controlled or directed by *NEMMCO* to ensure that all normal *load* variations do not result in *frequency* deviations outside the limitations specified in clause 4.2.2(a).
- (d) **[Deleted]**
- (e) *NEMMCO* must use its reasonable endeavours to ensure that adequate *facilities* are available and are under the direction of *NEMMCO* to allow the managed recovery of the *satisfactory operating state* of the *power system*.

## **4.8 Power System Security Operations**

### **4.8.5 Managing declarations of conditions**

- (a) *NEMMCO* must as soon as reasonably practicable *publish* any declaration under clause 4.8.4.
- (a1) The *publication* of any such declaration must, to the extent reasonably practicable, include the following:
  - (1) the nature and extent of the *low reserve* or *lack of reserve* condition; and
  - (2) the time period over which the *low reserve* or *lack of reserve* condition applies.
- (b) If *NEMMCO* makes a declaration under clause 4.8.4, *NEMMCO* must use its reasonable endeavours to follow the processes set out in clauses 4.8.5A and 4.8.5B.
- (c) Following a declaration under clause 4.8.4, *NEMMCO* must as soon as reasonably practicable *publish* notice of:
  - (1) any cancellation of that declaration; or
  - (2) any significant change in the *low reserve* or *lack of reserve* condition due to changed positions of *Scheduled Network Service Providers*, *Market Customers*, *Scheduled Generators* and *Semi-Scheduled Generators* or due to other reasons.

#### **4.8.5A Determination of the latest time for intervention by direction or dispatch of reserve contract**

- (a) *NEMMCO* must immediately *publish* a notice of any foreseeable circumstances that may require *NEMMCO* to issue a *direction* or *dispatch reserves* it has available under *reserve contracts* under clause 4.8.6.
  - (a1) Any such notice must include the forecast circumstances creating the need to issue a *direction* or *dispatch reserves*.
  - (b) *NEMMCO* must, as soon as reasonably practicable after the *publication* of a notice pursuant to clause 4.8.5A(a), estimate and *publish* the latest time at which it would need to intervene to issue a *direction* under clause 4.8.9, or *dispatch reserves* it has available under *reserve contracts* under clause 4.8.6, should the response from the *market* not be such as to obviate the need to issue a *direction* or *dispatch reserves*.
  - (c) In order to estimate the time referred to in clause 4.8.5A(b), *NEMMCO* may request information from a *Scheduled Network Service Provider*, *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Customer* and may specify the time within which that information is to be provided. Such information may include, but is not limited to:
    - (1) *plant* status;
    - (2) any expected or planned *plant outages* and the MW capacity affected by the *outage*, proposed start date and time and expected end date and time associated with the *outage* and an indication of the possibility of deferring the *outage*;
    - (3) estimates of the relevant costs to be incurred by the *Scheduled Network Service Provider*, *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Customer* should it be the subject of a *direction*, but only if *NEMMCO* considers it reasonably likely that such *Scheduled Network Service Provider*, *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Customer* will be subject to a *direction*.
  - (d) A *Scheduled Network Service Provider*, *Scheduled Generator*, *Semi-Scheduled Generator* or *Market Customer* must use reasonable endeavours:
    - (1) to comply with a request for information pursuant to clause 4.8.5A(c); and
    - (2) to provide *NEMMCO* with the information required in the time specified by *NEMMCO*.
  - (e) *NEMMCO* must regularly review its estimate of the latest time at which it would need to intervene to issue a *direction* under clause 4.8.9 or to *dispatch reserves* it has available under *reserve contracts* under clause 4.8.6 and must *publish* any revisions to the estimate.
  - (f) *NEMMCO* must treat any information provided in response to a request under clause 4.8.5A(c) as *confidential information* and use it for the sole purpose of assessing to which *Scheduled Network Service Provider*, *Market Customer*, *Scheduled Generator* or *Semi-Scheduled Generator* it should issue *directions*.

## 4.9 Power System Security Related Market Operations

### 4.9.2 Instructions to Generators

- (a) To implement *central dispatch* or, where *NEMMCO* has the power to direct or to instruct a *Scheduled Generator* either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, *NEMMCO* may at any time give an instruction to a *Scheduled Generator* in relation to its *scheduled generating units* (a *dispatch instruction*), in accordance with clause 4.9.5, nominating:
  - (1) whether the facilities for *generation* remote control by *NEMMCO*, if available, must be in service; and
  - (2) the level or schedule of power to be supplied by the *generating unit* over the specified period.
- (a1) To implement *central dispatch* or, where *NEMMCO* has the power to direct or to instruct a *Semi-Scheduled Generator* either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, *NEMMCO* may at any time give an instruction to a *Semi-Scheduled Generator* in relation to its *semi-scheduled generating units* (a *dispatch instruction*), in accordance with clause 4.9.5, nominating:
  - (1) whether the facilities for *generation* remote control by *NEMMCO*, if available, must be in service; and
  - (2) the maximum level of power to be supplied by the *generating unit*.
- (b) Subject to paragraph (c), *NEMMCO* may at any time give an instruction to a *Generator* in relation to its *generating units* with a *nameplate rating* of 30MW or more, or its *generating systems* of combined *nameplate rating* of 30 MW or more, nominating that:
  - (1) the *generating unit* or *generating system* transformer is to be set to a nominated tap position (if it has on-load tap changing capability);
  - (2) the *generating unit's* or *generating system's* *voltage control system* set-point is to be set to give a nominated *voltage*; or
  - (3) the *generating unit* or *generating system* is to be operated to supply or absorb a nominated level of *reactive power* at its *connection point*.
- (c) Unless otherwise provided under an *ancillary services agreement* or a *connection agreement*, *NEMMCO* must not give an instruction under paragraph (b) that requires a *generating unit* or *generating system* to supply or absorb *reactive power* at a level outside the *plant's* relevant *performance standard*.
- (d) A *Scheduled Generator* or *Semi-Scheduled Generator* must with respect to its *scheduled generating units* or *semi-scheduled generating units* that have an availability offer of greater than 0 MW (whether *synchronised* or not), ensure that appropriate personnel are available at all times to receive and immediately act upon *dispatch instructions* issued by *NEMMCO* to the *Scheduled Generator* or *Semi-Scheduled Generator*.

#### **4.9.2A Dispatch Instructions to Scheduled Network Service Providers**

- (a) Where *NEMMCO* has the power to direct or to instruct a *Scheduled Network Service Provider* either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, *NEMMCO* may at any time give an instruction to a *Scheduled Network Service Provider* in relation to its *scheduled network services* (a *dispatch instruction*), in accordance with clause 4.9.5, nominating:
  - (1) whether the facilities for remote control by *NEMMCO*, if available, must be in service; and
  - (2) the level or schedule of power to be transferred by the *scheduled network service* over the specified period.
- (b) **[Deleted]**
- (c) A *Scheduled Network Service Provider* must, with respect to its *scheduled network services* that have an availability offer of greater than 0 MW, ensure that appropriate personnel are available at all times to receive and immediately act upon *dispatch instructions* issued to the *Scheduled Network Service Provider* by *NEMMCO*.

### 4.9.3 Instructions to Registered Participants

- (a) *NEMMCO* may, at any time, give instructions to *Registered Participants* to reduce their *load* for electricity consistent with *dispatch bids* made in accordance with Chapter 3 ("*dispatch instructions*").
- (b) **[Deleted]**
- (c) **[Deleted]**
- (d) A *Market Customer* must, with respect to *scheduled loads* in relation to which a *dispatch bid* has been submitted for a particular *trading interval*, ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon *dispatch instructions* issued to the *Market Customer* by *NEMMCO*.
- (e) **[Deleted]**

#### 4.9.4 Dispatch related limitations on Scheduled Generators and Semi-Scheduled Generators

A *Generator* must not, unless in the *Generator's* reasonable opinion public safety would otherwise be threatened or there would be a material risk of damaging equipment or the environment:

- (a) send out any *energy* from a *scheduled generating unit* or *semi-scheduled generating unit*, except:
  - (1) in accordance with the *self-commitment* procedures specified in clause 4.9.6;
  - (2) in accordance with a *dispatch instruction*;
  - (3) as a consequence of operation of the *generating unit's* automatic *frequency response mode* to *power system* conditions;
  - (4) in response to remote control signals given by *NEMMCO* or its agent; or
  - (5) in connection with a test conducted in accordance with the requirements of this Chapter or Chapter 5;
- (b) adjust the *transformer tap position* or *excitation control system voltage* set-point of a *scheduled generating unit* or *semi-scheduled generating unit* except:
  - (1) in accordance with a *dispatch instruction*;
  - (2) in response to remote control signals given by *NEMMCO* or its agent;
  - (3) if, in the *Generator's* reasonable opinion, the adjustment is urgently required to prevent material damage to the *Generator's plant* or associated equipment, or in the interests of safety; or
  - (4) in connection with a test conducted in accordance with the requirements of clause 5.7;
- (c) *energise* a *connection point* in relation to a *scheduled generating unit* or *semi-scheduled generating unit* without obtaining prior approval from *NEMMCO* immediately prior to *energisation*;
- (d) *synchronise* to, or *de-synchronise* from, the *power system* a *generating unit* with a *nameplate rating* of 30MW or more that is classified as a *scheduled generating unit* or a *semi-scheduled generating unit* without prior approval from *NEMMCO* or other than in response to a *dispatch instruction* except *de-synchronisation* as a consequence of the operation of automatic protection equipment or where such action is urgently required to prevent material damage to *plant* or equipment or in the interests of safety;
- (e) change the *frequency response mode* of a *scheduled generating unit* or *semi-scheduled generating unit* without the prior approval of *NEMMCO*; or
- (f) remove from service or interfere with the operation of any *power system* stabilising equipment installed on a *scheduled generating unit* or *semi-scheduled generating unit*.

#### 4.9.5 Form of dispatch instructions

- (a) A *dispatch instruction* for a *scheduled generating unit*, a *dispatch instruction* for a *semi-scheduled generating unit*, a *dispatch instruction* for a *scheduled network service* and a *dispatch instruction* for a *scheduled load* must include the following:
- (1) specific reference to the *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled network service* or *scheduled load* or other *facility* to which the *dispatch instruction* applies;
  - (2) the desired outcome of the *dispatch instruction* such as *active power*, *reactive power*, *transformer tap* or other outcome;
  - (3) in the case of a *dispatch instruction* under clause 4.9.2, the *ramp rate* (if applicable) which is to be followed by the *generating unit* or a specific target time to reach the outcome specified in the *dispatch instruction*;
  - (4) the time the *dispatch instruction* is issued;
  - (5) if the time at which the *dispatch instruction* is to take effect is different from the time the *dispatch instruction* is issued, the start time; and
  - (6) in the case of a *dispatch instruction* for a *semi-scheduled generating unit*:
    - (i) a notification as to whether the *dispatch interval* to which the *dispatch instruction* relates is a *semi-dispatch interval* or a *non-semi-dispatch interval*; and
    - (ii) the *dispatch cap*.
- (a1) A *dispatch instruction* for an *ancillary service* must include:
- (1) specific reference to the *generating unit* or *load* to which the *dispatch instruction* applies;
  - (2) the desired outcome of the *dispatch instruction*;
  - (3) the time the *dispatch instruction* is issued; and
  - (4) if the time at which the *dispatch instruction* is to take effect is different from the time the *dispatch instruction* is issued, the start time.
- (b) The *dispatch instruction* must be provided as provided in clause 3.8.21.

## 4.9.6 Commitment of scheduled generating units and semi-scheduled generating units

### (a) Self-commitment

In relation to a *generating unit* of nameplate rating of 30 MW or more that is classified as a *scheduled generating unit* or a *semi-scheduled generating unit*:

- (1) The *Generator* must confirm with *NEMMCO*, in accordance with clause 3.8.17(e), the expected *synchronising* time at least one hour before the expected actual *synchronising* time, and update this advice 5 minutes before *synchronising* unless otherwise agreed with *NEMMCO*. *NEMMCO* may require further notification immediately before *synchronisation*.
- (2) *NEMMCO* may require the *Generator* to advise *NEMMCO* when a *scheduled generating unit* or *semi-scheduled generating unit* reaches the *self-dispatch level* (being a *self-dispatch level* that is greater than zero MW) and must not increase output above that level unless instructed otherwise by *NEMMCO* to increase output or unless the increase in output results from the *generating unit* being placed under remote control to be loaded in accordance with Chapter 3.

### (b) Instructions by *NEMMCO* to commit a *generating unit* for service

- (1) A *dispatch instruction* for a *scheduled generating unit* or *semi-scheduled generating unit* to commit given by *NEMMCO* in response to a *dispatch offer* must be consistent with the start-up time specified in the latest *dispatch offer* in relation to the *generating unit*.
- (2) When *NEMMCO* issues a *dispatch instruction* for a *scheduled generating unit* or *semi-scheduled generating unit* to commit, *NEMMCO* must nominate the time at which the *generating unit* is to be *synchronised*.
- (3) After a *dispatch instruction* for commitment of a *scheduled generating unit* or *semi-scheduled generating unit* has been issued, the relevant *Generator* must promptly advise *NEMMCO* of any inability to meet the nominated time to *synchronise*.
- (4) Unless instructed otherwise by *NEMMCO*, at the time a *dispatch instruction* to commit takes effect, the relevant *scheduled generating unit* or *semi-scheduled generating unit* must remain on *self-dispatch level* until *NEMMCO* issues a further *dispatch instruction*.

#### **4.9.7 Decommitment, or output reduction, by Scheduled Generators and Semi-Scheduled Generators**

- (a) In relation to a *generating unit* of *nameplate rating* of 30 MW or more that is classified as a *scheduled generating unit* or a *semi-scheduled generating unit*, the *Generator* must confirm with *NEMMCO*, in accordance with clause 3.8.18(b1), the expected *de-synchronising* time at least one hour before the expected actual *de-synchronising* time, and update this advice 5 minutes before *de-synchronising* unless otherwise agreed with *NEMMCO*. *NEMMCO* may require further notification immediately before *de-synchronisation*.
- (b) The *Scheduled Generator* or *Semi-Scheduled Generator* must not *decommit* a *generating unit* with a *nameplate rating* of 30 MW or more unless it has confirmed with *NEMMCO*:
  - (1) the time to commence decreasing the output of the *generating unit*;
  - (2) the *ramp rate* to decrease the output of the *generating unit*;
  - (3) the time to *de-synchronise* the *generating unit*; and
  - (4) the output from which the *generating unit* is to be *de-synchronised*.

#### **4.9.8 General responsibilities of Registered Participants**

- (a) A *Registered Participant* must comply with a *dispatch instruction* given to it by *NEMMCO* unless to do so would, in the *Registered Participant's* reasonable opinion, be a hazard to public safety or materially risk damaging equipment.
- (b) A *Scheduled Generator* must ensure that each of its *scheduled generating units* is at all times able to comply with its latest *generation dispatch offer*.
- (b1) A *Scheduled Network Service Provider* must ensure that each of its *scheduled network services* is at all times able to comply with its latest *network dispatch offer*.
- (b2) A *Semi-Scheduled Generator* must ensure that each of its *semi-scheduled generating units* is at all times able to comply with its latest *generation dispatch offer*.
- (c) A *Registered Participant* must ensure that each of its *facilities* is at all times able to comply with its relevant *dispatch bid* (as adjusted by any subsequent restatement of that bid under Chapter 3).
- (d) A *Market Participant* which has classified a *generating unit* or *load* as an *ancillary service generating unit* or an *ancillary service load*, as the case may be, must ensure that the *ancillary service generating unit* or *ancillary service load* is at all times able to comply with the latest *market ancillary service offer* for the relevant *trading interval*.

#### **4.9.9 Scheduled Generator plant changes**

A *Scheduled Generator* must notify *NEMMCO* without delay of any event that has changed or is likely to change the operational availability of any of its *scheduled generating units*, whether the relevant *generating unit* is *synchronised* or not, as soon as the *Scheduled Generator* becomes aware of the event.

#### **4.9.9A Scheduled Network Service Provider plant changes**

A *Scheduled Network Service Provider* must notify *NEMMCO* without delay of any event that has changed or is likely to change the operational availability of any of its *scheduled network services* as soon as the *Scheduled Network Service Provider* becomes aware of the event.

#### **4.9.9B Ancillary service plant changes**

A *Market Participant* that has classified a *generating unit* or *load* as an *ancillary service generating unit* or an *ancillary service load* must notify *NEMMCO* without delay of any event that has changed or is likely to change the availability of a *market ancillary service*, or the capability of the *generating unit* or *load* to respond in the manner contemplated by the *market ancillary service specification*, as soon as the *Market Participant* becomes aware of the event.

#### **4.9.9C Semi-Scheduled Generator plant changes**

A *Semi-Scheduled Generator* must notify *NEMMCO* without delay of any event that has changed or is likely to change the operational availability of any of its *semi-scheduled generating units*, whether the relevant *generating unit* is *synchronised* or not, as soon as the *Semi-Scheduled Generator* becomes aware of the event.

## 4.11 Power System Security Support

### 4.11.1 Remote control and monitoring devices

- (a) All remote control, operational *metering* and monitoring devices and local circuits as described in schedules 5.2, 5.3 and 5.3a, must be installed and maintained in accordance with the standards and protocols determined and advised by *NEMMCO* (for use in the *control centres*) for each:
  - (1) *scheduled generating unit* and *semi-scheduled generating unit connected to the transmission or distribution network*; and
  - (2) *substation connected to the network*.
- (b) The provider of any *ancillary 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 *NEMMCO* for use in the relevant *control centre*.
- (c) The control and monitoring devices must include provision for indication of *active power* and *reactive power* output, provision for signalling the status and any associated alarm condition relevant to achieving adequate control of the *transmission network*, and provision for indication of *generating plant* active and reactive output.
- (d) Where reasonably necessary to allow *NEMMCO* to discharge its *market and power system security* functions *NEMMCO* may, by notice in writing, require a *Network Service Provider*, a *Generator* or a *Market Network Service Provider* to:
  - (1) install *remote monitoring equipment* which, in *NEMMCO's* reasonable opinion, is adequate to enable *NEMMCO* to remotely monitor the performance of a *transmission system* or *distribution system*, *generating unit* (including its *dynamic performance*) or a *market network service facility* as appropriate; and
  - (2) upgrade, modify or replace any *remote monitoring equipment* already installed in a *facility* provided that the existing *remote monitoring equipment* is, in the reasonable opinion of *NEMMCO*, no longer fit for the intended purpose.
- (e) A *Network Service Provider*, *Generator* or *Market Network Service Provider* who receives a notice in accordance with clause 4.11.1(d), must comply with the notice within 120 *business days* or such further period that *NEMMCO* requires.
- (f) **[Deleted]**
- (g) A *Generator* or *Market Network Service Provider* wishing to receive *dispatch instructions* electronically from *NEMMCO's automatic generation control system* under clause 3.8.21(d) must comply with *NEMMCO's* reasonable requirements in respect of how the remote control signals are issued by the *automatic generation control system* and transmitted to the *facility*.

**CHAPTER 5**

**5. Network Connection**

**5.7 Inspection and Testing**

**5.7.7 Inter-network power system tests**

- (a) For each kind of development or activity described in the first column of chart 1 below, the *Proponent* is as set out in the second column and the *Relevant Transmission Network Service Provider* (“*Relevant TNSP*”) is as set out in the third column, respectively, opposite the description of the development or activity.

**Chart 1**

<b>No.</b>	<b>Kind of development or activity</b>	<b><i>Proponent</i></b>	<b><i>Relevant TNSP</i></b>
	<b>column 1</b>	<b>column 2</b>	<b>column 3</b>
1.	A new <i>transmission line</i> between two <i>networks</i> , or within a <i>transmission network</i> , that is anticipated to have a <i>material inter-network impact</i> is commissioned.	<i>Network Service Provider</i> in respect of the new <i>transmission line</i> .	<i>Proponent</i> and the <i>Transmission Network Service Provider</i> in respect of any <i>network</i> to which the <i>transmission line</i> is connected.
2.	An existing <i>transmission line</i> between two <i>networks</i> , or within a <i>transmission network</i> , that is anticipated to have a <i>material inter-network impact</i> is <i>augmented</i> or substantially modified.	<i>Network Service Provider</i> in respect of the <i>augmentation</i> or <i>modification</i> of the <i>transmission line</i> .	<i>Proponent</i> and the <i>Transmission Network Service Provider</i> in respect of any <i>network</i> to which the <i>transmission line</i> is connected.

No.	Kind of development or activity	<i>Proponent</i>	<i>Relevant TNSP</i>
	column 1	column 2	column 3
3.	A new <i>generating unit</i> or <i>facility</i> of a <i>Customer</i> or a <i>network</i> development is commissioned that is anticipated to have a <i>material inter-network impact</i> .	<p><i>Generator</i> in respect of the <i>generating unit</i> and associated <i>connection assets</i>.</p> <p><i>Customer</i> in respect of the <i>facility</i> and associated <i>connection assets</i>.</p> <p><i>Network Service Provider</i> in respect of the relevant <i>network</i>.</p>	<p><i>Transmission Network Service Provider</i> in respect of any <i>network</i> to which the <i>generating unit, facility</i> or <i>network</i> development is <i>connected</i> and, if a <i>network</i> development, then also the <i>Proponent</i>.</p>
4.	Setting changes are made to any <i>power system</i> stabilisers as a result of a <i>generating unit, facility</i> of a <i>Customer</i> or <i>network development</i> being commissioned, modified or replaced.	<p><i>Generator</i> in respect of the <i>generating unit</i>.</p> <p><i>Customer</i> in respect of the <i>facility</i>.</p> <p><i>Network Service Provider</i> in respect of the relevant <i>network</i>.</p>	<p><i>Transmission Network Service Provider</i> in respect of any <i>transmission network</i> to which the <i>generating unit, facility</i> or <i>network</i> development is <i>connected</i>.</p>
5.	Setting changes are made to any <i>power system</i> stabilisers as a result of a decision by the <i>Inter-regional Planning Committee</i> or <i>NEMMCO</i> , which are not covered by item 4 in this chart.	<i>NEMMCO</i> .	None.
6.	<i>NEMMCO</i> determines that a test is required to verify the performance of the <i>power system</i> in light of the results of planning studies or simulations or one or more system incidents.	<i>NEMMCO</i> .	None.

- (b) A *Registered Participant*, not being a *Transmission Network Service Provider*, determined in accordance with clause 5.7.7(a) to be a *Proponent* for a development or activity detailed in chart 1, may require the *Relevant TNSP* corresponding to that development or activity to undertake on their behalf their obligations as the *Proponent* and, where the *Relevant TNSP* receives a written request to undertake those obligations, the *Relevant TNSP* must do so.
- (c) Where, in this clause 5.7.7, there is a reference to a *Proponent* that reference includes a *Relevant TNSP* required in accordance with clause 5.7.7(b) to undertake the obligations of another *Registered Participant*.
- (d) If a *Relevant TNSP* is required by a *Registered Participant* in respect of a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled load* or a *market network service*, any of which have a *nameplate rating* in excess of 30 MW, to act as a *Proponent* in accordance with clause 5.7.7(b), that *Relevant TNSP* is entitled to recover all reasonable costs incurred from the *Registered Participant* that required the *Relevant TNSP* to act as the *Proponent*.
- (e) A *Registered Participant* wishing to undertake a development or conduct an activity listed in item 1, 2, 3 or 4 of chart 1 must notify NEMMCO not less than 80 *business days* before the *transmission line*, *generating unit*, *facility* or *network* development is planned to be commissioned, modified or replaced, giving details of the development or activity.
- (f) If NEMMCO receives a notice under clause 5.7.7(e), then it must provide a copy of the notice to each member of the *Inter-regional Planning Committee* and consult with the *Inter-regional Planning Committee* about the potential impact of the development or activity.
- (g) NEMMCO or the *Relevant TNSP* in respect of a development or activity may notify the *Proponent* of the development or activity that NEMMCO or the *Relevant-TNSP* believes that an *inter-network test* is required in relation to that development or activity.
- (h) NEMMCO or the *Relevant TNSP* may only give a notice under clause 5.7.7(g) if NEMMCO or the *Relevant TNSP* considers that:
  - (1) the development or activity may have a material impact on the magnitude of the *power transfer capability* of more than one *transmission network* and, in the circumstances, an *inter-network test* is required; or
  - (2) if the *Inter-regional Planning Committee* has published guidelines under clause 5.7.7(k), an *inter-network test* is required having regard to those guidelines and the surrounding circumstances.
- (i) If NEMMCO or the *Relevant TNSP* gives a notice under clause 5.7.7(g), then they must also promptly give a copy of the notice to each member of the *Inter-regional Planning Committee*.

- (j) A *Registered Participant* undertaking a development or activity listed in chart 1 must provide such information to *NEMMCO* or the *Relevant TNSP* in respect of the development or activity as *NEMMCO* or the *Relevant TNSP* reasonably requests in order to make an assessment under this clause 5.7.7.
- (k) The *Inter-regional Planning Committee* may develop, *publish* and amend from time to time, in accordance with the *Rules consultation procedures*, a set of guidelines to assist *Registered Participants* to determine when an *inter-network test* may be required.
- (l) If the *Inter-regional Planning Committee* has *published* guidelines in accordance with clause 5.7.7(k), then *NEMMCO* and the *Relevant TNSP* must consider those guidelines in determining whether an *inter-network test* is required under clause 5.7.7(g) or 5.7.7(n).
- (m) If *NEMMCO* or the *Relevant TNSP* gives notice under clause 5.7.7(g), then the *Proponent* must, in consultation with *NEMMCO*, prepare a draft *test program* for the *inter-network test* and submit it to each member of the *Inter-regional Planning Committee* and the *Relevant TNSP* (if the *Relevant TNSP* gave the notice given under clause 5.7.7(g)).
- (n) If *NEMMCO* determines that an *inter-network test* is required for a reason contemplated in item 5 or 6 of chart 1, then it must prepare a draft *test program* for the *inter-network test* and submit it to each member of the *Inter-regional Planning Committee* at least 40 *business days* prior to the proposed test.
- (o) The *Inter-regional Planning Committee* must:
  - (1) meet within 15 *business days* of the members receiving a draft *test program* under clauses 5.7.7(m) or (n); and
  - (2) within a period of not more than 10 *business days* make a recommendation to *NEMMCO* on the draft *test program* that identifies changes the *Inter-regional Planning Committee* proposes to the *test program*.
- (p) *NEMMCO* must:
  - (1) *publish* a copy of the draft *test program* and any relevant changes recommended by the *Inter-regional Planning Committee* and invite interested *Registered Participants* to make written submissions;
  - (2) only accept as valid submissions received not later than the date specified in the notice *publishing* the copy of the draft *test program* (not to be less than 14 *days* after the date of *publication*); and
  - (3) provide the *Inter-regional Planning Committee* with copies of all valid submissions and seek its final recommendation.
- (q) The *Inter-regional Planning Committee* must consider and take into account all valid submissions received and may amend its recommendation.

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- (r) *NEMMCO* must determine and *publish* in accordance with clause 3.13.13 the *test program* for an *inter-network test* after taking into account the draft *test program* submitted to the *Inter-regional Planning Committee*, the *Inter-regional Planning Committee's* recommendation and any valid submissions received from *Registered Participants*.
- (s) In making a recommendation under clause 5.7.7(o) and in determining the *test program*, the *Inter-regional Planning Committee* and *NEMMCO* must so far as practicable have regard to the following principles:
- (1) *power system security* must be maintained in accordance with Chapter 4;
  - (2) the variation from the *central dispatch* outcomes that would otherwise occur if there was no *inter-network test* should be minimised;
  - (3) the duration of the tests should be as short as possible consistent with test requirements and *power system security*; and
  - (4) subject to clauses 5.7.7(s)(1), (2) and (3), the test facilitation costs borne or payable under clause 5.7.7 (aa) by the *Proponent* should be minimised.
- (t) An *inter-regional test* must not be conducted within 20 *business days* after *NEMMCO* publishes the *test program* for the *inter-network test* determined by *NEMMCO* under clause 5.7.7(r).
- (u) The *Proponent* in respect of an *inter-network test* must seek to enter into agreements with other *Registered Participants* to provide the test facilitation services identified in the *test program* in order to ensure that the *power system* conditions required by the *test program* are achieved.
- (v) If the *Proponent* approaches another *Registered Participant* seeking to enter into an agreement under clause 5.7.7(u) then the *Proponent* and the *Registered Participant* must negotiate in good faith concerning the provision of the relevant test facilitation service.
- (w) If:
- (1) a *Proponent* approaches another *Registered Participant* as described in clause 5.7.7(v); and
  - (2) the *Proponent* and the other *Registered Participant* have not agreed the terms and conditions to be included in the agreement under which the *Registered Participant* will provide the test facilitation service requested within 15 *business days* of the approach,
- then those terms and conditions must be determined in accordance with clause 8.2 and a dispute of this type is deemed to fall within clause 8.2.5(c)(2).
- (x) If the dispute concerns the price which the *Proponent* is to pay for a test facilitation service, then it must be resolved applying the following principles:

- (1) the other *Registered Participant* is entitled to recover the costs it incurs, and a reasonable rate of return on the capital it employs, in providing the test facilitation service, determined taking into account the additional costs associated with:
    - (i) maintaining the equipment necessary to provide the test facilitation service;
    - (ii) any labour required to operate and maintain the equipment used to provide the test facilitation service; and
    - (iii) any materials consumed when the test facilitation service is utilised; and
  - (2) the other *Registered Participant* is entitled to be compensated for any commercial opportunities foregone by providing the test facilitation service.
- (y) When the terms and conditions are determined in accordance with clause 8.2 under this clause 5.7.7, then the *Proponent* and the other *Registered Participant* must enter into an agreement setting out those terms and conditions.
- (z) If *NEMMCO* is not the *Proponent* in respect of an *inter-network test*, the *Proponent* must:
- (1) prior to the scheduled date of the *inter-network test*, confirm to *NEMMCO* that the test facilitation services identified in the *test program* will be available to be utilised, who will be providing them and the operational arrangements for utilising them;
  - (2) provide sufficient information to enable *NEMMCO* to utilise the test facilitation services in conducting the *inter-network test*; and
  - (3) respond promptly to any queries *NEMMCO* raises with the *Proponent* concerning the availability of the test facilitation services and *NEMMCO's* ability to utilise those services in conducting the *inter-network tests*.
- (aa) The *Proponent* in respect of an *inter-network test* must bear all of the following costs associated with that *inter-network test*:
- (1) any amounts payable under an agreement under which test facilitation services are provided;
  - (2) the *Proponent's* own costs associated with the *inter-network test* and in negotiating and administering the agreements referred to in clause 5.7.7(u); and
  - (3) if the *Proponent* is not *NEMMCO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then the *Proponent* must enter into an agreement with *NEMMCO* to pay that amount to *NEMMCO*.

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- (ab) If the *Proponent* is *NEMMCO* and the amount of *settlements residue* on any *directional interconnector* for a *trading interval* during which there is an impact on *central dispatch* outcomes as a result of the *inter-network test* is negative, then *NEMMCO* must adjust that residue to be zero and must recover the amount as provided for in clause 2.11.3(b)(2A).
- (ac) *NEMMCO* must establish operational conditions to achieve the particular *power transfer* levels for each stage of the *inter-network test* as contemplated by the *test program*:
- (1) utilizing where practicable and economic to do so the test facilitation services identified in the *test program*; and
  - (2) otherwise, by applying to the minimum extent necessary to fulfil the test requirements, *inter-network testing constraints*.
- (ad) An *inter-network test* must be coordinated by an officer nominated by the *Inter-regional Planning Committee* who has authority to stop the test or any part of it or vary the procedure within pre-approved guidelines determined by the *Inter-regional Planning Committee* if that officer considers any of these actions to be reasonably necessary.
- (ae) Each *Registered Participant* must:
- (1) cooperate with *NEMMCO* in planning, preparing for and conducting *inter-regional tests*;
  - (2) act in good faith in respect of, and not unreasonably delay, an *inter-network test*; and
  - (3) comply with any instructions given to it by *NEMMCO* under clause 5.7.7(af).
- (af) *NEMMCO* may utilise test facilitation services under agreements entered into by the *Proponent* under this clause 5.7.7 during an *inter-network test* in order to achieve operational conditions on the *power system* which are reasonably required to achieve valid test results.

## **Schedule 5.2 - Conditions for Connection of Generators**

### **S5.2.5 Technical requirements**

#### **S5.2.5.11 Frequency control**

- (a) For the purpose of this clause S5.2.5.11:

**maximum operating level** means in relation to:

- (1) a *non-scheduled generating unit*, the maximum *sent out generation* consistent with its *nameplate rating*;
- (2) a *scheduled generating unit*, the maximum *sent out generation* (but not emergency generation) consistent with its *registered bid and offer data*;
- (3) a *non-scheduled generating system*, the combined maximum *sent out generation* consistent with the *nameplate ratings* of its in-service *generating units*;
- (4) a *scheduled generating system*, the combined maximum *sent out generation* (but not emergency generation) of its in-service *generating units*, consistent with its *registered bid and offer data*;
- (5) a *semi-scheduled generating unit*, the maximum *sent out generation* (but not emergency generation) consistent with its *registered bid and offer data*; and
- (6) a *semi-scheduled generating system*, the combined maximum *sent out generation* (but not emergency generation) of its in-service *generating units*, consistent with its *registered bid and offer data*.

**minimum operating level** means in relation to:

- (1) a *non-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation;
- (2) a *scheduled generating unit*, its minimum *sent out generation* for continuous stable operation consistent with its *registered bid and offer data*;
- (3) a *non-scheduled generating system*, the combined *minimum operating level* of its in-service *generating units*;
- (4) a *scheduled generating system*, the combined minimum *sent out generation* of its in-service *generating units*, consistent with its *registered bid and offer data*;
- (5) a *semi-scheduled generating unit*, the minimum *sent out generation* for continuous stable operation consistent with its *registered bid and offer data*; and

- (6) a *semi-scheduled generating system*, the combined minimum *sent out generation* of its in-service *generating units*, consistent with its *registered bid and offer data*.

**pre-disturbance level** means in relation to a *generating unit* and a *frequency disturbance*, the *generating unit's* level of output just before the system frequency first exceeds the upper or lower limit of the *normal operating frequency band* during the *frequency disturbance*.

**system frequency** means the *frequency* of the *transmission system* or *distribution system* to which the *generating unit* or *generating system* is *connected*.

### **Automatic access standard**

- (b) The *automatic access standard* is:
- (1) a *generating system's active power* transfer to the *power system* must not:
    - (i) increase in response to a rise in system frequency; or
    - (ii) decrease in response to a fall in system frequency;
  - (2) a *generating system* must be capable of automatically reducing its *active power* transfer to the *power system*:
    - (i) whenever the system frequency exceeds the upper limit of the *normal operating frequency band*;
    - (ii) by an amount that equals or exceeds the least of:
      - (A) 20% of its maximum operating level times the *frequency* difference between system frequency and the upper limit of the *normal operating frequency band*;
      - (B) 10% of its maximum operating level; and
      - (C) the difference between the *generating unit's* pre-disturbance level and minimum operating level, but zero if the difference is negative; and
    - (iii) sufficiently rapidly for the *Generator* to be in a position to offer measurable amounts of lower services to the *spot market* for *market ancillary services*; and
  - (3) a *generating system* must be capable of automatically increasing its *active power* transfer to the *power system*:
    - (i) whenever the system frequency falls below the lower limit of the *normal operating frequency band*;
    - (ii) by the amount that is equals or exceeds the least of:
      - (A) 20% of its maximum operating level times the percentage *frequency* difference between the lower limit of the *normal operating frequency band* and system frequency;

- (B) 5% of its maximum operating level; and
  - (C) one third of the difference between the *generating unit's* maximum operating level and pre-disturbance level, but zero if the difference is negative; and
- (iii) sufficiently rapidly for the *Generator* to be in a position to offer measurable amounts of raise services to the *spot market* for *market ancillary services*.

**Minimum access standard**

- (c) The *minimum access standard* is a *generating system* under relatively stable input energy, *active power* transfer to the *power system* must not:
- (1) increase in response to a rise in system frequency; and
  - (2) decrease more than 2% per Hz in response to a fall in system frequency.

**Negotiated access standard**

- (d) A *Generator* proposing a *negotiated access standard* in respect of paragraph (c)(2) must demonstrate to *NEMMCO* that the proposed increase and decrease in *active power* transfer to the *power system* are as close as practicable to the *automatic access standard* for that *plant*.
- (e) The *negotiated access standard* must record the agreed values for maximum operating level and minimum operating level, and where relevant the method of determining the values such that those values for a *generating system* must take into account its in-service *generating units*.
- (f) *NEMMCO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.11.

**General requirements**

- (g) Each *control system* used to satisfy this clause S5.2.5.11 must be *adequately damped*.
- (h) The amount of a relevant *market ancillary service* for which the *plant* may be registered must not exceed the amount that would be consistent with the *performance standard* registered in respect of this requirement.

#### **S5.2.5.14 Active power control**

- (a) The *automatic access standard* is a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more must have an *active power control system* capable of:
- (1) for a *scheduled generating unit* or, if subject to aggregation approved by *NEMMCO* under clause 3.8.3, an aggregated *scheduled generating system*:
    - (i) maintaining and changing its *active power output* in accordance with its *dispatch instructions*; and
    - (ii) ramping its *active power output* linearly from one *dispatch level* to another; and
  - (2) subject to energy source availability, for a *non-scheduled generating unit* or *non-scheduled generating system*:
    - (i) automatically reducing or increasing its *active power output* within 5 minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to subparagraph (iii),
    - (ii) automatically limiting its *active power output*, to below the level specified in subparagraph (i); and
    - (iii) not changing its *active power output* within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*.
  - (3) subject to energy source availability, for a *semi-scheduled generating unit* or, if subject to aggregation approved by *NEMMCO* under clause 3.8.3, an aggregated *semi-scheduled generating system*:
    - (i) automatically reducing or increasing its *active power output* within five minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to subparagraph(iii),
    - (ii) automatically limiting its *active power output*, to or below the level specified in subparagraph (i);
    - (iii) not changing its *active power output* within five minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and
    - (iv) ramping its *active power output* linearly from one *dispatch level* to another.

#### **Minimum access standard**

- (b) The *minimum access standard* is a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more must have an *active power control system* capable of:

- (1) for a *scheduled generating unit* or, if subject to aggregation approved by *NEMMCO* under clause 3.8.3, an aggregated *scheduled generating system*, maintaining and changing its *active power* output in accordance with its *dispatch instructions*; and
- (2) for a *non-scheduled generating system*:
  - (i) reducing its *active power* output, within 5 minutes, to or below the level required to manage *network* flows that is specified in a verbal instruction issued by the *control centre*;
  - (ii) limiting its *active power* output to or below the level specified in subparagraph (i);
  - (iii) subject to energy source availability, ensuring that the change of *active power* output in a 5 minute period does not exceed a value specified in a verbal instruction issued by the *control centre*; and
  - (iv) being upgraded to receive electronic instructions from the *control centre* and fully implement them within 5 minutes.
- (3) subject to energy source availability, for a *semi-scheduled generating unit* or, if subject to aggregation approved by *NEMMCO* under clause 3.8.3, an aggregated *semi-scheduled generating system*:
  - (i) automatically reducing or increasing its *active power* output within five minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to subparagraph(iii),
  - (ii) automatically limiting its *active power* output, to or below the level specified in subparagraph (i); and
  - (iii) not changing its *active power* output within five minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*.

#### **Negotiated access standard**

- (c) A *negotiated access standard* may provide that if the number or frequency of verbal instructions becomes difficult for a *control centre* to manage, *NEMMCO* may require the *Generator* to upgrade its *facilities* to receive electronic instructions and fully implement them within 5 minutes.
- (d) The *negotiated access standard* must document to *NEMMCO*'s satisfaction any operational arrangements necessary to manage *network* flows that may include a requirement for the *generating system* to be operated in a manner that prevents its output changing within 5 minutes by more than an amount specified by a *control centre*.
- (e) *NEMMCO* must advise on matters relating to *negotiated access standards* under this clause S5.2.5.14.

#### **General requirements**

- (f) Each *control system* used to satisfy the requirements of paragraphs (a) and (b) must be *adequately damped*.

## S5.2.6 Monitoring and control requirements

### S5.2.6.1 Remote monitoring

#### Automatic access standard

(a) The *automatic access standard* is a:

- (1) *scheduled generating unit*;
- (2) *non-scheduled generating unit* with a *nameplate rating* of 30 MW or more;
- (3) *non-scheduled generating system* with a combined *nameplate rating* of 30 MW or more;
- (4) *semi-scheduled generating unit*; or
- (5) *generating system* that is an aggregate approved by NEMMCO under clause 3.8.3,

must have *remote monitoring equipment* to transmit to NEMMCO's *control centres* in real time in accordance with clause 4.11, the quantities that NEMMCO reasonably requires to discharge its *market and power system security* functions set out in Chapters 3 and 4.

(b) The quantities referred to under paragraph (a) that NEMMCO may request include:

- (1) in respect of a *generating unit* with a *nameplate rating* of 30 MW or more, and a *scheduled generating unit* or *semi-scheduled generating unit* not part of an aggregate approved by NEMMCO under clause 3.8.3:
  - (i) *current, voltage, active power* and *reactive power* in respect of *generating unit* stators or power conversion systems (as applicable);
  - (ii) the status of all switching devices that carry the *generation*; and
  - (iii) *tap-changing transformer* tap position;
- (2) in respect of a *non-scheduled generating system* that includes a *generating unit* with a *nameplate rating* of less than 30 MW, or a *generating system* that is an aggregate approved by NEMMCO under clause 3.8.3:
  - (i) its connected status, *tap-changing transformer* tap position and *voltages*;
  - (ii) *active power* and *reactive power* aggregated for groups of identical *generating units*;
  - (iii) either the numbers of identical *generating units* operating or the operating status of each non-identical *generating unit*; and

- (iv) aggregate *active power* and *reactive power* for an aggregated *generating system* approved by NEMMCO under clause 3.8.3;
- (3) in respect of an auxiliary supply system with a capacity of 30 MW or more associated with a *generating unit* or *generating system*, *active power* and *reactive power*;
- (4) in respect of *reactive power* equipment that is part of a *generating system* but not part of a particular *generating unit*, its *reactive power*;
- (5) in respect of a wind farm type of *generating system*:
  - (i) wind speed;
  - (ii) wind direction; and
  - (iii) ambient temperature; and
- (6) any other quantity that NEMMCO reasonably requires to discharge its *market* and *power system security* functions as set out in Chapters 3 and 4.

**Minimum access standard**

- (c) The *minimum access standard* is a:
  - (1) *scheduled generating unit*;
  - (2) *generating system* that is an aggregate approved by NEMMCO under clause 3.8.3;
  - (3) *non-scheduled generating system* with a combined *nameplate rating* of 30 MW or more; or
  - (4) *semi-scheduled generating unit*; must have *remote monitoring equipment* to transmit to NEMMCO's *control centres* in real time;
  - (5) the *active power* output of the *scheduled generating unit*, *semi-scheduled generating unit*, *aggregated generating system* or *non-scheduled generating system* (as applicable);
  - (6) if *connected* to a *transmission system*, the *reactive power* output of the *scheduled generating unit*, *semi-scheduled generating unit*, *aggregated generating system* or *non-scheduled generating system* (as applicable); and
  - (7) if a wind farm type of *generating system*:
    - (i) number of units operating;
    - (ii) wind speed; and
    - (iii) wind direction,

in accordance with clause 4.11.

**Negotiated access standard**

- (d) NEMMCO may advise on matters relating to *negotiated access standards* under this clause S5.2.6.1.

## CHAPTER 8

# 8. Administrative Functions

## 8.2 Dispute Resolution

### 8.2.1 Application and guiding principles

(a) This clause 8.2 applies to any dispute which may arise between two or more *Registered Participants* about:

- (1) the application or interpretation of the *Rules*;
- (2) the failure of any *Registered Participants* to reach agreement on a matter where the *Rules* require agreement or require the *Registered Participants* to negotiate in good faith with a view to reaching agreement;
- (3) **[Deleted]**
- (4) the proposed access arrangements or *connection agreements* of an *Intending Participant* or a *Connection Applicant*;
- (5) the payment of moneys under or concerning any obligation under the *Rules*;
- (6) any other matter relating to or arising out of the *Rules* to which a contract between two or more *Registered Participants* provides that the dispute resolution procedures under the *Rules* are to apply;
- (7) any other matter relating to or arising out of the *Rules* in respect of which two or more *Registered Participants* have agreed in writing that this clause 8.2 should apply; or
- (8) any other matter that the *Rules* provide may or must be dealt with under this clause 8.2,

but does not apply to those disputes described in clause 8.2.1(h).

(a1) For the purposes of this clause 8.2 only, "*Registered Participant*" is deemed to include not just *Registered Participants* but also *NEMMCO* and *Connection Applicants* who are not otherwise *Registered Participants*, except that this will not be the case where the term "Registered Participant":

- (1) is used in clauses 8.2.2(b)(4), 8.2.2(d), 8.2.3(a), 8.2.3(b)(5) and 8.2.5(e);
- (2) first occurs in clauses 8.2.3(b), (b)(3), (b)(4) or (c); or
- (3) last occurs in clauses 8.2.4(a) or 8.2.9(c).

(b) **[Deleted]**

- (c) **[Deleted]**
- (d) The dispute resolution regime in this clause 8.2 provides procedures to resolve disputes between parties, not sanctions for breach of the *Rules*. The dispute resolution processes may indicate that a breach of the *Rules* has occurred and the resolution or determination of the dispute may take account of the damage thereby caused to a party. Any action for breach of the *Rules* may only be taken by the *AER* acting in accordance with the *National Electricity Law*.
- (e) It is intended that the dispute resolution regime set out in or implemented in compliance with the *Rules* and described in detail in this clause 8.2 should to the extent possible:
  - (1) be guided by the *market objective*;
  - (2) be simple, quick and inexpensive;
  - (3) preserve or enhance the relationship between the parties to the dispute;
  - (4) take account of the skills and knowledge that are required for the relevant procedure;
  - (5) observe the rules of natural justice;
  - (6) place emphasis on conflict avoidance; and
  - (7) encourage resolution of disputes without formal legal representation or reliance on legal procedures.
- (f) Except as provided in the *National Electricity Law* and clause 8.2.1(g), where any dispute of a kind set out in clause 8.2.1(a) arises, the parties concerned must comply with the procedures set out in clauses 8.2.4 to 8.2.10 and 8.2.12 and, where the dispute is referred to a *DRP*, a determination of the *DRP* is final and binding on the parties.
- (g) Notwithstanding clause 8.2.1(f), a party may seek an urgent interlocutory injunction from a court of competent jurisdiction.
- (h) Clause 8.2 does not apply to:
  - (1) a decision by *NEMMCO* regarding an exemption under clause 2.2.1(c);
  - (2) a decision by *NEMMCO* under clause 2.2.2 not to approve the classification of a *generating unit* as a *scheduled generating unit*;
  - (2A) a decision by *NEMMCO* under clause 2.2.2A not to approve the classification of a *generating unit* as a *semi-scheduled generating unit*;
  - (3) a decision by *NEMMCO* under clause 2.2.3 not to approve the classification of a *generating unit* as a *non-scheduled generating unit*;
  - (4) a decision by *NEMMCO* under clause 2.9.2(c);
  - (5) a decision by *NEMMCO* to reject a notice from a *Market Customer* under clause 2.10.1(d);

- (6) a determination by *NEMMCO* under clause 3.3.8 of the *maximum credit limit* for a *Market Participant*;
- (7) a decision by *NEMMCO* under clause 3.8.3 to refuse an application for aggregation;
- (8) a decision by *NEMMCO* under clause 3.15.11 to reject a *reallocation request*;
- (9) a decision by *NEMMCO* to issue a notice under clause 4.11.1(d);
- (10) a decision by *NEMMCO* under clause 7.1.4(b) to refuse to permit a *Market Participant* to participate in the *market* in respect of a *connection point*;
- (11) a decision by *NEMMCO* whether or not to deregister a *Metering Provider* under clause 7.4.3(a), (aa) or (b), to suspend a *Metering Provider* from a category of registration under clause 7.4.3(aa) or to impose agreed constraints on the continued operation of a *Metering Provider*;
- (12) A dispute concerning the price of a *SRAS* agreement or a tender conducted by *NEMMCO* for the acquisition of *system restart ancillary services* under clause 3.11.5;
- (13) a dispute of a kind referred to in clause 5.6.6; or
- (14) a *transmission services access dispute* to which Part K of Chapter 6A applies.

## CHAPTER 10

### 10. GLOSSARY

#### **available capacity**

The total MW capacity available for *dispatch* by a *scheduled generating unit*, *semi-scheduled generating unit* or *scheduled load* (i.e. maximum plant availability) or, in relation to a specified *price band*, the MW capacity within that *price band* available for dispatch (i.e. availability at each price band).

#### **central dispatch**

The process managed by NEMMCO for the *dispatch* of *scheduled generating units*, *semi-scheduled generating units*, *scheduled loads*, *scheduled network services* and *market ancillary services* in accordance with clause 3.8.

#### **Directed Participant**

A *Scheduled Generator*, *Semi-Scheduled Generator*, *Market Generator*, *Scheduled Network Service Provider* or *Market Customer* the subject of a *direction*.

#### **dispatch**

The act of initiating or enabling all or part of the response specified in a *dispatch bid*, *dispatch offer* or *market ancillary service offer* in respect of a *scheduled generating unit*, *semi-scheduled generating unit*, a *scheduled load*, a *scheduled network service*, an *ancillary service generating unit* or an *ancillary service load* in accordance with clause 3.8, or a *direction* or operation of capacity the subject of a *reserve contract* as appropriate.

#### **dispatch cap**

The amount of electricity specified in a *dispatch instruction* as the *semi-scheduled generating unit's* maximum permissible *generation* at the target time specified in that *dispatch instruction*.

#### **dispatch inflexibility profile**

Data which may be provided to NEMMCO by *Market Participants*, in accordance with clause 3.8.19, to specify *dispatch inflexibilities* in respect of *scheduled loads*, *scheduled generating units* or *semi-scheduled generating units* which are not *slow start generating units*.

#### **dispatch offer price**

The price submitted by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Scheduled Network Service Provider* for a *price band* and a *trading interval* in a *dispatch offer*.

**dispatched generating unit**

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

**energy constrained semi-scheduled generating unit**

A *semi-scheduled generating unit* in respect of which the amount of electricity it is capable of *supplying* on a *trading day* is less than the amount of electricity it would *supply* on that *trading day* if it were *dispatched* to its full nominated availability for the whole *trading day*.

**generation dispatch offer**

A notice submitted by a *Scheduled Generator* to *NEMMCO* relating to the *dispatch* of a *scheduled generating unit* or a *semi-scheduled generating unit* in accordance with clause 3.8.6.

**inflexible, inflexibility**

- (a) In respect of a *scheduled generating unit*, *scheduled load* or *scheduled network service* for a *trading interval* means that the *scheduled generating unit*, *scheduled load* or *scheduled network service* is only able to be *dispatched* in the *trading interval* at a fixed *loading level* specified in accordance with clause 3.8.19(a).
- (b) In respect of a *semi-scheduled generating unit* for a *trading interval* means that the *semi-scheduled generating unit* is only able to be *dispatched* in the *trading interval* at or below a maximum *loading level* specified in accordance with clause 3.8.19(a1).

**loading price**

The price specified for a *price band* and a *trading interval* in a *dispatch offer*, in accordance with clause 3.8.6, for the *dispatch* of a *scheduled generating unit* or a *semi-scheduled generating unit* at a level above its *self-dispatch level*.

**non-semi-dispatch interval**

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

**off-loading price**

The price specified for a *price band* and a *trading interval* in a *dispatch offer*, in accordance with clause 3.8.6, for the *off-loading* of a *scheduled generating unit* or a *semi-scheduled generating unit* below its *self-dispatch level*.

**PASA availability**

The *physical plant capability* of a *scheduled generating unit*, *semi-scheduled generating unit*, *scheduled load* or *scheduled network service*, including any capability that can be made available within 24 hours.

**registered bid and offer data**

Data submitted by *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* to *NEMMCO* in relation to their *scheduled loads*, *scheduled generating units*, *semi-scheduled generating units* and *scheduled market network services* in accordance with schedule 3.1.

**restriction offer**

An offer by a *Scheduled Generator*, *Semi-Scheduled Generator* or a *Scheduled Network Service Provider* to provide capacity to *NEMMCO* for all or part of a *mandatory restriction period* made in accordance with the *restriction offer procedures*.

**scheduled plant**

In respect of a *Registered Participant*, a *scheduled generating unit*, a *semi-scheduled generating unit*, a *scheduled network service* or a *scheduled load* classified by or in respect to that *Registered Participant* in accordance with Chapter 2.

**semi-dispatch interval**

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

- (a) a *network constraint* would be violated if the *semi-scheduled generating unit's generation* were to exceed the *dispatch cap* specified in the related *dispatch instruction* at the target time; or
- (b) the *dispatch cap* specified in that *dispatch instruction* is less than the *unconstrained intermittent generation forecast* for the target time,

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

**semi-scheduled generating system**

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

**semi-scheduled generating unit**

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

**Semi-Scheduled Generator**

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

**statement of opportunities**

A statement prepared by *NEMMCO* to provide information to assist *Scheduled Generators*, *Semi-Scheduled Generators*, *Transmission Network Service Providers* and *Market Participants* in making an assessment of the future need for electricity generating or demand management capacity or augmentation of the *power system*.

**unconstrained intermittent generation forecast**

The forecast prepared by *NEMMCO* of a *semi-scheduled generating unit's generation* for the relevant time, determined:

- (a) from forecasts of the energy available for input to that *generating unit's electrical power conversion process*; and
- (b) on the assumption that there are no *network constraints* otherwise affecting the *generation* from that *generating unit*.

## CHAPTER 11

### 11. Savings and Transitional Rules

#### 11.11 *Rules consequent on making the National Electricity Amendment (Semi-Dispatch of Significant Intermittent Generation) Rule 2007*

##### 11.11.1 Definitions

In rule 11.11:

**Amending Rule** means the National Electricity Amendment (Semi-Dispatch of Significant Intermittent Generation) Rule 2007.

**classified generating unit** means a *generating unit* for which NEMMCO approved a classification under clause 2.2.2 or clause 2.2.3 before the *commencement date*.

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

**existing generating unit** means a *classified generating unit* or a *generating unit* for which there is a *connection agreement* that was executed by all parties to the *connection agreement* before the *commencement date* and that is in force at the time NEMMCO is to approve its classification.

##### 11.11.2 Classification of existing generating unit

- (a) NEMMCO must approve the classification of an *existing generating unit* as a *non-scheduled generating unit* if it is satisfied that:
- (1) the primary purpose for which the *existing generating unit* operates is local use and the aggregate *sent out generation* at its *connection point* rarely, if ever, exceeds 30 MW;
  - (2) the physical and technical attributes of the *existing generating unit* are such that it is not practicable for it to participate in *central dispatch*; or
  - (3) the output of the *existing generating unit* is *intermittent*.
- (b) If, by the operation of clause 11.11.2(a), NEMMCO must approve the classification of an *existing generating unit* as a *non-scheduled generating unit*, clause 2.2.3(c) applies in respect of that classification as the clause would have applied immediately before the *commencement date*.

### **11.11.3 Registration and reclassification of classified generating unit**

- (a) A *Generator* will not be required to apply to register in the category of *Semi-Scheduled Generator* and reclassify any of its *classified generating units* as *semi-scheduled generating units* by reason of the commencement of the *Amending Rule*.
  
- (b) For a period of two years after the *commencement date*, a *Generator* will not be liable to pay a registration fee to *NEMMCO* in order to apply to be registered in the category of *Semi-Scheduled Generator* and reclassify any of its *classified generating units* as *semi-scheduled generating units*.

### **11.11.4 Participant Fees**

Until *NEMMCO* determines a structure of *Participant fees* under clause 2.11 which provides for *Semi-Scheduled Generators*, references to *Scheduled Generators* in *NEMMCO's* "Structure of Participant Fees under clause 2.11 of the National Electricity Rules", dated 24 March 2006, will be taken to include *Semi-Scheduled Generators*.