

25 January 2008

Dr John Tamblyn
Chairman
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Dear John

Submission on Draft National Electricity Amendment (Central Dispatch and Integration of Wind and Other Intermittent Generation) Rule 2007

Thank you for the opportunity to comment on the Commission's draft determination on the above Rule. NEMMCO supports the main conclusions of the draft determination and is pleased to note that the draft Rule largely addresses the issues that were raised in NEMMCO's original Rule request.

However, NEMMCO has identified a number of potential issues with the draft Rule in the areas listed below for which we seek either clarification or changes to the draft Rule:

- Unit Registration and Aggregation (Clauses 2.2.7, 3.8.3, Ch 10);
- Active Power Control - Technical Standards (Automatic Access) (S 5.2.5.14);
- Availability Data (Clauses 3.7B, 3.7.2, 3.7.3, Ch 10);
- Dispatch Instructions (Clause 4.9.2, Ch 10);
- Regulation FCAS Causer Pays Factors (Clause 3.15.6A(k)); and
- Transitional Arrangements (Clause 11.X, Rule Commencement Date).

These issues are discussed in detail in this submission along with suggested changes to the draft Rule to address the issues where appropriate. The tables in Appendix 1 provide a summary of the issues raised.

I would appreciate your consideration of this submission. If you wish to discuss any of the matters, please do not hesitate to contact Ross Gillett on (02) 9239 9114.

Yours sincerely


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1. Introduction

Approach to the Draft Rule

One of the guiding principles in developing the Semi-Dispatch Rules is to balance the need for additional regulations to effectively manage network security against the additional burden of those regulations without creating unnecessary barriers to entry in the NEM.

As such, the Commission has adopted the view that the NEM objective is best served by making the least changes to the National Electricity Rules (the **Rules**) necessary to implement Semi-Dispatch as this will ensure the most efficient application of the Rules to Semi-Scheduled Generators as a new participant category.

The Commission achieves this in the draft Rule by assuming as a reasonable starting point that a Semi-Scheduled Generator is a Non-Scheduled Generator, and then applying only the minimum set of Scheduled Generator requirements (and in some cases, requirements that only apply to Semi-Scheduled Generators) that would be necessary for the Semi-Dispatch arrangements to work effectively.

NEMMCO adopted the opposite approach in our original Rule change proposal - that is, assumed that a Semi-Scheduled Generator is a Scheduled Generator as a starting point, and then removed Scheduled Generator requirements that were unnecessary.

However, the Commission may not be aware that if in NEMMCO's opinion it is necessary for a Non-scheduled Generator to comply with some of the obligations of a Scheduled Generator, especially for large non-scheduled generating units, NEMMCO may approve a registration on such terms and conditions as NEMMCO considers reasonably necessary. This means that using the Rules for Non-Scheduled Generators as a starting point for Semi-Scheduled Generators has led to some omissions that do not reflect current practice.

NEMMCO's policy on classification of generating units as non-scheduled generating units is in Appendix 2 of NEMMCO's Generator Registration Guide¹, and includes the terms and conditions that NEMMCO may consider to be necessary.

Purpose of this Submission

While NEMMCO believes that the Commission has largely addressed the issues that were raised in our original Rule request, NEMMCO has identified a number of potential issues with the draft Rule, particularly in the areas of:

- New Rule 2.2.7, for the classification and aggregation of semi-scheduled generating units;
- New Rule 3.7B, for the provision of availability data from Semi-Scheduled Generators and the calculation of unconstrained intermittent generation forecasts;
- Technical standards for active power control of semi-scheduled generating systems, under Schedule 5.2.5.14;
- NEMMCO's right to issue dispatch instructions to Semi-Scheduled Generators for voltage control, under Clause 4.9.2;
- Regulation FCAS Causer Pays Factors for Semi-Scheduled Generators, under Clause 3.15.6A(k); and
- Transition into the Semi-Dispatch Arrangements, under Clause 11.X.

The purpose of this submission is to highlight these issues to the Commission, with a view to seeking either further clarification or to make changes to the draft Rule. NEMMCO has suggested a number of changes to the draft Rule to address the issues, where appropriate.

¹ <http://www.nemmco.com.au/registration/registration.htm#GuidesForms>

2. Issues with the Draft Rule and Proposed Changes

1. Unit Registration and Aggregation

1.1: Proposal for Automatic Aggregation of Identical Intermittent Generating Units

Relevant Clauses:

- Clauses 2.2.7(h),(i) (new): Semi-Scheduled Generator
- Clause 3.8.3(j) (new): Bid and offer aggregation guidelines

Background

The Commission has proposed a new Clause 2.2.7 that would cover the registration of a Semi-Scheduled Generator and the classification of its semi-scheduled generating units.

Submissions identified two issues in the current Rules relating to the process that would apply for registering and aggregating a group of intermittent generating units at a common connection point as a single semi-scheduled generating unit for the purposes of central dispatch.

The Commission states these issues as:

- “1. The Rules are silent on when a Generator may apply for aggregation. This could result in a Generator being required to individually register many wind turbines before applying to aggregate these units.
2. Inconsistent application of the terms generating unit, generating system and aggregated units through the Rules creates misunderstandings or ambiguous interpretation. The wind industry is concerned that although they may aggregate a cluster of individual wind turbines for the purposes of central dispatch and settlements, some parts of the Rules could require compliance on an individual unit (or wind turbine) basis.”

In relation to the first issue, NEMMCO accepts that a literal interpretation of the current Rules would appear to impose the administrative burden of classifying individual generating units first before seeking their aggregation under Clause 3.8.3.

The Commission responded to this perceived issue by proposing an arrangement under Clause 2.2.7(h) that would allow persons to automatically cluster together a significant group of identical intermittent generating units as part of their original unit classification request. The unit cluster would then be treated as a single classified semi-scheduled generating unit for the purposes of the Rules.

Clause 3.8.3 of the Rules would then allow the Semi-Scheduled Generator to subsequently apply to NEMMCO to aggregate two or more semi-scheduled generating units, each which may represent a cluster under Clause 2.2.7(h). The Commission added new Clause 3.8.3(j) with the aim of clarifying this arrangement.

The Commission contended that the proposed arrangements under Clause 2.2.7 offer persons with significant intermittent generation a streamlined alternative to the current two-step process of classification then aggregation under Clause 3.8.3, adding that:

“...potential investors not familiar with NEMMCO’s process would see this as a major simplification.”

The Commission also concludes that the new Rule eliminates a source of confusion as it would apply to the registered generating unit as a whole, and not individually to each physical generating unit.

NEMMCO notes that the draft Rule is similar to that suggested in Auswind's submission to our original Rule request, except that under the Auswind proposal:

- An identical generating unit must also have a nameplate rating ≤ 5 MW; and
- The arrangements would apply to both scheduled and semi-scheduled generating units.

Issues with the Draft Rule

In 2007, NEMMCO registered 295 wind turbine generating units across eight separate wind farms. Of these, 98 units at two wind farms were classified as scheduled generating units and aggregated under Clause 3.8.3 of the Rules.

NEMMCO's experience with registration is that applicants find the process lengthy and complex, and that there appears scope for improving the process in the Rules. However, aggregation has not been an area that has caused difficulty. This is because:

- NEMMCO's Generator Registration Guide and Forms make it clear that aggregation can occur at the same time as registration;
- the criteria for aggregation have been relatively straightforward to achieve; and
- the bulk classification of a large number of similar generating units is no more difficult to administer than the classification of a single unit. This applied equally to the other 200-odd wind non-scheduled generating units registered in 2007.

NEMMCO also notes concerns over application of the Rules to a large number of individual generating units at a wind farm. While the proposed Rule may overcome this perception, NEMMCO would have to adopt a more literal approach to its current operating practices (including for existing non-scheduled wind farms) for this to become a problem in practice.

We also believe the draft Rule may create unintended consequences for actions take prior to registration, such as the establishment of connection agreements and performance standards. It is not clear what the status of these will be if they rely on the pre-registration definition of generating unit, for example.

The Commission itself acknowledges that an alternate, automatic aggregation arrangement within the Rules may only yield marginal benefit:

"In practice, this benefit is likely to be small because NEMMCO currently streamlines the process of registering multiple identical units."

Notwithstanding the above, NEMMCO also has a number of concerns with the proposed arrangements under Clause 2.2.7(h), (i) and (j):

Issue 1.1.1 – Unconditional Aggregation of Identical Units

Under the current aggregation arrangements of Clause 3.8.3(b) NEMMCO must approve a request to aggregate a group of scheduled generating units only if NEMMCO is satisfied that:

- All units are connected at the same site and have the same intra-regional loss factor; and
- Operation as an aggregated unit would not adversely affect power system security.

If either of the above conditions is not satisfied then under Clause 3.8.3(c) NEMMCO may still approve the aggregation, provided NEMMCO is satisfied that operation of the aggregated unit would not materially distort central dispatch.

However under new Clause 2.2.7(h) NEMMCO must unconditionally accept a request to classify a group of identical intermittent generating units at the same connection point as a single semi-scheduled generating unit, even if that aggregated unit is unable to satisfy the above pre-conditions.

Curiously, if the aggregation request relates to intermittent generating units that are non-identical or not at the same connection point then under the new Clause 2.2.7(i) NEMMCO must apply the “would not adversely affect *power system security* or materially distort *central dispatch*” aggregation tests described in that Clause, which is effectively a duplication of the tests that would have applied under a Clause 3.8.3 request.

Issue 1.1.2 – No Upper Limit on Capacity of an Identical Unit

Clause 2.2.7(h) places no upper MW limit on the nameplate rating (capacity) of each individual, identical generating unit when NEMMCO assesses their eligibility for automatic aggregation.

It is conceivable (albeit unlikely) that NEMMCO could be required to automatically accept the aggregation of a number of individually significant (for example, > 30 MW) yet still all identical, intermittent generating units, which may pose issues for NEMMCO in its efficient management of power system security.

For example, a requested aggregation may comprise three 150 MW generating units, each of which is the largest unit installed in the region and hence each potentially determining the FCAS contingency raise requirement for that region. However as only the aggregated unit is modelled, then central dispatch cannot know the relative dispatch from each individual unit within the aggregate and hence must conservatively assume that one unit is operating at maximum capacity when dynamically determining the FCAS contingency requirement to be met.

NEMMCO should retain the right to reject any potential aggregation on power system security grounds.

Note that under Auswind’s proposal only identical generating units of ≤ 5 MW nameplate rating would be eligible for automatic aggregation. If the aggregation arrangements under Clause 2.2.7 were to remain, then an upper capacity limit of 6 MW² would be preferable to no upper limit.

Issue 1.1.3 – Inconsistent Treatment of Identical versus Non-Identical Units

Under the draft Rule a person may have a cluster of identical units automatically classified as a single semi-scheduled generating unit, however non-identical units must be subject to the existing Clause 3.8.3 aggregation rules.

The different treatment of identical versus non-identical intermittent generating units in Clauses 2.2.7(h) and (i) seems to assume that NEMMCO would only ever require aggregate dispatch control over a group of identical units, no matter how large individually or collectively, in order to avoid power system security or central dispatch issues, whereas non-identical units individually were somehow more likely to pose such issues for NEMMCO.

NEMMCO notes that the Commission has not explained why identical and non-identical units are treated differently.

Issue 1.1.4 – NEMMCO must only “Accept” a Classification Request

Clause 2.2.7(h) says that NEMMCO must only accept a request to classify, but is silent on what we do with that request once accepted. Using the same terminology applied elsewhere in the Rules, NEMMCO would approve such a request for classification.

Issue 1.1.5 – Is the “Single AGC Control Point” condition missing?

In the draft Rule determination the Commission required that a generating system for which automatic aggregation is sought must also “have a single AGC control point”. However this third condition does not appear in the draft Rule.

² 6 MW is the minimum allowable error for deeming compliance with a dispatch target – refer Dispatch System Operating Procedure SO_OP3705, NEMMCO website

Issue 1.1.6 – Proposed Schedule 3.1 Changes should be in Schedule 1 of Amending Rule

NEMMCO agrees with the Commission's changes to simplify the Schedule 3.1 data provided when registering a semi-scheduled generating unit.

However persons registering a semi-scheduled generating unit between the "registration date" and the "commencement date" of the Semi-Dispatch arrangements cannot take advantage of the proposed Schedule 3.1 changes, as these changes appear under Schedule 2 of the Amending Rule rather than under Schedule 1, and hence only apply after the Semi-Dispatch commencement date.

NEMMCO suggests that Schedule 3.1 changes should appear under Schedule 1 of the Amending Rule, to give persons with new intermittent generation a (albeit small) incentive to register as a semi-scheduled generating unit before the Rule commencement date.

Issue 1.1.7 – Alternate Aggregation Process is Confusing

Under Clause 2.2.7(k) of the draft Rule a person with intermittent generation that did not register a cluster of two or more identical units as a single semi-scheduled generating unit under Clause 2.2.7(h) can subsequently register that cluster as an aggregated unit under Clause 3.8.3.

Clause 3.8.3(j) then elaborates that a single semi-scheduled generating unit registered under Clause 2.2.7(h) cannot also be an aggregated unit under Clause 3.8.3.

For example, if a wind farm only comprises of identical wind turbines (which is the norm) and under Clause 2.2.7(h) a person requests to register that cluster of identical units as a single semi-scheduled generating unit, then according to Clause 3.8.3(j) that whole wind farm cluster is not an aggregated unit. Therefore all Rule references to that *semi-scheduled generating unit* (including those in Chapter 5) would be interpreted as referring to the whole wind farm cluster rather than individual wind turbines.

NEMMCO believes this alternate aggregation process would further complicate the registration process rather than simplify it, and hence introduce regulatory uncertainty.

In summary, NEMMCO is not convinced that the automatic aggregation arrangements described in new Clause 2.2.7(h) would provide any net benefit, and instead may:

- Increase the risk to, and reduce the efficient management of, power system security as a result of NEMMCO only being able to control the total dispatch of a group of semi-scheduled generating units that are automatically aggregated under Clause 2.2.7(h);
- Provide favourable treatment to Semi-Scheduled Generators (with identical units) over Scheduled Generators, in their relative ability to aggregate units;
- Further complicate the registration process and introduce regulatory uncertainty by introducing an alternative aggregation mechanism.

While there is merit in the concept of registering a "cluster of identical units" for the purposes of accurate intermittent generation forecasting, NEMMCO believes this should be achieved through changes to the existing aggregation arrangements under Clause 3.8.3, rather than introducing an alternative process of automatic aggregation as proposed in Clause 2.2.7(h).

NEMMCO therefore suggests:

- Deletion of Clauses 2.2.7(h), (i) and (k), and related Clause 3.8.3(j); and
- Addition of a new Clause 2.2.7(h) to clarify any perceived ambiguities in the Rules in relation to the classification and aggregation process.

Proposed Changes

Delete Clauses 2.2.7(h), (i) and (j)

Append to Clause 2.2.7³:

(h) At the time that a person makes a request for NEMMCO to approve the classification of two or more *semi-scheduled generating units* under paragraph (c), that person may also request the aggregation of that group of *semi-scheduled generating units* in accordance with clause 3.8.3.

³ For consistency the Commission may also consider inserting a similar provision under Clause 2.2.2 for the registration of Scheduled Generators.

1.2: Conditions for Aggregation Approval

Relevant Clauses:

- Clause 3.8.3(b): Bid and offer aggregation guidelines

Background

Clause 3.8.3(b) of the Rules sets out the conditions for NEMMCO to approve an aggregation of a group of generating units.

Issues with the Draft Rule

Issue 1.2.1 – Aggregation Rules Do Not Support Intermittent Generation Forecasting

To support achieving accurate forecasts from the intermittent generation forecasting system, the forecasting model requires the provision of availability data at a minimum resolution of a “cluster” of identical generating units within the aggregate unit.

The current Rules for aggregation under Clause 3.8.3 do not support the development of accurate forecasts where a wind farm is made up of a number of clusters, as there is no requirement to register “clusters” within the aggregated unit as a condition of aggregation. This issue, along with an example of the issue, is further explained in Issue 3.1.2 of this submission.

As pointed out in Section 1.1, while draft Rule 2.2.7 is problematic the parts of that Rule dealing with registering clusters of identical units needs to be incorporated as a pre-requisite of aggregation under Clause 3.8.3.

Proposed Clause 3.8.3(f) already gives NEMMCO the right to oblige a Semi-Scheduled Generator to notify the availability and operating status of individual generating units within an aggregated unit as a condition of its aggregation, but only for the purposes of PASA.

NEMMCO proposes to extend this, so that NEMMCO can also require a Semi-Scheduled Generator to register “clusters” of identical generating units within the requested aggregated unit, and to provide *plant availability*⁴ data to NEMMCO for each registered “cluster” for use in the calculation of unconstrained intermittent generation forecasts under Clause 3.7B.

Under this proposal, there is a clear distinction⁵ between:

- a *generating unit cluster* (a new defined term), which is the entity for which *plant availability* data is provided and intermittent generation forecasts are determined, as described in Clause 3.7B; and
- the aggregated *semi-scheduled generating unit*, which is the entity defined for market bidding and dispatch purposes.

A *generating unit cluster* comprises one or more individual *intermittent* generating units, which may all be identical in terms of make, model and capacity⁶ (an *identical unit cluster*, a new defined term) or, only if NEMMCO agrees, may comprise different generating units (a *non-identical unit cluster*, a new defined term).

An aggregated *semi-scheduled generating unit* comprises one or more *generating unit clusters*.

⁴ NEMMCO is proposing to replace the term “availability” internally-defined in Clause 3.7B with a new defined Chapter 10 term *plant availability* – see Section 3.1 of this submission for the proposed definition.

⁵ The Commission also made this distinction in its draft Rule determination.

⁶ This “identity” test is the same as that proposed in Clause 2.2.7(h) of the draft Rule.

In this way each individual intermittent generating unit within the requested aggregate unit uniquely belongs to a *generating unit cluster*.

As part of the unit aggregation process a Semi-Scheduled Generator would be required to:

- Provide NEMMCO with details of the make, model, nameplate rating and total number of generating units within each *identical unit cluster*;
- Register with NEMMCO each *identical unit cluster* as a *generating unit cluster*, unless NEMMCO otherwise agrees to register a combination of identical and non-identical units (that is, a *non-identical unit cluster*⁷) as a *generating unit cluster*; and
- Provide to NEMMCO registered capacity data for each *generating unit cluster* within the requested aggregate.

Issue 1.2.2 – Reinstatement of "Control Systems" as a Condition for Aggregation

In NEMMCO's original Rule request, NEMMCO requested the removal of Clauses 3.8.3(b)(3), (b)(4) and (b)(5) as conditions for approval of an aggregation request, as NEMMCO felt they were covered under Chapter 5 of the Rules.

NEMMCO notes that these conditions are removed in the draft Rule.

However NEMMCO notes in the draft Rule that the Commission has also deleted references to "aggregated under Clause 3.8.3" from both Schedule 5.2.5.14 (active power control systems) and Schedule 5.2.6.1 (remote monitoring), the latter of which also refers to Rule 4.11 technical requirements for communication protocols.

Therefore there is no longer any link between the adequacy of control systems for aggregated units under Clause 3.8.3, and the technical requirement for such control systems under Schedule 5.2.5.14.

NEMMCO understands and agrees with the reasons for removing all Clause 3.8.3 references from Chapter 10. However as the technical compliance of an aggregated dispatch control system is pre-requisite to approving an aggregation request, NEMMCO therefore requests that the compliance condition for "control systems" be reinstated under Clause 3.8.3(b) of the draft Rule.

Issue 1.2.3 – Aggregation is Not for the Purpose of Settlements

Clause 3.8.3 exists to allow the multiple scheduled generating units to be treated as a single aggregate for the purposes of simplified bidding and dispatch.

This purpose is indicated in the title of Clause 3.8.3 - Bid and offer aggregation guidelines.

However Clause 3.8.3(a) of the current Rules states that:

"Scheduled Generators, Semi-Scheduled Generators or Market Participants who wish to aggregate their relevant generating units, scheduled network services or scheduled loads for the purpose of central dispatch and settlements must apply to NEMMCO to do so".

If the Scheduled Generator also registers those units as market generating units then their output is settled through the wholesale market processes. However settlement is done at the Generator portfolio level.

⁷ One example of where NEMMCO may decide to register a *non-identical unit cluster* as a *generating unit cluster* is where the wind farm cluster comprises of, say, 50 wind turbines of one particular type and only 2 or 3 wind turbines of a different type, so that the Unconstrained Intermittent Generation Forecast (UIGF) error that may result from applying the inappropriate wind power conversion curve to the 2 or 3 odd turbines would not be material.

Further, the compliance assessment of *metering systems* against Chapter 7 of the Rules is independently done for each registration application regardless of whether the application involves aggregation, hence our original request to remove condition (b)(5) which requires that:

“(5) *metering systems* for *settlements* purposes must satisfy the *Rules* after aggregation”

NEMMCO believes that, with the removal of the above condition (b)(5) the Rule cannot refer to aggregation as being “for the purpose of *settlements*”, and that these words should be removed.

In summary, NEMMCO is proposing changes to Clause 3.8.3 and Chapter 10 of the draft Rule, to:

- Require Semi-Scheduled Generators, as a new condition of aggregation, to register *generating unit clusters* within the aggregated unit (being *identical unit clusters*, unless NEMMCO otherwise agrees to register *non-identical unit clusters*) for the purposes of accurate intermittent generation forecasting under Clause 3.7B;
- Add new definitions for *generating unit cluster*, *identical unit cluster* and *non-identical unit cluster*;
- Reinstate the condition that “control systems must satisfy the Rules after aggregation”, given removal of the Clause 3.8.3 reference in Schedule 5.2.5.14 of the draft Rule; and
- Remove the reference that aggregation is “for the purpose of *settlements*”, given the removal of the condition that “metering systems for settlements purposes must satisfy the Rules after aggregation” makes that reference redundant.

Proposed Changes

Amend Clause 3.8.3(a):

- (a) *Scheduled Generators, Semi-Scheduled Generators or Market Participants* who wish to aggregate their relevant *generating units, scheduled network services or scheduled loads* for the purpose of *central dispatch* ~~and *settlements*~~ must apply to NEMMCO to do so.

Amend Clause 3.8.3(b):

- (b) NEMMCO must approve applications for aggregation made under paragraph (a) if the following conditions are fulfilled:
- (1) aggregated *generating units or 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*;
 - (2) aggregated *scheduled network services* must be *connected* at the same two sites, have the same *intra-regional loss factors*, have the same *distribution loss factors* where applicable and be operated by the same *Generator or Market Participant*; ~~and~~
 - (3) *power system security* must not be materially affected by the proposed aggregation;
 - (4) *control systems such as automatic generation control systems* must satisfy the *Rules* after aggregation; and

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- (5) in the case of an aggregated *semi-scheduled generating unit* for the purposes of rule 3.7B, the *Semi-Scheduled Generator* has:
- (i) provided NEMMCO with details of:
 - (1) the make, model and *nameplate rating* of *generating units* within each *identical unit cluster* of the requested aggregation; and
 - (2) the total number of *generating units* within each *identical unit cluster* of the requested aggregation;
 - (ii) registered with NEMMCO each *identical unit cluster* within the requested aggregation as a *generating unit cluster*, unless NEMMCO otherwise agreed to register a *non-identical unit cluster* as a *generating unit cluster*; and
 - (iii) provided NEMMCO with the registered capacity of each *generating unit cluster* within the requested aggregation.

Insert new Chapter 10 definitions, to support proposed changes to the above and to Clause 3.7B described later in this submission:

generating unit cluster

A set of *generating units* with *intermittent* output which is registered with NEMMCO in accordance with Clause 3.8.3, and which is either an *identical unit cluster* or a *non-identical unit cluster*.

identical unit cluster

A set of *generating units* with *intermittent* output which are all identical in make, model and *nameplate rating*.

non-identical unit cluster

A set of *generating units* with *intermittent* output which are not all identical in make, model and *nameplate rating*.

1.3: Other Issues with Aggregation Process

Relevant Clauses:

- Clauses 3.8.3(d) & (g): Bid and offer aggregation guidelines

Background

The purpose of Clause 3.8.3(d) is to ensure that all Rule references that relate to the dispatch of a *scheduled generating unit* are only to be interpreted as the dispatch at the common connection point of the group of generating units aggregated under Clause 3.8.3.

Proposed Clause 3.8.3(g) (which is a rationalisation of current Clauses 3.8.3(g) and (i)) requires NEMMCO to notify the relevant applicant of aggregation approval or reasons for denial.

Issues with the Draft Rule

Issue 1.3.1 – Rules for Individual versus Aggregated Units cannot “Equally Apply”

We note the Commission is of the view that the application of aggregation under Clause 3.8.3(d) should be limited to Chapter 3 and Clause 4.8.9, that is to the purposes of dispatch and settlements, and that the Commission has adopted the change to Clause 3.8.3(d) proposed by NEMMCO.

However as raised in our original Rule request there remains an issue with the ambiguous use of the statement “a reference to a *generating unit* ... are to apply equally to aggregated *generating units*...”.

NEMMCO is unsure what “apply equally” means, as the central dispatch of a *scheduled generating unit* cannot apply to both a single generating unit within the aggregate, as well as to all the generating units in the aggregate – clearly only the latter interpretation is intended. In our original Rule request we argued that:

“The Rule requirements of Chapter 3 (Market Rules) and Clause 4.9 are designed to only apply at the aggregated unit level, and not also to each individual scheduled generating unit within the aggregate, as would be suggested by the phrase ‘apply equally’.

A strict interpretation of the current Rule would require the submission of dispatch offers and the management of dispatch for each individual scheduled generating unit in addition to the aggregated unit, which we believe is unintentional and which defeats the purpose of aggregation to rationalise the number of units participating in Central Dispatch.”

Issue 1.3.2 – Rules Applying to an Aggregated Unit should also include Rule 4.11

Clause 4.11(a) of the draft Rule requires that all remote control, operational metering and monitoring devices and local circuits must be installed and maintained in accordance with NEMMCO’s standards and protocols for each scheduled generating unit and semi-scheduled generating unit connected to the transmission or distribution network.

However Clause 3.8.3(d) does not explicitly refer to Rule 4.11, which infers that such devices must exist for each individual generating unit, rather than as an aggregated equivalent.

NEMMCO believes this may be an oversight and we request that a reference to Rule 4.11 be included in Clause 3.8.3(d).

Issue 1.3.3 – Confidential Notice of Aggregation Approvals Conflicts with Clause 3.13.3(m)

Clause 3.8.3(i) of the current Rules requires NEMMCO to notify all Scheduled Generators and Market Participants of newly approved aggregations.

However the new Clause 3.8.3(g)(2) (which replaces the Clause 3.8.3(i)) appears to only require confidential notification to the relevant person, and not the wider notice that is required under existing Clause 3.13.3(m).

For the information of the Commission, Clause 3.13.3(m) of the Rules requires NEMMCO to publish details of special approvals, including aggregation.

NEMMCO suggests that this inconsistency could be addressed by reinstating Clause 3.8.3(i) as a separate requirement.

In summary, NEMMCO is proposing further changes to Clause 3.8.3 of the draft Rule, to:

- Ensure that Rule 4.11 also applies to the aggregated unit, given that remote control, operational metering and monitoring devices may be installed on an aggregate basis;
- Clarify that an aggregated unit takes precedence over (rather than “equally applies” to) the individual units within the aggregate, in the context of Chapter 3 and Rule 4.9 (and Rule 4.11) of the Rules; and
- Allow NEMMCO to notify all Scheduled Generators and Market Participants of newly approved aggregations, consistent with Clause 3.13.3(m) of the Rules.

Proposed Changes

Amend Clause 3.8.3(d):

- (d) Subject to paragraph (f), for the purposes of Chapter 3 and rules 4.9 and 4.11, a reference to a *generating unit, scheduled load and scheduled network service* ~~are to apply equally~~ is only taken as a reference to aggregated generating units, aggregated scheduled loads and aggregated scheduled network services aggregated in accordance with this clause 3.8.3.

Amend Clause 3.8.3(g):

- (g) NEMMCO must provide a *Scheduled Generator, Semi-Scheduled Generator or Market Participant* with ~~(1) reasons,~~ if its application for aggregation is denied by NEMMCO ~~or~~.

Insert Clause 3.8.3(h):

- (h) NEMMCO must notify *Scheduled Generators, Semi-Scheduled Generators and Market Participants* of newly approved aggregations.
~~(2) notification, if its application for aggregation is approved.~~

2. Active Power Control - Technical Standards (Automatic Access)

2.1: Active Power Control Capability

Relevant Clauses:

- Clause S5.2.5.14(a): Active Power Control - Automatic Access Standard

Background

Clause S5.2.5.14(a) defines the automatic access standard for an active power control system of a scheduled and non-scheduled generation system.

NEMMCO's original Rule request proposed to extend this standard (and the minimum access standard) to also cover the requirements for semi-scheduled generating systems, which essentially comprise all the existing requirements for a non-scheduled generating system in addition to a linear ramping capability similar to that for a scheduled generating system.

The Commission did not include this additional requirement in the draft Rule.

Issues with the Draft Rule

NEMMCO notes that the draft Rule for an active power control system of a semi-scheduled generating unit incorporates most of the automatic access requirements requested in our proposed Rule change.

NEMMCO has identified the following issues with the draft Rule:

Issue 2.1.1 - Exclusion of Linear Ramping Capability

NEMMCO's original Rule request included a technical requirement for the active power control system of a semi-scheduled generating unit to be able to "ramp its active power output linearly from one dispatch level to another, subject to energy source availability".

The ability to linearly ramp already applies in the automatic standard for a scheduled generating unit under Clause S5.2.5.14(a)(1)(ii).

The Commission rejected this requirement in the draft Rule, citing the following reason in the draft Rule Determination:

"The proposed requirement to meet 'linear ramping' is in excess of requirements on Non-Scheduled Generators, and in the absence of justification for this additional requirement, the Commission has amended the proposed Rule to remove this requirement."

NEMMCO concedes that our original Rule request did not adequately justify the inclusion of a system capability to linearly ramp between dispatch levels, as part of the automatic access standard for active power control systems.

NEMMCO contends that such control systems capability should be part of the automatic access standard for a semi-scheduled generating system, as:

1. Such additional capability (if used) would improve power system frequency control, reduce the average frequency regulation requirement, and hence enhance power system security.

For example, assuming that 5-minute demand forecasts were perfectly accurate, then linear ramping of output between successive dispatch levels (calculated by NEMDE) would have a greater probability of minimising the standard deviation of demand-supply imbalances within a dispatch interval (and hence frequency deviations from nominal 50 Hz) than if output were to randomly fluctuate over that interval.

In this way, the average frequency regulation requirement would be reduced;

2. Such capability may assist Semi-Scheduled Generators in minimising their generating unit's contribution towards the ongoing need for regulation services under Clause 3.15.6A(k)(6), subject to energy source availability and the accuracy of the Unconstrained Intermittent Generation Forecasts (UIGF);
3. If wind intensity were sufficient to allow output to be linearly ramped between the dispatch levels (usually the UIGF) determined by NEMDE every 5 minutes, then this would minimise the wind farm's contribution to the use of regulation FCAS, the Generator's Causer Pays Factor, and ultimately reduce the Generator's regulation FCAS cost liabilities;
4. Under existing Clause S5.2.5.14(a)(2)(ii) the control system of a non-scheduled generating unit is required to ramp output "at a constant rate" – hence the control system requirement to linearly ramp the output of a semi-scheduled generating unit is simply the equivalent to that non-scheduled requirement;
5. NEMMCO understands that modern, commercially available wind turbines are able to provide such linear ramping capability, and consequently costs should not be increased under this requirement. Connection applicants would also be rewarded for providing such capability by allowing connection access under the automatic standard.

Issue 2.1.2 - Exclusion of Capability to Automatically Increase Output

Under Clause S5.2.5.14(a)(2)(i) of the current Rules, subject to energy source availability, a non-scheduled generating unit must be capable of "automatically reducing or increasing its *active power* output within 5 minutes".

However the capability of "increasing" output has been omitted from the new Clause S5.2.5.14(a)(3)(i) for a semi-scheduled generating unit, making the automatic access standard for a semi-scheduled generating unit less onerous than for a non-scheduled generating unit.

NEMMCO believe that this was most likely not intended in the draft Rule.

In summary, NEMMCO is proposing changes to Schedule 5.2.5.14(a)(3) of the draft Rule, to require that the active power control system of a semi-scheduled generating system also have the capability, under the automatic access standard, to:

- Linearly ramp its active power output between successive dispatch levels as reported by NEMDE; and to
- Automatically increase (as well as reduce) its active power output within five minutes at a constant rate, as applies to non-scheduled generating systems under the current Rules.

NEMMCO anticipates that these additional capabilities, if used, would:

- Improve frequency control, reduce the average frequency regulation requirement, and hence enhance power system security;
- Enable a Semi-Scheduled Generator to minimise its Causer Pays Factor, and hence its regulation FCAS cost liabilities.

Proposed Changes

Amend Clause S5.2.5.14(a)(3):

- (3) subject to energy source availability, for a *semi-scheduled generating unit* or a *semi-scheduled generating system*:
- (i) automatically reducing or increasing its *active power* 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*; and
 - (iv) ramping its *active power* output linearly from one *dispatch* level to another.

3. Availability Data

3.1: Provision of Availability Data

Relevant Clauses:

- Clause 3.7B (new): Unconstrained Intermittent Generation Forecast

Background

The Semi-Dispatch arrangements introduce the concept of forecasting of network-unconstrained generation from each semi-scheduled generating unit, known as the *unconstrained intermittent generation forecast* or UIGF.

The Commission acknowledges the importance of these unconstrained intermittent generation forecasts:

“The Commission views the UIGF as a fundamental component to Semi-Dispatch. Without the UIGF, NEMMCO would have no basis on which to determine the MW capacity available for dispatch, Predispatch, STPASA or MTPASA for semi-scheduled generating units.”

The unconstrained intermittent generation forecast calculations rely upon a number of inputs, which include forecasts for the relevant period of:

- The amount of energy from the intermittent energy source available for input to the energy conversion process of each available generating unit - for example, predicted wind or solar power; and
- The maximum electrical output or generating capacity (in MW) from each available generating unit, assuming no limitations on the amount of energy supplied to its energy conversion process - for example, the generating capacity of all available wind turbines or solar panels, assuming unlimited wind or solar power.

Under the Semi-Dispatch arrangements:

- NEMMCO is responsible for preparing the unconstrained intermittent generation forecasts for each semi-scheduled generating unit, and for providing those forecasts as input to the Dispatch, Pre-dispatch, STPASA and MTPASA processes.

The draft Rule refers to *unconstrained intermittent generation forecasts as available capacity* of a semi-scheduled generating unit.

- Semi-Scheduled Generators are responsible for preparing forecasts of the energy-unconstrained generating capacity of their available semi-scheduled generating units (the second dot point above), and for providing that data to NEMMCO for input to the intermittent generation forecasting system.

Clause 3.7B refers to these energy-unconstrained generating capacity forecasts as unit “**availability**”. NEMMCO is proposing to replace this internally-defined term with a new Chapter 10 term *plant availability*, and the remainder of this submission will refer to this new term.

NEMMCO’s original Rule request proposed that the obligations on Semi-Scheduled Generators to provide plant availability data should match and appear alongside the existing Rule obligations on Scheduled Generators to provide:

-
- Available Capacity data, as part of a dispatch offer or rebid, for input to Dispatch and Pre-dispatch (Clauses 3.8.4, 3.8.22, 3.8.22A);
 - Availability and PASA Availability data to STPASA (Clause 3.7.3); and
 - PASA Availability data to MTPASA (Clause 3.7.2).

Non-Scheduled Generators that classify large non-scheduled generating units are often also required to provide, among other things, the data under Clauses 3.8.4, 3.7.3 and 3.7.2 as a condition of registration.

However the Commission has taken a different approach, by merging the above obligations into a single obligation. Under new Clause 3.7B, Semi-Scheduled Generators must submit their expected plant availability data to NEMMCO in accordance with the *timetable*, to cover all the timeframes of the above market processes. The Commission has decided not to apply the rebidding obligations of Clauses 3.8.22 and 3.8.22A to this plant availability data.

The Commission has also introduced a 30 MW deadband below the unit's registered capacity before the Semi-Scheduled Generator is required to notify any plant availability changes to NEMMCO, a concept similar to that presented in the Auswind and Roaring40's submissions.

The Commission justifies the 30 MW deadband on the grounds that:

"...the requirement on a Semi-Scheduled Generator to advise NEMMCO of every minor change to availability is unnecessarily onerous. Especially given the fact that on any given days several wind turbines can be removed and returned to service on a rotational basis for maintenance. And the timing of outages is very weather dependant so can be difficult to accurately time. Hence, the Commission agrees that a threshold should be established."

...and...

"Intermittent generators with a nameplate rating less than 30 MW register as Non-Scheduled Generators, and are thus not required to advise NEMMCO of any variation in capacity. The output of Non-Scheduled Generators can come and go, and NEMMCO hardly notices. Thus if a 30 MW intermittent generator is not required to advise NEMMCO when its availability changes, therefore a larger intermittent generator should not be required to advise NEMMCO when its availability changes by 30 MW or less."

The Commission has not accepted NEMMCO's original proposal to require a Semi-Scheduled Generator to separately notify PASA Availability, so that PASA Availability would be assumed to equal the expected plant availability for the purposes of STPASA and MTPASA.

Although this is not consistent with the treatment of similarly sized non-scheduled generating units, NEMMCO supports the Commission's decision, as:

- Wind turbine availability is typically high, and hence plant availability would usually represent a reasonable estimate of PASA Availability for the purposes of 24-hour recall reserve reporting;
- The separate provision of PASA Availability data is unlikely to reap any significant market value compared with the effort in preparing and maintaining that separate set of data; and
- There is likely to be only marginal benefit from any additional intermittent generating capacity that could be realised within 24 hours, as NEMMCO is unlikely to resort to the recalling of intermittent generating capacity to address reserve shortfall issues.

Issues with the Draft Rule

NEMMCO supports the Commission's approach of merging into a single Rule the Semi-Scheduled Generator obligations to provide availability data to NEMMCO for use in the various market processes.

However NEMMCO has a number of concerns with the draft Rule:

Issue 3.1.1 – What is the Availability of a Semi-Scheduled Generating Unit?

Clause 3.7B(b) refers to the “availability” of a semi-scheduled generating unit as “the capacity available to the electrical power conversion process to convert the input energy into electricity”.

NEMMCO is proposing to replace this internal definition of “availability” with the new Chapter 10 term *plant availability*, which would clarify that the availability of the electrical power conversion process is not subject to any fuel supply limitations or restrictions on the energy input to that process.

Issue 3.1.2 – Plant Availability Should Be Notified at “Generating Unit Cluster” Level

Clause 3.7B(b) only requires notification of the plant availability of a *semi-scheduled generating unit*, which may represent the aggregated entity approved under Clause 3.8.3.

However this aggregated entity may comprise several individual generating units that are not identical in terms of make, model and capacity (nameplate rating), and hence their energy conversion models are likely to be different.

If these energy conversion models significantly differ between units within the aggregate, then separate intermittent generation forecasts for each cluster of identical units within the aggregate may be required to ensure the ongoing accuracy of generation forecasts for the aggregated unit.

For example, the second stage of a wind farm development may comprise a cluster of more advanced wind turbines with greater energy conversion efficiency than that in the first stage cluster. If both stages are aggregated under Clause 3.8.3 into a single semi-scheduled generating unit, then under Clause 3.7B(b) only the aggregate availability is required to be notified, rather than the availability of each stage.

In this case the intermittent generation forecasting system, which would only receive the aggregate availability, would not know if there were a significant number of wind turbines unavailable from each stage, and would need to make an assumption (perhaps based on the aggregate availability) as to the predominant type of wind turbine available in the aggregate in order to select the appropriate wind power conversion curve and accurately determine the generation.

If the forecasting system gets this selection wrong and there were a significant number of wind turbines unavailable from each stage then the wind generation forecast for the aggregate unit may be significantly less accurate, to the detriment of the accuracy of Dispatch, Pre-dispatch and PASA.

To address this issue, NEMMCO suggests amending Clause 3.7B(b) so that a Semi-Scheduled Generator would be required to notify the total plant availability of each registered “cluster” of generating units (*generating unit cluster*) within their aggregated semi-scheduled generating unit, where each *generating unit cluster* would typically comprise only of identical units (*an identical unit cluster*), but may comprise of a mixture of different units (*a non-identical unit cluster*) only if approved by NEMMCO.

Issue 3.1.3 – Inadequate Requirements for Provision of Plant Availability Data

NEMMCO is concerned that the requirements on Semi-Scheduled Generators for notifying their plant availability to NEMMCO are not aligned with, and hence not as stringent as, those that currently apply to Scheduled Generators, to the detriment of the ongoing accuracy and reliability of the various market processes that will use this data.

For example, under proposed Clause 3.8.22(b)(1) a Scheduled Generator may vary (rebid) its unit available capacity only if that rebid is supported by a “brief, verifiable and specific reason” (proposed Clause 3.8.22(c)) and is made “in good faith” (proposed Clause 3.8.22A(a)).

However under proposed Clause 3.8.22(b)(2) the corresponding rebidding requirements for a Semi-Scheduled Generator only apply to the *available capacity* data in price bands – that is, only apply to the shifting of MW availability between price bands of its dispatch offer⁸, and not also to any unit availability changes as for a Scheduled Generator.

The Commission’s reason for excluding changes in availability of a semi-scheduled generating unit from the rebidding provisions was:

“As Semi-Scheduled Generators submit changes to availability through the UIGF, they would only need to make re-bids when moving capacity between price bands. As Semi-Scheduled Generators are generally pricetakers in the NEM, the Commission does not expect Semi-Scheduled Generators to need to utilise the rebidding provisions often.”

Furthermore, under Clause 4.9.9 of the Rules a Scheduled Generator must:

“...without delay, notify *NEMMCO* of any event which has changed or is likely to change the operational availability of any of its *scheduled generating units*, ... as soon as the *Scheduled Generator* becomes aware of the event”.

Semi-Scheduled Generators are not subject to this requirement in the draft Rule.

Finally, under Clause 3.8.4(a) a Scheduled Generator must specify unit *available capacity* “for each *trading interval* of the *trading day*”, with similar provisions under Clauses 3.7.2(d)) and 3.7.3(e) describing the expected resolution of unit availability data provided to the MTPASA and STPASA processes respectively. However in this case the data resolution requirements would be defined in the timetable itself, as they currently are for Scheduled Generators.

In summary, Clause 3.7B does not apply to Semi-Scheduled Generators any of the data quality requirements (reasons for changes, submitted in good faith and without delay) that currently apply to Scheduled Generators, apart from requiring that Semi-Scheduled Generators submit plant availability data “in accordance with the *timetable*”. The operational implications of this are that:

- Semi-Scheduled Generators may feel less inclined to provide timely and accurate updates of availability data, to the detriment of the UIGF and NEMDE/PASA calculations;
- There would be no means for the market or the AER to audit the validity of plant availability data submitted by Semi-Scheduled Generators; and
- There would be greater onus on capturing these quality requirements within the *timetable* itself, which is less transparent than the Rules.

⁸ Although the defined term *available capacity* refers to either unit availability or to the MW availability within a price band of a dispatch offer, the draft Rule determination states that only the latter usage is intended to be applied in the rebidding provisions of Clause 3.8.22(b)(2), although this intention is not clear in the draft Rule itself.

The Commission is also reminded that a number of non-scheduled wind farms already have scheduled obligations imposed on them as a condition of their registration. These obligations includes the provision of availability data to NEMMCO for use in the interim intermittent generation forecasting system, which in turn calculates and applies negative adjustments to the scheduled demand forecasts used in Dispatch and Pre-dispatch (Clause 3.8.4), MTPASA (Clause 3.7.2) and STPASA (Clause 3.7.3) processes.

If these wind farms were to continue as “non-scheduled with scheduled obligations” after commencement of the Semi-Dispatch Rule, then it is possible that those wind farms may face more onerous requirements for the provision of availability data than any future semi-scheduled wind farms under Clause 3.7B.

As an aside, NEMMCO feels that the current Rules may be somewhat ambiguous as to whether unit available capacity is actually part of a dispatch offer. While Clause 3.8.6 does not specify unit available capacity as part of a dispatch offer, it appears to be part of a rebid under Clauses 3.8.22 and Clause 3.8.22A. In practice unit available capacity is an integral part of both the original dispatch offer and any subsequent changes (rebids) to that dispatch offer.

Issue 3.1.4 – Increased Intermittent Forecasting Inaccuracy arising from 30 MW Deadband

The ultimate success of the Semi-Dispatch Arrangements in maintaining and improving power system security through the better integration of intermittent generation into central dispatch relies heavily upon the ongoing accuracy of the intermittent generation forecasts.

Clause 3.7B(b) introduces an initial 30 MW deadband below the registered capacity before a Semi-Scheduled Generator is required to notify NEMMCO of changes to their plant availability.

The Commission argues that there is no difference between a 30 MW intermittent generator (hence classified as non-scheduled) not advising of its availability changes, versus a much larger intermittent generator not being required to advise of availability changes of less than 30 MW. However this may not always be the case, as a 30 MW output change from a much larger generator operating at near its full capacity may have an inordinately higher impact on power system security than the outage of a 30 MW generator, for reasons such as power system stability.

NEMMCO agrees that the Rules should not require a Semi-Scheduled Generator to notify NEMMCO every time a single wind turbine is removed from, or returned to service. However a 30 MW deadband is relatively large and we believe it would significantly degrade the accuracy of the forecasts of intermittent generation that are used in Dispatch, Pre-dispatch and PASA.

For example, a small semi-scheduled wind farm with a registered capacity of 30 MW would never need to notify its plant availability to NEMMCO, even if the whole wind farm were to trip out of service. This would clearly be an undesirable outcome, as its UIGF may still incorrectly reflect the full registered capacity of 30 MW (rather than 0 MW) if there were sufficient wind available to the wind farm. The Commission itself expressed reservations on the size of the deadband:

“The Commission believes 30 MW is a high threshold, but given that a reasonable basis for this level has been presented, the Commission does not propose an alternate threshold in this draft Rule determination.”

While the current Rules do not prescribe a minimum availability change notification threshold, NEMMCO is unaware of any operational issues with the current arrangements and it would seem that Scheduled Generators are already capable of assessing “material change” for notification purposes.

NEMMCO therefore suggests that the Rule for Semi-Scheduled Generators does not apply any availability deadband or minimum change threshold, for the sake of simplicity, consistency and a “level playing field” with Scheduled Generators.

However if the Commission were to insist on adopting an explicit threshold, then NEMMCO would suggest a lower threshold, perhaps based on the minimum accuracy tolerance referred to in Clause 3.8.23(a) for deeming compliance with a dispatch target, which is currently 6 MW⁹. This tolerance could be interpreted as a “material change” for the purposes of central dispatch and hence could indirectly imply a minimum change threshold for availability notification.

Issue 3.1.5 – Rule Only Requires Notification of Plant Availability Reduction

Clause 3.7B(b) appears to only require notification of plant availability reductions.

If the Semi-Scheduled Generator had previously notified an availability reduction to less than the level of (registered capacity – 30 MW), and the availability subsequently increases to within 30 MW of the unit’s registered capacity (or even to the full registered capacity) then the draft Rule does not appear to oblige the Semi-Scheduled Generator to notify NEMMCO of that increased availability level.

NEMMCO does not believe this outcome is intended.

Issue 3.1.6 – All Factors Listed in Clause 3.7B(c) are Relevant to UIGF Calculation

Clause 3.7B(c) lists all of the factors that NEMMCO must consider when determining the UIGF.

However at the end of the first paragraph in Clause 3.7B(c) the phrase “where relevant” appears, however it is unclear which of the listed factors may not be relevant and under what circumstances.

For example, the draft Rule could be incorrectly read as meaning that the UIGF does not always need to ignore network constraints, whereas in fact the opposite is true. As UIGF is fundamental to the Semi-Dispatch arrangements, NEMMCO would prefer that its meaning is unambiguous, as it was in our proposed Rule definition for UIGF.

Of the listed factors affecting UIGF, the third factor (the real-time SCADA information obtained from remote monitoring equipment) may only be relevant to forecasting in the Dispatch and Pre-dispatch timeframes, and NEMMCO would prefer that “where relevant” be only applied here, if at all.

Issue 3.1.7 – Deferred Commencement of UIGF Process

NEMMCO are requesting a deferral of the implementation of Schedule 2 of the Amending Rule to 5 March 2009, as explained in Issue 6.1.1.

The date for commencing UIGF calculations under Clause 3.7B(d) would need to reflect this.

⁹ Dispatch System Operating Procedure SO_OP3705, NEMMCO website

In summary, NEMMCO is proposing changes to Clause 3.7B and Chapter 10 of the draft Rule, to:

- Define a new Chapter 10 term *plant availability*, for use in Clause 3.7B;
- Require a Semi-Scheduled Generator to notify plant availability of each registered generating unit cluster within its aggregated semi-scheduled generating unit, for the purposes of ensuring accurate unconstrained intermittent generation forecasts (UIGFs);
- Require a Semi-Scheduled Generator to provide plant availability data to NEMMCO in good faith and without delay, and to accompany any changes to that data with a brief, verifiable and specific reason, as is currently required of Scheduled Generators;
- Remove the proposed 30 MW minimum threshold for notification of plant availability changes, so that Semi-Scheduled Generators are free to exercise their discretion as to what constitutes a “material change” for notification purposes, as the current Rules allow for Scheduled Generators¹⁰;
- Clarify that all factors listed in Clause 3.7B(c) are, by default, “relevant” to the UIGF calculation for all market processes, with the exception of SCADA data from remote monitoring equipment, which is unlikely to be used in the PASA processes; and
- Change the proposed date for commencing UIGF calculations to 5 March 2009 (see Issue 6.1.1).

Proposed Changes

Insert new Chapter 10 definition:

plant availability

The *active power capability of a generating unit* (in MW), based on the availability of its electrical power conversion process and assuming no fuel supply limitations or restrictions on the energy available for input to that electrical power conversion process.

Amend Clause 3.7B (new): Unconstrained Intermittent Generation Forecast

- (a) NEMMCO must prepare a forecast of the *available capacity* of each *semi-scheduled generating unit* (to be known as an *unconstrained intermittent generation forecast*) in accordance with this rule 3.7B for the purposes of:
- (1) the *projected assessment of system adequacy* process;
 - (2) *dispatch*; and
 - (3) *pre-dispatch*.
- (b) A *Semi-Scheduled Generator* must submit to NEMMCO, in accordance with the *timetable* and for the purpose of paragraph (a), the total *plant availability* of each *generating unit cluster* within a *semi-scheduled generating unit*.

¹⁰ While NEMMCO accepts the view that the Rules should not require a Semi-Scheduled Generator to notify NEMMCO every time a single wind turbine is removed from, or returned to service, a large 30 MW deadband would result in significantly less accurate intermittent generation forecasts, to the detriment of Dispatch, Pre-dispatch and PASA

~~A *Semi-Scheduled Generator* must submit to NEMMCO, in accordance with the *timetable*, the capacity of its *semi-scheduled generating unit* available to the electrical power conversion process to convert the input energy into electricity ('*availability*') for each *semi-scheduled generating unit* for the purpose of paragraph (a), where the availability of the unit is at least 30MW below the registered capacity of the unit provided as part of its *registered bid and offer data*.~~

(c) Any changes to *plant availability* data under paragraph (b) must be submitted to NEMMCO:

(i) in good faith, as defined in Clause 3.8.22A; and

(ii) without delay, as soon as the *Semi-Scheduled Generator* becomes aware of such changes,

and must be accompanied by a brief, verifiable and specific reason for the change.

~~(e)~~(d) When preparing an *unconstrained intermittent generation forecast* for the purposes referred to in paragraph (a), NEMMCO must take into account, ~~where relevant:~~

- (1) the total ~~station~~ registered capacity of each *generating unit cluster* provided by the *Semi-Scheduled Generator* ~~provided as part of its *registered bid and offer data*;~~
- (2) the *plant availability* of ~~each *generating unit cluster* the *semi-scheduled generating unit*~~ submitted by the *Semi-Scheduled Generator* under paragraph (b);
- (3) the information obtained ~~for each *generating unit cluster* the *semi-scheduled generating unit*~~ from the *remote monitoring equipment* specified in clause S5.2.6.1, where relevant;
- (4) the forecasts of the energy available for input into the electrical power conversion process ~~for of each *generating unit cluster* *semi-scheduled generating unit*;~~
- (5) the assumption that there are no *network constraints* otherwise affecting the *generation* from that *semi-scheduled generating unit*; and
- (6) the timeframes of:
 - (i) *pre-dispatch*;
 - (ii) *dispatch*,
 - (iii) *medium term PASA*; and
 - (iv) *short term PASA*.

~~(e)~~(e) NEMMCO must prepare the first *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* by 5 March 2009 ~~4 January 2009~~ and there must be an *unconstrained intermittent generation forecast* for each *semi-scheduled generating unit* available at all times after that date.

3.2: Unconstrained Intermittent Generation Forecasts (UIGF) as PASA Input

Relevant Clauses:

- Clause 3.7.2(c): Medium Term PASA
- Clause 3.7.3(d): Short Term PASA

Background

The unconstrained intermittent generation forecasts (UIGFs) for semi-scheduled generating units are one of the required inputs to the MTPASA and STPASA processes, and were added to the list of PASA inputs under Clauses 3.7.2(c) and 3.7.3(d) of our original Rule request.

Issues with the Draft Rule

Issue 3.2.1 – Excludes UIGFs from the List of PASA Inputs

The draft Rule does not include unconstrained intermittent generation forecasts in the list of inputs to the MTPASA and STPASA processes.

This appears to be an oversight, as the Commission states that:

“...the UIGF would provide expected generation data for Semi-Scheduled Generators for the PASA processes”.

In summary, NEMMCO is proposing changes to Clauses 3.7.2(c) and 3.7.3(d) of the draft Rule, to add UIGF to the list of inputs to the MTPASA and STPASA processes, as intended.

Proposed Changes

Insert after Clause 3.7.2(c)(3):

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

Insert after Clause 3.7.3(d)(3):

(4) unconstrained intermittent generation forecast for each semi-scheduled generating unit for each half hour

4. Dispatch Instructions

4.1: Voltage Control Instructions

Relevant Clauses:

- Clause 4.9.2(b), (c): Instructions to Scheduled Generators and Semi-Scheduled Generators

Background

Under Clause 4.9.2(b) of the current Rules NEMMCO may issue a voltage control dispatch instruction to a Scheduled Generator "at any time" to adjust its scheduled generating unit's connection point voltage in accordance with its connection agreement or an ancillary service agreement, unless compliance with that instruction would cause the generating unit to breach its reactive power performance standards under S5.2.5.1 or S5.2.5.13. Clauses 4.9.2(b)(1) to (3)) describe the means by which that voltage control can be achieved.

Further, Clause 4.8.9 gives NEMMCO the overarching right to issue a direction or instruction to a Generator for voltage control that would have the same effect as above.

In both cases NEMMCO can only issue such instructions in order to maintain or re-establish the power system in a secure operating state.

In our original Rule request we proposed a change to Clause 4.9.2(b) to also give NEMMCO the right to issue a voltage control dispatch instruction to a Semi-Scheduled Generator.

However the Commission has not accepted this change.

Issues with the Draft Rule

Issue 4.1.1 – NEMMCO Unable to Issue Voltage Control Dispatch Instructions

The draft Rule does not allow NEMMCO to issue a voltage control instruction to a Semi-Scheduled Generator, regardless of whether a connection agreement or an ancillary service agreement allows NEMMCO to issue such an instruction and the semi-scheduled generating unit is technically able to comply.

The Commission's reason for not allowing this is that:

"The Rules do not currently require Non-Scheduled Generators to provide facilities for NEMMCO to vary the transformer tap changers and the excitation control system voltage set-point. The Commission is of the view that this control is not needed to implement Semi-Dispatch.

Hence, the Commission has modified NEMMCO's proposed Rule as reflected in the draft Rule to remove the ability for NEMMCO to instruct a generator to adjust transformer tap changers, voltage control set points and reactive power control set points."

However the Commission's rationale is not consistent with current practice, as under Clause 2.2.3(c) of the Rules NEMMCO can reserve the right to issue voltage control instructions to a Non-Scheduled Generator who classify large non-scheduled generating units as a condition of their registration.

NEMMCO did not originally bring this to the Commission's attention owing to the different approach taken by NEMMCO and the Commission in developing these Rules.

Further, if NEMMCO is unable to issue voltage control dispatch instructions under Clause 4.9.2(b) where voltage issues exist and power system security is at risk, NEMMCO may have to resort to Clause 4.8.9 and issue a direction to local scheduled plant to manage the issue, for which compensation would be payable.

While this inability does not diminish NEMMCO's right to issue directions or instructions to a Semi-Scheduled Generator under Clause 4.8.9, it is still an undesirable situation as NEMMCO may not be able to access voltage control capability at least cost and may already be paying the Semi-Scheduled Generator for reactive power capability under an ancillary service agreement that NEMMCO cannot call upon.

Note that Auswind acknowledged in their submission that NEMMCO should be able to issue a voltage control instruction to a Semi-Scheduled Generator, although Auswind also proposed that NEMMCO should only be permitted to do so if it did not cause the Generator to breach its performance standard, regardless of whether a connection agreement or an ancillary service agreement allowed otherwise.

In summary, NEMMCO is proposing changes to Clause 4.9.2(b) of the draft Rule to give NEMMCO the right to issue voltage control instructions to Semi-Scheduled Generators as permitted under their connection agreement, if required to maintain power system security.

Note that under Clause 2.2.3(c) of the Rules NEMMCO can apply Clause 4.9.2(b) to Non-Scheduled Generators as a condition of registration, allowing NEMMCO to issue voltage control instructions to a Non-Scheduled Generators with large non-scheduled generating units.

Proposed Changes

Amend Clause 4.9.2(b):

- (b) Subject to paragraph (c), *NEMMCO* may at any time give an instruction to a *Scheduled Generator* in relation to any of its ~~*scheduled*~~ *generating units* with a *nameplate rating* of 30MW or more, or its ~~*scheduled*~~ *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*.

4.2: Proposed Definition of a Generating System

Relevant Clauses:

- Chapter 10: *generating system*

Background

The current Rule definition of a *generating system* is:

“A system comprising one or more *generating units* and includes auxiliary or *reactive plant* that is located on the *Generator’s* side of the *connection point* and is necessary for the *generating system* to meet its *performance standards*.”

The Commission has proposed to change the current definition of *generating system*, so that a system only includes auxiliary and reactive plant when the term is used in Clause 2.2.1(e)(3) and in Chapter 5 for the purposes of the generating system meeting its performance standards.

The Commission’s reason for the change is:

“The National Electricity Amendment (Technical Standards for Wind and other Generator Connections) Rule 2007 of 8 March 2007 amended the definition of generating system to include auxiliary or reactive plant necessary for the generating system to meet its performance standards. The definition as it stands applies to all chapters of the Rules, however the inclusion of auxiliary or reactive plant is only required for Chapter 5 and Clause 2.2.1(e)(3).

To clarify this distinction, the Commission has amended the definition so that the expanded definition (which includes auxiliary and reactive plant) only applies to Chapter 5 and Clause 2.2.1(e)(3).”

Issues with the Draft Rule

Issue 4.2.1 – *Generating System* does not include Reactive Plant for Voltage Control

NEMMCO accepts the Commission’s view that the term *generating system* may not always be appropriately used in the current Rules, given that the *generating system* is primarily intended to be the entity referred to in a network connection agreement that is operated in a way that meets its performance standards.

However paragraph (b) of the proposed definition, which defines a system that includes the reactive plant necessary for the generating system to meet its performance standard, does not include a reference to either Clause 4.8.9 or 4.9.2.

Therefore the *generating system* referred to in Clauses 4.8.9 and 4.9.2 would be covered by paragraph (a) of the definition, which is a system that excludes reactive plant.

This has the unintended effect of not allowing a Generator to use its reactive plant to comply with a voltage control direction or voltage control dispatch instruction issued by NEMMCO under Clauses 4.8.9 and 4.9.2 respectively.

Furthermore, the proposed definition for *generating system* may also have the unintended effect of indirectly altering the definition of a *generating unit* when that term is used in Clause 2.2.1(e)(3) and Chapter 5. The current definition of *generating unit* only includes “related equipment”, and does not include auxiliary and reactive plant.

In summary, NEMMCO believes that a strict interpretation of the proposed change to the definition of *generating system* would have the undesired effect of not allowing a Generator (Scheduled, Semi-Scheduled or Non-Scheduled), to use its reactive plant to comply with a voltage control direction or voltage control dispatch instruction issued by NEMMCO under Clauses 4.8.9 and 4.9.2 respectively.

For this reason NEMMCO would suggest either:

- no change to the current definition of *generating system*; or
- include references to Clauses 4.8.9 and 4.9.2 in paragraph (b) of the definition.

4.3: Ramp Rates for Semi-Scheduled Generating Units

Relevant Clauses:

- Clause 3.8.6(g): Generating unit offers for dispatch

Background

Unit ramp rate constraints are a fundamental component of the NEMDE dispatch model for scheduled units, and Clause 3.8.6(b)(3) of the Rules requires all Scheduled Generators to submit unit ramp rates as a mandatory part of the standard dispatch offer.

NEMMCO's original Rule request also required Semi-Scheduled Generators to submit unit ramp rates as part of their dispatch offer, primarily to minimise the extent of design customization of the dispatch model for a semi-scheduled unit and to maximise the commonality of its design with that for the scheduled unit model. The draft Rule does not include this requirement.

Issues with the Draft Rule

Issue 4.3.1 - Design of Non-Conformance Trigger Inconsistent with Scheduled Generator

In our original Rule request NEMMCO proposed that ramp rates should generally apply to any form of intermittent generation technology and not solely to wind farms, as it is conceivable that the output from these other intermittent technologies may be constrained by ramp rate limitations.

The Commission has taken the more limited view that the Rule should focus on wind farms as the predominant intermittent generation source over the next few years and, as ramp rates for wind farms as typically very high and unlikely to be a limiting factor in dispatch, have decided the Rule should not require Semi-Scheduled Generators to notify ramp rates to NEMMCO.

NEMMCO agrees that ramp rates are not required for wind farms, and we note that this will require changes to the NEMDE dispatch algorithm and related software to specifically ignore ramp rate constraints for semi-scheduled generating units.

However the absence of ramp rates for semi-scheduled generating units will necessitate a simplification of the current design of the small and large MW error triggers¹¹ used for the tracking of dispatch conformance of scheduled units.

The triggers for semi-scheduled generating units were originally intended to align with the current design for scheduled units, being:

Large Error Trigger	= MAX (6 MW, MIN (5% [Bid Availability], 4*[Ramp Up Rate]))
Small Error Trigger	= MAX (6 MW, MIN (3% [Bid Availability], 2*[Ramp Up Rate]))

The simplified design for semi-scheduled generating units would ignore ramp rates and assume that Bid Availability is equal to UIGF:

Large Error Trigger	= MAX (6 MW, 5% [UIGF])
Small Error Trigger	= MAX (6 MW, 3% [UIGF])

¹¹ These are the allowable MW tolerances above dispatch cap before the semi-scheduled generating unit is declared non-conforming in accordance with Clause 3.8.23(a) of the Rules.

With respect to conformance monitoring, the Commission noted that¹²:

“The Commission sees no reason not to consistently apply the conformance monitoring processes that currently applies to Scheduled Generators.”

However under the draft Rule the absence of ramp rates would not allow for an absolutely consistent approach to the conformance monitoring for both semi-scheduled and scheduled units.

Notwithstanding the above, NEMMCO believes that the simplified dispatch error trigger design for semi-scheduled generating units without ramp rates would be acceptable, and we do not propose any changes to the draft Rule.

¹² Section 4.7.2 of draft Rule determination

5. Regulation FCAS Causer Pays Factors

5.1: Determination of Causer Pays Factors

Relevant Clauses:

- Clause 3.15.6A(k)(6): Ancillary service transactions

Background

In NEMMCO's original Rule request it was proposed that the reference trajectory for calculating the Causer Pays Factors¹³ of Semi-Scheduled Generators should be based on a linear ramp between dispatch caps of successive semi-dispatch intervals (similar to Scheduled Generators, but for all intervals), and at all other times based on the "line-of-best-fit" of its actual generation during the interval (as for Non-Scheduled Generators).

NEMMCO has since conducted a review into the operation of the FCAS markets, with one of decisions in the FCAS Review final report¹⁴ recommending that:

"The reference trajectory used in causer pays calculations for non-scheduled generating units and loads should be changed to the trajectory used in dispatch."

This would change the current design of the Causer Pays reference trajectory for non-scheduled generating units, from a "line-of-best-fit" of actual generation over the dispatch interval, to a linear ramp between successive generation forecasts for the start and end of that dispatch interval (or in their absence, the actual generation at the start of the interval, which is assumed to "persist" until the end of the interval).

NEMMCO currently does not explicitly perform any 5-minute forecasting of significant non-scheduled generation, and simply assumes a "persistence" forecast (no change from initial actual generation) with no adjustment to the scheduled demand input to Dispatch. However it is understood that this may change with the introduction of more effective forecasting systems, which would allow NEMMCO to apply the non-scheduled forecast as a negative scheduled demand adjustment in Dispatch.

As these scheduled demand adjustments directly affect the total dispatch from all scheduled generation, which in turn affects the amount of enabled regulation FCAS actually used, it is then logical to assume that if the output from a non-scheduled generating unit always followed a reference trajectory based on its non-scheduled generation forecast, this would also minimise its impact on the amount of regulation FCAS used and hence its Causer Pays Factor.

This was the case put forward in submissions to the FCAS Review and supported in the final decision. The rationale behind the decision is that the costs of regulation FCAS to Market Participants should be allocated in a way that, according to the 2006 NEMMCO consultation on the Causer Pays procedure¹⁵:

- reflects the extent to which each unit or load has caused the requirement for the services, in accordance with the principles in Clause 3.15.6A(k)(1);
- encourages each market participant to act to reduce the requirement for the service¹⁶; and
- to the extent practicable, is perceived to be fair.

¹³ Causer Pays Factors are referred to as Contribution Factors in the Rules

¹⁴ Decision 23 of the "FCAS Review Final Report", NEMMCO, July 2007, http://www.nemmco.com.au/ancillary_services/160-0329.pdf

¹⁵ "Causer Pays Procedure - Final Determination and Report", NEMMCO, December 2006, http://www.nemmco.com.au/ancillary_services/168-0059.pdf

¹⁶ For example, incentivizing semi-scheduled wind farms to provide better wind turbine availability data to NEMMCO to improve the accuracy of their UIGF inputs to Dispatch.

Issues with the Draft Rule

Issue 5.1.1 – Trajectory for Semi-Scheduled Generators Inconsistent with Causer Pays Principles

The Commission has decided that the current approach for determining the Causer Pays reference trajectory for Non-Scheduled Generators should also apply to Semi-Scheduled Generators, proposing in the draft Rule that the Causer Pays reference trajectory for Semi-Scheduled Generators should always be based on the “line-of-best-fit” of actual generation over each dispatch interval.

In doing this the Commission rejected NEMMCO’s original proposal for a “composite” approach to determining the Causer Pays reference trajectories for Semi-Scheduled Generators.

It would appear that the Commission might not have considered the revised approach for the calculation of Causer Pays reference trajectories for Non-Scheduled Generators that was recommended in the FCAS Review final report.

The Commission’s reasoning for the “actual generation line-of-best-fit” approach is that:

“...Semi-Scheduled Generators should be incentivised to change their output at a constant rate of change. The Commission acknowledges Auswind’s position that some windfarms are not able to change their output at a constant rate. The Commission accepts that this is true for some windfarms, but the Commission holds the view that if Semi-Scheduled Generators contribute to the need for ancillary services, then they should also proportionately contribute to the cost of those services.”

... and concluding that:

“Therefore, the Commission is of the view that any deviations from a uniform rate of change that contributes to frequency deviation will add to the FCAS Regulation Causer Pays factor for a semi-scheduled generating unit.”

While NEMMCO agrees that our original “composite” trajectory proposal might not be the best approach, we are not convinced that following a “line-of-best-fit of actual generation” trajectory minimises the use of enabled regulation FCAS, for the reasons outlined earlier.

The Commission also claims that NEMMCO’s proposal for determining Causer Pays reference trajectories based on linear ramping between dispatch caps goes against the principle that Semi-Dispatch is based on capping output, with the freedom to generate below that dispatch cap, rather than imposing a fixed dispatch target.

While NEMMCO agrees that ramping between dispatch caps would be the ideal behaviour for managing power system frequency and would also minimise a Semi-Scheduled Generator’s Causer Pays liabilities, NEMMCO would like to clarify that Clause 3.15.6A(k) itself does not actually mandate that any particular generation profile should be followed by a Semi-Scheduled Generator.

In summary, NEMMCO believes that the draft Rule should be amended so that the Causer Pays reference trajectories for Semi-Scheduled Generators are always based on a linear ramp between successive dispatch caps.

This would then align with the principles described in the Causer Pays procedures¹⁷ and elaborated further in the recent FCAS Review, whereby if NEMDE Dispatch uses or calculates a dispatch level for a generating unit (whether it is a dispatch target, a dispatch cap or a non-scheduled dispatch forecast) then compliance with such a dispatch level would minimise regulation FCAS usage and hence should be used to determine Causer Pays reference trajectories and hence Causer Pays Factors.

¹⁷ The detailed design of reference trajectories is described in the Causer Pays procedures, and any amendments to those procedures requires a formal Rules consultation in accordance with Clause 3.15.6A(m) of the Rules.

Issue 5.1.2 – Rule Should Include Causer Pays Factors for Non-Scheduled Generators

The draft Rule only describes the determination of Causer Pays reference trajectories (and hence Causer Pays Factors) for Scheduled and Semi-Scheduled Generators, but does not mention Non-Scheduled Generators.

For the sake on completeness NEMMCO suggests that a new paragraph (7) be inserted in Clause 3.15.6A(k) that describes the Causer Pays reference trajectories for Non-Scheduled Generators.

As discussed above, the Causer Pays reference trajectories for Non-Scheduled Generators would be determined based on a linear interpolation within the relevant dispatch interval of successive 5-minute generation forecasts determined by NEMMCO, or in the absence of such forecasts based on the actual generation at the start of the relevant dispatch interval.

In summary, NEMMCO is proposing changes to Clause 3.15.6A(k) of the draft Rule, so that:

- The Causer Pays reference trajectory for Semi-Scheduled Generators are always based on linear ramps between the dispatch caps of successive dispatch intervals, rather than a “line-of-best-fit” of actual output within the interval; and
- The Causer Pays reference trajectory for Non-Scheduled Generators is defined in the Rules, and is based on either:
 - A linear interpolation between the non-scheduled generation forecasts (used to adjust NEMDE demand forecasts) of successive dispatch intervals, or in their absence;
 - A “persistence” forecast, being the actual output at the start of the each interval persisting until the end of that interval.

These changes would then align with the Causer Pays principles described in the Causer Pays procedures, and elaborated further in the recent FCAS Review.

Proposed Changes

Amend Clause 3.15.6A(k)(6)¹⁸:

- (6) 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 between the *dispatch caps* of successive *dispatch intervals*; holds or changes its actual *generation* at a uniform rate over a *dispatch interval*;
 - (ii) is *enabled* to provide a *market ancillary service* and responds to a control signal from NEMMCO to NEMMCO's satisfaction; or
 - (iii) 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.

¹⁸ These Clause references would apply after commencement of the “Cost Recovery of Localised Regulation Services” Amending Rule 2007 No.5 on 1 January 2009.

Insert after Clause 3.15.6A(k)(6)¹⁸:

(7) a Non-Scheduled Generator will not be assessed as contributing to the deviation in the frequency of the power system if within a dispatch interval, the non-scheduled generating unit:

- (i) ramps its actual generation at a uniform rate between the non-scheduled generation forecasts of successive dispatch intervals, or in the absence of such forecasts holds the actual generation at its initial level over a dispatch interval;
- (ii) is enabled to provide a market ancillary service and responds to a control signal from NEMMCO to NEMMCO's satisfaction; or
- (iii) 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.

6. Transitional Arrangements

6.1: Rule Commencement Date

Relevant Clauses:

- Draft National Electricity Amendment (Central Dispatch and Integration of Wind and Other Intermittent Generation) Rule 2007 - Commencement
- Clause 11.X.1: Definition of Commencement Date

Issue with the Draft Rule

Issue 6.1.1 – Deferral of Rule Commencement Date

The Commission has nominated 1 January 2009 as the **commencement date** of the Semi-Dispatch arrangements that will operate under Schedule 2 of the Amending Rule.

NEMMCO has two issues with this commencement date:

1. Based on the latest project timelines advised to NEMMCO by the external supplier of the intermittent generation forecasting system, the minimum period allowed for the required tuning of the forecasting models would result in a system implementation date later than 1 January 2009.

NEMMCO would recommend that the Commission allow for at least a further two month's slack beyond that date so that all required tuning can be satisfactorily completed, and to allow for any delays resulting the Christmas/New Year holiday break;

2. 1 January 2009 is a Sunday, and the next day is a public holiday.

NEMMCO would prefer a weekday in order to ensure that sufficient staff is available during normal office hours to manage the significant number of MMS changes required to implement the new Rule.

In the past NEMMCO has chosen either a Wednesday or Thursday to implement major Market Management Systems (MMS) changes.

In summary, NEMMCO is proposing a deferral of the Rule commencement date from 1 January 2009 to 5 March 2009, to:

- Allow sufficient time for the required tuning of the intermittent generation forecasting models; and
- Ensure that sufficient staff will be available to implement the significant MMS changes involved by commencing the Rule during a normal weekday, rather than over a public holiday weekend.

Proposed Change

Commencement

Schedule 1 of this Rule commences operation on [the date the final determination is made].
Schedule 2 of this Rule commences operation on 5 March 2009 ~~4 January 2009~~.

6.2: Treatment of reclassified “registered generating units” until Commencement Date

Relevant Clauses:

- Clause 11.X.1: Definition of a registered generating unit
- Clause 11.X.3(a): Registered generating unit

Background

The Commission has proposed a two-stage transition to the new Rule.

From the registration date (Stage 1) persons are permitted to pre-emptively classify or reclassify their generating units as semi-scheduled, without having to actually operate as a semi-scheduled generating unit until the Rule’s commencement date (Stage 2).

Issue with the Draft Rule

Issue 6.2.1 – Inadvertent Treatment of a Scheduled Unit as Non-Scheduled after Reclassification

NEMMCO believes that the definition of a “registered generating unit” may be misconstrued, as it does not exclude a “classified generating unit” that is a scheduled generating unit and which subsequently reclassifies as a semi-scheduled generating units on or after the registration date. That is, the set of “classified generating units” could be regarded as a sub-set of all “registered generating units”.

Given that interpretation, the proposed Clause 11.X.3(a) would then appear to allow a scheduled generating unit which reclassifies as a semi-scheduled generating unit on or after the registration date to be subsequently treated as a non-scheduled generating unit (rather than continuing its operation as a scheduled generating unit) until the Rule commencement date.

This interpretation would inadvertently appear to allow a Scheduled Generator to become a Non-Scheduled Generator with respect to its significant intermittent generating units from registration date.

This interpretation contrasts with Clause 11.X.2(c), which states what NEMMCO considers to be the correct intention that a scheduled generating unit or a non-scheduled generating unit that reclassifies as semi-scheduled on or after the registration date is still treated as a scheduled or non-scheduled generating unit (as the case may be) until the commencement date, beyond which it is treated as a semi-scheduled generating unit.

In summary, NEMMCO is proposing changes to Clause 11.X.3(a) of the draft Rule, to clarify that a scheduled or a non-scheduled generating unit that reclassifies as semi-scheduled on or after the registration date continues to be treated for operational purposes in its original classification until the Rule commencement date, after which it operates as a semi-scheduled generating unit.

Proposed Changes

Clause 11.X.3(a):

- (a) Subject to paragraph (b) and clause 11.X.4, until the commencement date, a registered generating unit is taken to be a scheduled generating unit or a non-scheduled generating unit (as the case may be) for the purposes of the *Rules*.

6.3: Exemption from the Semi-Dispatch Arrangements

Relevant Clauses:

- Clause 11.X.1: Definition of “committed project” and “potential generating unit”
- Clause 11.X.2: Registration and reclassification of classified generating units

Background

Potential generating units are exempt (grandfathered) from the Semi-Dispatch Rule arrangements.

Potential generating units are defined in the draft Rule as future generating units that are either defined in Table 4.22 of the 2007 SOO report or are assessed by NEMMCO as being “committed projects” as at 1 January 2008.

Issues with the Draft Rule

Issue 6.3.1 – What is in a Committed Project?

NEMMCO understands that the definition of a **potential semi-scheduled generating unit** is intended to refer to a generating unit within a set of future generating units (a “project”) as that project was defined at the time that NEMMCO assessed it had achieved “committed project” status.

For grandfathering purposes the project should be fixed once it becomes a “committed project”, and the project proponent should not be in a position to add new generating units or otherwise extend the installed capacity of the project beyond the scope of the original “committed project”. In other words any subsequent extensions to the project should be subject to the Semi-Dispatch Rules.

However the definition of a **potential semi-scheduled generating unit** in the draft Rule does not make this clear, as:

- Paragraph (a) refers to Table 4.22¹⁹ of the 2007 SOO report, which does not list individual generating units but only the project as a whole; and
- Paragraph (c)²⁰ does not refer to individual generating units within the project.

NEMMCO proposes that the above paragraphs be replaced by a reference to a Table that specifically identifies all “committed projects” and the number and size (in MW) of generating units within each project as at 1 January 2008.

Without this additional information there is no direct linkage between a “project” and the generating units within, and the draft Rule could be interpreted as allowing an open-ended project scope.

Issue 6.3.2 – Criteria for a Committed Project Inconsistent with 2007 SOO Report

The draft Rule determination recommends the using the SOO criteria to define a “committed project”:

“The Commission considers that the criteria used in the 2007 SOO for classifying generators as “Committed Windfarms” are the most appropriate criteria for defining committed projects for the purposes of grandfathering prospective semi-scheduled generating units. The SOO criteria are objective, well tested, have been refined over many years, and capture the core elements of whether a project is committed”

¹⁹ The draft Rule incorrectly refers to Table 4.2.2

²⁰ Note that Paragraph (b) is missing in the draft Rule

However the Commission should be aware that the definition of a “committed project” in the draft Rule is different to that stated in the 2007 SOO report.

In summary, NEMMCO is proposing changes to the definition of a **potential semi-scheduled generating unit**, to replace paragraphs (a) and (c) with a reference to a Table that specifically identifies all “committed projects” and the number and size (in MW) of generating units within each project as at 1 January 2008.

Proposed Changes

Amend Clause 11.X.1:

potential semi-scheduled generating unit means a generating unit that appears in Table 1 below, as it is a generating unit that was assessed by NEMMCO as being part of a committed project as at 1 January 2008 and at the time of registration of that unit under Chapter 2 could have been classified as a semi-scheduled generating unit in accordance with clause 2.2.7.:

(a) is listed in “Table 4.2.2: Committed NEM Wind Farms” of the 2007 statement of opportunities; or

(c) is considered to be a committed project as at 1 January 2008.

Table 1: List of Potential Semi-Scheduled Generating Units

Committed Project	Region	Total Project Capacity (MW)	Generating Units	
			Number	Nameplate Rating (MW)
Portland Stage 2 (Cape Bridgewater)	Victoria	58	29	2.0
Waubra	Victoria	192	128	1.5
Snowtown Stage 1	SA	88.2	42	2.1

APPENDIX 1: Summary of Issues and Affected Clauses

Schedule 1 of Amending Rule

Issue	Area	Description	Affected Clauses
1.1.1	Unit Registration and Aggregation	Unconditional Aggregation of Identical Units	2.2.7(h)
1.1.2	Unit Registration and Aggregation	No Upper Limit on Capacity of an Identical Unit	2.2.7(h)
1.1.3	Unit Registration and Aggregation	Inconsistent Treatment of Identical versus Non-Identical Units	2.2.7(h)
1.1.4	Unit Registration and Aggregation	NEMMCO must only "Accept" a Classification Request	2.2.7(i)
1.1.5	Unit Registration and Aggregation	Is the "Single AGC Control Point" condition missing?	2.2.7(h)
1.1.6	Unit Registration and Aggregation	Proposed Schedule 3.1 Changes should be in Schedule 1 of Amending Rule	-
1.1.7	Unit Registration and Aggregation	Alternate Aggregation Process is Confusing	2.2.7
1.2.1	Unit Registration and Aggregation	Aggregation Rules Do Not Support Intermittent Generation Forecasting	3.8.3(b), Ch 10
1.2.2	Unit Registration and Aggregation	Reinstatement of "Control Systems" as a Condition for Aggregation	3.8.3(b)
1.2.3	Unit Registration and Aggregation	Aggregation is Not for the Purpose of Settlements	3.8.3(a)
1.3.1	Unit Registration and Aggregation	Rules for Individual versus Aggregated Units cannot "Equally Apply"	3.8.3(d)
1.3.2	Unit Registration and Aggregation	Rules Applying to an Aggregated Unit should also include Rule 4.11	3.8.3(d)
1.3.3	Unit Registration and Aggregation	Confidential Notice of Aggregation Approvals Conflicts with Clause 3.13.3(m)	3.8.3(g)
2.1.1	Active Power Control – Technical Standards	Exclusion of Linear Ramping Capability	S5.2.5.14(a)(3)(i)
2.1.2	Active Power Control – Technical Standards	Exclusion of Capability to Automatically Increase Output	S5.2.5.14(a)(3)(i)
6.1.1	Transitional Arrangements	Deferral of Rule Commencement Date	11.X.1
6.2.1	Transitional Arrangements	Inadvertent Treatment of a Scheduled Unit as Non-Scheduled after Reclassification	11.X.3(a)
6.3.1	Transitional Arrangements	What is in a Committed Project?	11.X.1
6.3.2	Transitional Arrangements	Criteria for a Committed Project Inconsistent with 2007 SOO Report	11.X.1

Schedule 2 of Amending Rule

Issue	Area	Description	Affected Clauses
3.1.1	Availability Data	What is the Availability of a Semi-Scheduled Generating Unit?	Ch 10
3.1.2	Availability Data	Plant Availability Should Be Notified at "Generating Unit Cluster" Level	3.7B(b)
3.1.3	Availability Data	Inadequate Requirements for Provision of Plant Availability Data	3.7B(b)
3.1.4	Availability Data	Increased Intermittent Forecasting Inaccuracy arising from 30 MW Deadband	3.7B(b)
3.1.5	Availability Data	Rule Only Requires Notification of Plant Availability Reduction	3.7B(b)
3.1.6	Availability Data	All Factors Listed in Clause 3.7B(c) are Relevant to UIGF Calculation	3.7B(c)
3.1.7	Availability Data	Deferred Commencement of UIGF Process	3.7B(d)
3.2.1	Availability Data	Excludes UIGFs from List of PASA Inputs	3.7.2(c), 3.7.3(d)
4.1.1	Dispatch Instructions	NEMMCO Unable to Issue Voltage Control Dispatch Instructions	4.9.2(b)
4.2.1	Dispatch Instructions	<i>Generating System</i> does not include Reactive Plant for Voltage Control	Ch 10
4.3.1	Dispatch Instructions	Design of Non-Conformance Trigger Inconsistent with Scheduled Generators	3.8.6(g)
5.1.1	Regulation FCAS Causer Pays Factors	Factor for Semi-Scheduled Generators Inconsistent with Causer Pays Principles	3.15.6A(k)
5.1.2	Regulation FCAS Causer Pays Factors	Rule Should Include Causer Pays Factors for Non-Scheduled Generators	3.15.6A(k)