

5 July 2007

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box H166
AUSTRALIA SQUARE NSW 1215

Dear John

**NATIONAL ELECTRICITY RULES-
NEMMCO REQUEST FOR RULE SEMI-DISPATCH OF SIGNIFICANT
INTERMITTENT GENERATION**

Vestas welcomes the opportunity to comment on the proposed Rule change for Significant Intermittent Generation submitted by NEMMCO. It is acknowledged that the proposal is seeking to amend the rules primarily to address integration of Significant Intermittent Generation into the electricity grid system. Whilst Vestas supports the intent, the proposal does not appear to have fully considered practicality and capability of wind turbine generators and wind farms for meeting the proposed requirements.

Vestas has identified the following key issues from a manufacturer's perspective and offer them for your consideration:

KEY ISSUES

4.4.2 Operational frequency control requirements

Comment and Suggestion on Governors: Vestas note that any clause making reference to generator 'governors' will not be applicable to wind farms comprising of asynchronous machines because an asynchronous machine has no governor.

4.9.2 Instructions to Generators (b) (1)

This Rule change proposes that NEMMCO may at any time give an instruction to the generating unit or generating system transformer to be set to a nominated tap position (if it has on-load tap changing capability) or the generating unit's or generating system's voltage control system set-point to be set to give a nominated voltage.

Comment

Normally the wind farms require on-load tap changing capability control in automatic mode to maintain the LV side of the main transformer at desired voltage level to ensure adequate and reliable performance of the wind farm. NEMMCO nomination of the transformer tap may jeopardise operation of the wind farm.

Suggestion

The control of the tap position on generating system main transformer is to be left with the wind farm facility.

S5.2.5.11 Frequency control

The Rule change proposes that semi-scheduled generating units provide frequency control.

Comment

Generally, asynchronous machines do not offer frequency control. Normally an asynchronous type of generator follows the grid frequency.

Suggestion

This section should be split into two sections, one for turbines that comprise of synchronous machines and one for turbines that consist of asynchronous machines. The frequency capability of asynchronous generators should be taken into account after consultation with turbine manufacturers.

S5.2.5.11 Frequency control

Each control system used to satisfy clause S5.2.5.11 must be adequately damped.

Comment

In general it is uncertain that wind farms will be able to fulfil the requirement of adequately damping as defined in the code.

Suggestion

Practical considerations should be made of wind farms being able to meet the adequately damping requirements before this requirement is enforced.

S5.2.5.14 Active power control

To meet the requirements of automatic or minimum access, this Rule change proposes that semi-scheduled generating units, subject to energy source availability, are automatically reducing or increasing its active power output within five minutes, at a constant rate.

Comment

Wind farms are generally consisting of asynchronous generators forming an aggregated generating system, and their combined response of active power at the connection point is unlikely to change at a constant rate. Additionally, it may not be possible to guarantee the ramping up of active power within 5 minutes at the connection point. A more appropriate response for ramping up would be 15 minutes. The reason for this is due to variability of wind speed within the site, network communication timing, the number of turbines that are in 'paused' mode, and the size of wind farm.

Furthermore, frequent changes of dispatch set points for ramping up and down could induce unreasonable wear and tear on machines. For example, for a 90MW wind farm at high wind conditions and with all turbines operating, frequent dispatch active power set point changes from say 30MW to 5MW every 5 minutes, while technically possible, would represent a highly undesirable and inefficient method of operation. This comment also applies to Clause "4.9.2 (a1) (1) (2) Instructions to Generators".

Suggestion

Consultation with wind turbine manufacturers should be undertaken for the above prior to implementation. Practical assessment needs to be undertaken before this requirement is enforced.

S5.2.5.14 Active power control

To meet the requirements of automatic or minimum access, this Rule change proposes under General requirements (f) that each control system used to satisfy the requirements of paragraphs (a) and (b) must be adequately damped.

Comment

Adequately damped criteria, as defined in the later NER code may be difficult and unreasonable to meet for a wind farm aggregated generating system consisting of asynchronous generators.

Suggestion

Consultation with wind turbine manufacturers should be undertaken for the above prior to implementation. Practical assessment needs to be undertaken before this requirement is enforced.

10. Glossary

Comment and Suggestion on Definitions:

It is proposed that the definitions of 'generating unit' and 'generating system' be adjusted, or combined to allow the consideration of an aggregated group of wind turbines as a single entity at a connection point. Generating unit data to be reported to NEMMCO, and the regulatory requirements with respect to generating unit behaviour, should all be interpreted at the connection point. Vestas believes this approach is sensible from the perspective of the management of the electricity system, and for the local control and management of the wind farm.

FURTHER GENERAL COMMENTS AND SUGGESTIONS

To make the proposed Semi-Dispatch Rules appropriate for wind farms, Vestas believes that the Rules will need to take into account currently available capabilities of wind turbines to ensure that realistic targets performances are set. Some further comments for consideration are offered below.

Dispatch Instructions Compliance:

Unlike a traditional generating unit, a wind turbine cannot comply with dispatch instructions in every circumstance. A wind turbine is an intermittent generator; as is a group of aggregated wind turbines. Semi dispatch requirements should recognise this fundamental characteristic that wind turbines share with other forms of renewable electricity generation. A wind turbine can successfully generate under active power capping instructions. Vestas proposes that this characteristic be considered sufficient to provide the electricity system with the necessary management control for safe operation.

Autonomous Operation:

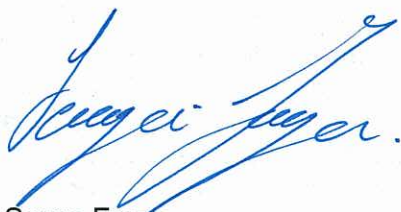
Modern wind turbines are designed for operation at remote sites both onshore and offshore. The ability to operate in a fully autonomous manner is inherent in the design of the turbines and their associated control systems. Semi dispatch requirements should recognise this mode of operation and as such should not include instructions that necessarily require human intervention for compliance.

International Design Standards:

Modern wind turbines are designed, certified, and maintained to accepted international standards. Like any complex plant, operation of wind turbines must occur within a strictly defined envelope that has been established by the manufacturer. Beyond technically superficial or safety compliance changes, it is usually not feasible to tailor either the design or operation of the turbine for local jurisdictions. Vestas proposes that the semi dispatch instructions be reworded to remove requirements that are incompatible with internationally accepted standards of wind turbine design and operation.

A detailed Vestas response to the proposed Semi Dispatch of Significant Intermittent Generation rule changes is contained at Enclosure 1. Vestas appreciates the opportunity to engage in this important process and anticipates active involvement in subsequent phases of the rule making process.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Serge Forza".

Serge Forza
Head of Technical Support
Vestas Pacific

Enclosure 1: Vestas response to the proposed Semi Dispatch of Significant Intermittent Generation rule changes

Clause	Disagree	Comment
<p>2. Registered Participants and Registration</p> <p>2.2 Generator</p> <p>2.2.1 Registration as a Generator</p> <p>(a) Subject to clause 2.2.1(c), a person must not engage in the activity of owning, controlling or operating a generating system that is connected to a transmission or distribution system unless that person is registered by NEMMCO as a Generator.</p> <p>(b) A person who otherwise supplies electricity to a transmission or distribution system may, on application for registration by that person in accordance with clause 2.9, be registered by NEMMCO as a Generator.</p> <p>(c) NEMMCO may, in accordance with guidelines issued from time to time by NEMMCO, exempt a person or class of persons from the requirement to register as a Generator, subject to such conditions as NEMMCO deems appropriate, where (in NEMMCO's opinion) an exemption is not inconsistent with the market objective.</p> <p>(d) Without limitation, an exemption may be given which only relieves a person or class of persons from the requirement to register as a Generator in relation to certain specified generating systems or classes of generating systems.</p>		
<p>(e) To be eligible for registration as a Generator, a person must:</p> <p>(1) obtain the approval of NEMMCO to classify each of the generating units that form part of the generating system that the person owns, operates or</p>	2.2.1(e)(1)	2.2.1(e)(1) In a wind farm, do all the WTGs have to be considered as separate “generators” or can they combine to be one generator? A wind farm should be considered a single generating entity at the connection point.

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controls, or from which it otherwise sources electricity, as a scheduled generating unit, a semi-scheduled generating unit or a non-scheduled generating unit; (2) classify the generating units in accordance with NEMMCO's approval as referred to in subparagraph (1); and (3) satisfy NEMMCO that each generating system will be capable of meeting or exceeding its performance standards.	2.2.1(e)(3)	2.2.1(e)(3) What does "satisfy" mean? The clause should be expanded. Allowance for wind farms should be made in the clause. Wind farm operators may find it difficult to comply with this clause. Weather conditions may prevent the wind farm from reaching full load, and for this reason it may be difficult for the wind farm operator to "satisfy NEMMCO that each generating system will be capable of meeting or exceeding its performance standards".
(f) Except in relation to a proposed generating unit, a person must also classify each of those generating units as either a market generating unit or a non-market generating unit.		
(f1) A Generator may also classify one or more of its generating units as an ancillary service generating unit where it has obtained the approval of NEMMCO to do so.		
(g) Nothing in clause 2.2.1(e) or (f) requires the classification of any generating unit which forms part of a generating system in respect of which an exemption under clause 2.2.1(c) applies.		
2.2.2 Scheduled Generator (a) Unless NEMMCO approves its classification as a semi-scheduled generating unit or as a non-scheduled generating unit, a generating unit which has a nameplate rating of 30 MW or greater or is part	2.2.2(a)	2.2.2(a) Wind farms typically operate at a capacity factor of 30%. Hence nameplate rating threshold should be higher, suggest 100MW to 150MW.

<p>of a group of generating units connected at a common connection point with a combined nameplate rating of 30 MW or greater may only be classified as a scheduled generating unit.</p> <p>(b) A person must not classify a generating unit as a scheduled generating unit unless it has obtained the approval of NEMMCO to do so. NEMMCO must approve the classification if it is satisfied that the person:</p> <p>(1) has submitted data in accordance with schedule 3.1; and</p> <p>(2) has adequate communications and telemetry to support the issuing of dispatch instructions and the audit of responses.</p> <p>(b1) In relation to an application under clause 2.2.2(b) to classify as a scheduled generating unit a generating unit with a nameplate rating of less than 30 MW, or a generating unit that is part of a group of generating units connected at a common connection point with a combined nameplate rating of less than 30 MW, NEMMCO may approve the classification on such terms and conditions as NEMMCO considers appropriate.</p> <p>(c) A person must comply with any terms and conditions imposed by NEMMCO as part of an approval under clause 2.2.2(b1).</p> <p>(d)[Deleted]</p> <p>(e) A Generator is taken to be a Scheduled Generator only in so far as its activities relate to any scheduled generating unit.</p> <p>(f) A Scheduled Generator must operate any scheduled generating unit in accordance with the co-</p>	<p>2.2.2(b)(2)</p>	<p>2.2.2(b)(2) Instead of the words “adequate communications,” the clause could explain in detail the type of communication standards required (or at least make reference to another standard).</p> <p>The words “audit of responses” in the clause may refer to a particular standard which details the requirements of the audit process and “responses”.</p>
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<p>ordinated central dispatch process operated by NEMMCO under the provisions of Chapter 3.</p> <p>(g) As described in Chapter 3, a Scheduled Generator must notify NEMMCO of the availability of each scheduled generating unit in respect of each trading interval.</p> <p>(h) A Scheduled Generator may submit to NEMMCO a schedule of dispatch offers for each scheduled generating unit in respect of each trading interval for dispatch by NEMMCO.</p>		
<p>2.2.2A Semi-Scheduled Generator</p> <p>(a) Unless NEMMCO approves its classification as a scheduled generating unit or as a non-scheduled generating unit, a generating unit which has a nameplate rating of 30 MW or greater or is part of a group of generating units connected at a common connection point with a combined nameplate rating of 30 MW or greater may only be classified as a semi-scheduled generating unit.</p> <p>(b) A person must not classify a generating unit as a semi-scheduled generating unit unless it has obtained the approval of NEMMCO to do so. NEMMCO must approve the classification if it is satisfied that the output of the generating unit is intermittent and that the person:</p> <p>(1) has submitted data in accordance with schedule 3.1; and</p> <p>(2) has adequate communications and telemetry to support the issuing of dispatch instructions and the audit of responses.</p> <p>(c) In relation to an application under clause</p>	<p>2.2.2A(a)</p> <p>2.2.2A(b)(1)</p> <p>2.2.2A(b)(2)</p> <p>2.2.2A(c)</p>	<p>2.2.2A(a) This requires all wind farms, except the very small, to be classified as a semi scheduled generating unit.</p> <p>2.2.2A(b)(1) Schedule 3.1 – Registered Bid and Offer Data is on page 181 of version 14 of the National Electricity Rules.</p> <p>This forces semi scheduled generating units to follow scheduled generators.</p>

<p>2.2.2A(a) to classify as a semi-scheduled generating unit a generating unit with a nameplate rating of less than 30 MW, or a generating unit that is part of a group of generating units connected at a common connection point with a combined nameplate rating of less than 30 MW, NEMMCO may approve the classification on such terms and conditions as NEMMCO considers appropriate.</p> <p>(d) A person must comply with any terms and conditions imposed by NEMMCO as part of an approval under clause 2.2.2A(b).</p> <p>(e) A Generator is taken to be a Semi-Scheduled Generator only in so far as its activities relate to any semi-scheduled generating unit.</p> <p>(f) A Semi-Scheduled Generator must operate any semi-scheduled generating unit in accordance with the co-ordinated central dispatch process operated by NEMMCO under the provisions of Chapter 3.</p> <p>(g) As described in Chapter 3, a Semi-Scheduled Generator must notify NEMMCO of the availability of each semi-scheduled generating unit in respect of each trading interval.</p> <p>(h) A Semi-Scheduled Generator may submit to NEMMCO a schedule of dispatch offers for each semi-scheduled generating unit in respect of each trading interval for dispatch by NEMMCO.</p>	<p>2.2.2A(d)</p> <p>2.2.2A(f) – subject to comments made in Chapter 3.</p>	<p>Schedule 3.1 states as follows. <i>All Scheduled Generators and Market Participants must notify NEMMCO of their registered bid and offer data in accordance with this schedule 3.1 in respect of each of their scheduled loads and scheduled generating units at least six weeks prior to commencing participation in the market. Scheduled Generators and Market Participants must review their registered bid and offer data annually in accordance with the timetable advised by NEMMCO and provide details of any changes to NEMMCO. Registered bid and offer data may be updated by a Scheduled Generator or Market Participant at any time but may be subject to audit at NEMMCO’s request. A copy of all changes to the data must be returned to each Scheduled Generator and Market Participant for verification and resubmission by the Scheduled Generator or Market Participant as necessary. Registered bid and offer data may include tolerance levels.</i></p> <p>The problem is the six weeks prior to commencing participation in the market. For wind farm operators this may be a shorter time period (a week).</p> <p>Scheduled generating unit data includes “normal and maximum ramp rates in MW/minute”.</p> <p>It also includes “response time to full load from cold standby” and other points directly for synchronous machines.</p> <p>The “Scheduled Generating Unit Data” may need to become “Unit data at the connection point” and available data at the connection point should then be put into the form.</p> <p>The clauses do not use the words “subject to energy</p>
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		<p>availability” in the data.</p> <p>In Schedule 3.1 of version 14 of the National Electricity Rules there is clause “Dispatch Inflexibility Profile” and this requires five time types in units of minutes as follows. <i>Time for response from receipt of dispatch instruction from zero load, T1 (see clause 3.8.19(e)(1)) minutes.</i></p> <p><i>Time after T1 required to reach minimum loading level (see clause 3.8.19(e)(2)) minutes. Time after T2 for which plant must operate at or above the minimum loading level (see clause 3.8.19(e)(3)) minutes. Time required by plant to reduce from its minimum loading level to zero (see clause 3.8.19(e)(4)) minutes. Minimum loading level (see clauses 3.8.19(e)(2),(3),(4)) MW.</i></p> <p>Increases to loading levels above should be made subject to energy availability.</p> <p>There is also a section titled “Aggregation Data” as follows (in Schedule 3.1 of version 14 of the National Electricity Rules). <i>Where dispatch bids or dispatch offers are submitted for aggregated generating units, market network services or loads then, unless otherwise exempted by NEMMCO, each Scheduled Generator and Market Participant must provide the information required in accordance with this schedule 3.1 for each generating unit, market network service or load included in those dispatch bids or dispatch offers both separately and in aggregated form.</i></p> <p>This means if there are 50 WTGs then there will be 50 sets of</p>
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		<p>data. Should the wind farm operator provide this data? The data will need to be updated annually and provide “any changes to NEMMCO”.</p> <p>Also, the words “verification and resubmission ... as necessary” in Schedule 3.1 of version 14 of the National Electricity Rules create very high administrative costs for the wind farm operator.</p> <p>2.2.2A(b)(2) Instead of the words “adequate communications,” the clause could explain in detail the type of communication standards required (or at least make reference to another standard).</p> <p>The words “audit of responses” in the clause may refer to a particular standard which details the requirements of the audit process and “responses”.</p> <p>2.2.2A(c) This limits wind farm operators into one of these categories.</p> <p>Do wind farm operators need a special classification?</p> <p>2.2.2A(d) Allowance should be made for dispute resolution and a particular clause for dispute resolution should be quoted.</p> <p>Pages 615 to 630 of version 14 National Electricity Rules clause 8.2 Dispute Resolution.</p>
2.2.3 Non-Scheduled Generator		

<p>(a) Unless NEMMCO approves its classification as a scheduled generating unit or as a semi-scheduled generating unit, a generating unit with a nameplate rating of less than 30 MW (not being part of a group of generating units described in clause 2.2.2(a)) may only be classified as a non-scheduled generating unit.</p> <p>(b) A person must not classify a generating unit as a non-scheduled generating unit unless it has obtained the approval of NEMMCO to do so. NEMMCO must approve the classification if it is satisfied that:</p> <p>(1) the primary purpose for which the relevant generating unit operates is local use and the aggregate sent out generation at its connection point rarely, if ever, exceeds 30 MW; or</p> <p>(2) the physical and technical attributes of the relevant generating unit are such that it is not practicable for it to participate in central dispatch.</p> <p>(c) If, in relation to an application under clause 2.2.3(b), in NEMMCO’s opinion it is necessary for any reason (including power system security) for the relevant Generator to comply with some of the obligations of a Scheduled Generator or a Semi-Scheduled Generator for that generating unit, NEMMCO may approve the classification on such terms and conditions as NEMMCO considers reasonably necessary.</p> <p>(d) A person must comply with any terms and conditions imposed by NEMMCO under clause 2.2.3(c).</p> <p>(e)[Deleted]</p>	<p>2.2.3(b)(2)</p> <p>2.2.3(c)</p> <p>2.2.3(d)</p>	<p>2.2.3(b)(2) The words “physical and technical attributes” can exclude a wind farm from central dispatch.</p> <p>2.2.3(c) This clause should be deleted.</p> <p>The words “in NEMMCO’s opinion” could require the less than 30MW wind farm into being either a scheduled or semi scheduled generator.</p> <p>2.2.3(d) The words “subject to clause 8.2 dispute resolution” may be added.</p>
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<p>(f)A Generator is taken to be a Non-Scheduled Generator only in so far as its activities relate to any non-scheduled generating unit.</p> <p>(g) Subject to clause 3.8.2(e), the non-scheduled generating units of a Generator do not participate in the co-ordinated central dispatch process operated by NEMMCO.</p>	<p>2.2.3(g)</p>	<p>2.2.3(g) This clause should be deleted.</p> <p>Clause 3.8.2(e) is on page 20 of Addendum A1 and states as follows. <i>(e)If NEMMCO considers it reasonably necessary for adequate system operation and the maintenance of power system security, Registered Participants who may otherwise be exempted from participating in the central dispatch process must do so to the extent and in the capacity specified by NEMMCO.</i></p> <p>Thereby, clause 3.8.2(e) obliges the wind farm operator below 30MW into the dispatch process.</p>
<p>2.11 Participant Fees</p> <p>2.11.3Budgeted revenue requirements</p> <p>(a)NEMMCO must prepare and publish before the beginning of each financial year a budget of the revenue requirements for NEMMCO for that financial year.</p> <p>(b)The budget prepared by NEMMCO under clause 2.11.3(a) must take into account and separately identify projected revenue requirements in respect of:</p> <p>(1)NEMMCO’s procurement of non-market ancillary services;</p> <p>(2)NEMMCO’s expenditures in relation to its power system operation activities, including meeting its</p>		

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<p>obligations in terms of power system security and the facilitation and operation of the central bidding and dispatch processes in accordance with the Rules;</p> <p>(2A)NEMMCO’s expenditures in relation to inter-network tests;</p> <p>(3)NEMMCO’s expenditures in the collection, storage and processing of metering data;</p> <p>(4)NEMMCO’s expenditures in the facilitation of the billing and settlement of market transactions;</p> <p>(5)NEMMCO’s other expenditure requirements, operating costs and margin;</p> <p>(6)NEMMCO’s obligation to provide funds to the AEMC to meet the approved Advocacy Panel funding requirements in accordance with clause 8.10.5;</p> <p>(7) any revenue shortfall or excess from each of the requirements specified under clause 2.11.3(b)(1)-(5) from the previous financial year; and</p> <p>(8) the funding requirements of the Participant compensation fund in accordance with clause 3.16 (which requirements must only be recovered from Scheduled Generators, Semi-Scheduled Generators and Scheduled Network Service Providers).</p>	<p>2.11.3(b)(8)</p>	<p>2.11.3(b)(8) Clause 3.16, Participant and compensation fund, is on pages 87 to 89 of Addendum A1.</p> <p>Why does the clause say “must only be recovered from”?</p> <p>This clause should be deleted.</p>
<p>2.12 Interpretation of References to Various Registered Participants</p> <p>(a) A person may register in more than one of the categories of Registered Participant.</p>	<p>2.12</p>	<p>2.12 This clause should be deleted.</p> <p>Version 14 of National Electricity Rules has a Glossary in Chapter 10, so what is the purpose of this clause?</p>

<p>(b) Notwithstanding anything else in the Rules, a reference to:</p> <p>(1) a “Generator” applies to a person registered as a Generator only in so far as it is applicable to matters connected with the person’s scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units or non-market generating units;</p> <p>(2) a “Scheduled Generator”, “Semi-Scheduled Generator”, “Non-Scheduled Generator”, “Market Generator” or “Non-Market Generator” applies to a person only in so far as it is applicable to matters connected with the person’s scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units or non-market generating units respectively;</p> <p>(3) a “Customer” applies to a person registered as a Customer only in so far as it is applicable to matters connected with the person’s first-tier loads, second-tier loads or market loads;</p> <p>(4) a “First Tier Customer”, “Second Tier Customer” or “Market Customer” applies to a person only in so far as it is applicable to matters connected with the person’s first-tier loads, second-tier loads or market loads respectively;</p> <p>(4A) a "Trader" applies to a person only in so far as it is applicable to matters connected with the person's activities as a Trader;</p> <p>(4B) a “Reallocator” applies to a person only in so far as it is applicable to matters connected with the person’s activities as a Reallocator;</p> <p>(5) a “Network Service Provider” applies to a person</p>		<p>Generally it is companies that sign connection agreements and so it is the company who is responsible.</p> <p>How is “person” defined?</p>
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<p>registered as a Network Service Provider only in so far as it is applicable to matters connected with the person's network services, including market network services and scheduled network services;</p> <p>(6) a "Market Network Service Provider" or "Scheduled Network Service Provider" applies to a person only in so far as it is applicable to matters connected with the person's market network services or scheduled network services respectively;</p> <p>(7) a "Market Participant" applies to a person who is a Market Participant and:</p> <p>(i) where that person is registered as a Market Generator, in so far as it is applicable to matters connected with the person's market generating units or ancillary services generating units; and</p> <p>(ii) where that person is registered as a Market Customer, in so far as it is applicable to matters connected with the person's market loads or market ancillary service loads; and</p> <p>(iii) where that person is registered as a Market Network Service Provider, in so far as it is applicable to matters connected with the person's market network services; and</p> <p>(iv) where that person is registered in any category of Market Participant additional to a Market Generator and/or a Market Customer and/or a Market Network Service Provider, to the extent to which the reference would otherwise apply to the person if it were not taken to be a Market Generator, Market Customer or Market Network Service Provider; and</p>		
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<p>(8) a “Registered Participant” applies to a person who is registered under Chapter 2 and:</p> <p>(i) where that person is registered as a Generator, in so far as it is applicable to matters connected with any of the Generator’s scheduled generating units, semi-scheduled generating units, non-scheduled generating units, market generating units and non-market generating units;</p> <p>(ii) where that person is registered as a Customer, in so far as it is applicable to matters connected with any of the Customer’s first-tier loads, second-tier loads or market loads; and</p> <p>(iii) where that person is registered in any other Registered Participant category, to the extent to which the reference would apply to the person if it were not registered in another Registered Participant category.</p> <p>(c) In clause 2.12, “matter” includes any assets, liabilities, acts, omissions or operations (whether past, present or future).</p>		
<p>3. Market Rules</p> <p>3.7 Projected Assessment of System Adequacy</p> <p>3.7.1 Administration of PASA</p> <p>(a) NEMMCO must administer medium term and short term projected assessment of system adequacy processes to be known as PASA.</p> <p>(b) The PASA is a comprehensive program of information collection, analysis, and disclosure of medium term and short term power system security</p>	<p>3.7.1(b)</p>	<p>3.7.1(b) The words “up to two years in advance” could impose on wind farm operators to give the information to NEMMCO for two years in advance.</p>

<p>prospects so that Scheduled Generators, Semi-Scheduled Generators and Market Participants are properly informed to enable them to make decisions about supply, demand and outages of transmission networks in respect of periods up to 2 years in advance.</p> <p>(c) On a weekly basis NEMMCO must:</p> <ol style="list-style-type: none"> (1) collect and analyse information from all Scheduled Generators, Semi-Scheduled Generators, Market Customers, Transmission Network Service Providers and Market Network Service Providers about their intentions for: <ol style="list-style-type: none"> (i) generation, transmission and Market Network Service maintenance scheduling; (ii) intended plant availabilities; (iii) energy constraints; (iv) other plant conditions which could materially impact upon power system security; and (v) significant changes to load forecasts previously notified to NEMMCO, for the following 24 months; and (2) following analysis and assessment, publish information that will: <ol style="list-style-type: none"> (i) assist Scheduled Generators, Semi-Scheduled Generators and Market Participants to plan any scheduled work on plant; and (ii) inform the market of possible power system security problems. <p>(d) NEMMCO must use its reasonable endeavours to ensure that it provides to Scheduled Generators,</p>		<p>This is an additional administrative cost to wind farm operators.</p> <div> <div>3.7.1(c)(1)</div> <div> <p>3.7.1(c)(1) The words “on a weekly basis” force the wind farm operator to present the data required in points (i) to (v) to NEMMCO on a weekly basis. This data may only change every six months.</p> <p>Point (ii) “intended plant availabilities” should have the words “dependent on available energy source” added.</p> <p>A WTG is available (unless under maintenance) but may not generate.</p> <p>Point (iii) “energy constraints” needs explanation with respect to wind farms.</p> <p>Point (iv) “other plant conditions ..impact upon power system security” needs explanation with respect to wind farms.</p> <p>Point (v) “significant changes to load forecasts” needs to be explained with respect to wind farms. Usually the wind farm operator generates electricity and does not get involved in load forecast calculations.</p> </div> </div> <div> <div>3.7.1(d)</div> <div> <p>3.7.1(d) The words “to undertake maintenance and outage planning” should embrace input from wind farm operators. A</p> </div> </div>
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<p>Semi-Scheduled Generators and Market Participants sufficient information to allow Scheduled Generators, Semi-Scheduled Generators and Market Participants to undertake maintenance and outage planning without violating power system security and to allow the market to operate effectively with a minimal amount of intervention by NEMMCO.</p>		<p>WTG is not regular plant. Also, one or two WTGs down for maintenance still leaves say another 30 or 40 WTGs connected to the electricity grid in the case of a wind farm. NEMMCO should not schedule maintenance of individual WTGs. This should be the work of the wind farm operator.</p>
<p>3.7.2 Medium term PASA</p> <p>(a) The medium term PASA covers the 24 month period commencing from the day 8 days after the day of publication with a daily resolution, and must be reviewed and issued every week by NEMMCO in accordance with the timetable.</p> <p>(b) NEMMCO may publish additional updated versions of the medium term PASA in the event of changes which, in the judgment of NEMMCO, are materially significant and should be communicated to Scheduled Generators, Semi-Scheduled Generators and Market Participants.</p> <p>(c) The following PASA inputs are to be prepared by NEMMCO:</p> <p>(1) forecast load which is:</p> <p>(i) to indicate for each region the most probable peak load, time of the peak, and daily energy on the basis of past trends, day type and special events including all anticipated scheduled load and other load except pumped storage loads;</p> <p>(ii) subsequently to be adjusted by an amount anticipated in the forecast as scheduled load by load bidders;</p>	<p>3.7.2(a)</p>	<p>3.7.2(a) Can wind farm operators forecast 24 months in advance?</p> <p>Also, this information is to be updated weekly.</p> <p>In version 14 of the National Electricity Rules, Chapter 10, there is a definition of “medium term PASA” as follows: <i>the PASA in respect of the period from the 8th day after the current trading day to 24 months after the current trading day in accordance with clause 3.7.2.</i></p> <p>“Timetable” is defined in Chapter 10 of version 14 of the National Electricity Rules and is <i>the timetable published by NEMMCO under clause 3.4.3 for the operation of the spot market and the provision of market information.</i></p> <p>Clause 3.4.3 is on page 44 of version 14 of the National Electricity Rules as follows. <i>3.4.3 Spot market operations timetable</i></p> <p><i>(a) NEMMCO must operate the spot market according to the timetable which must be approved by the AEMC and published by NEMMCO following compliance with the Rules consultation</i></p>

<p>(iii) an indicative half hourly load profile for each day type for each region for each month of the year;</p> <p>(2) reserve requirements of each region determined in accordance with the medium term capacity reserve standards set out in the power system security and reliability standards;</p> <p>(3) forecast inter-regional network constraints and intra-regional network constraints known to NEMMCO at the time;</p> <p>(4) unconstrained intermittent generation forecast for each semi-scheduled generating unit for each day.</p> <p>(d) The following medium term PASA inputs must be submitted by each relevant Scheduled Generator, Semi-Scheduled Generators or Market Participant in accordance with the timetable:</p> <p>(1) PASA availability of each scheduled generating unit, semi-scheduled generating unit, scheduled load or scheduled network service for each day; and</p> <p>(2) weekly energy constraints applying to each generating unit or scheduled load.</p> <p>(e) Network Service Providers must provide to NEMMCO an outline of planned network outages in accordance with the timetable and provide to NEMMCO any other information on planned network outages that is reasonably requested by NEMMCO to assist NEMMCO to meet its obligations under clause 3.7.2 (f)(4).</p> <p>(f) NEMMCO must prepare and publish the following information in respect of each day covered by the medium term PASA in accordance with</p>	<p>3.7.2(c)(4)</p> <p>3.7.2(d)</p> <p>3.7.2(d)(1) and (2)</p> <p>3.7.2(e)</p>	<p><i>procedures.</i></p> <p><i>(b) If NEMMCO wishes to change the timetable at any time, it may do so following compliance with the Rules consultation procedures.</i></p> <p>Special exemption should be given to wind farm operators. Alternatively, at least there ought to be a flexible tolerance on the data provided, and the tolerance must be stated in the clause.</p> <p>3.7.2(c)(4) The words “unconstrained intermittent generation forecast for each semi scheduled unit for each day” needs to be clarified.</p> <p>In one section of the rules, the rules refer to a single WTG, and other parts of the rules refer to the aggregation of say 50 WTGs.</p> <p>Furthermore, will the forecast be for a single WTG, and there will be 50 forecasts for 50 WTGs, or will there be an aggregated forecast for 50 WTGs?</p> <p>This is significant for wind farm operators because this may need to be done two years in advance on a “daily resolution”.</p> <p>3.7.2(d) This clause should be deleted, due to clause 3.7.1(c).</p> <p>3.7.2(d)(1) and (2) The clause should clarify if this is for one WTG, or the aggregated say 50 WTGs.</p> <p>The words “energy constraints” should not apply to wind farms. Also wind farms do not have “scheduled loads”. So, the clause may say “not applicable to wind farm operators”.</p>
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<p>clause 3.13.4:</p> <p>(1) forecasts of the most probable peak power system load plus required reserve, adjusted to make allowance for scheduled load, for each region and for the total power system;</p> <p>(1A) the aggregated MW allowance(if any) made by NEMMCO for generation from non-scheduled generating systems in each forecast of the most probable peak power system load referred to in clause 3.7.2(f)(1);</p> <p>(1B) in respect of each forecast of the most probable peak power system load referred to in clause 3.7.2(f)(1), a value that is the sum of that forecast and the relevant aggregated MW allowance referred to in clause 3.7.2 (f)(1A);</p> <p>(2) forecasts of the most probable energy consumption for each region and for the total power system;</p> <p>(3) aggregate generating unit PASA availability for each region, calculated by adding the following categories:</p> <p>(i) the capacity of scheduled generating units that are able to operate at the full offered PASA availability on a continuous basis to meet forecast power system load;</p> <p>(ii) an allocation of generation that cannot be generated continuously at the full offered PASA availability of the scheduled generating units for the period covered due to specified weekly energy constraints;</p> <p>(iii) the capacity of semi-scheduled generating units to meet forecast power system load, this capacity</p>	<p>3.7.2(f)(3)(iii)</p>	<p>3.7.2(e) Here wind farm operators will need to provide information on outages. Unlike large synchronous machines of a size greater than 30MW, wind farm operators have a reduced ability to foretell outages. Some allowance should be given to wind farm operators and a tolerance added to the information provided. Generally wind farm operators take a wind turbine manufacture’s maintenance schedule as the proposed outage schedule. Also, “outage” is defined in Chapter 10 of version 14 of the National Electricity Rules as follows: <i>any full or partial unavailability of equipment or facility</i>. The tolerance would allow for the effect of unpredictable adverse weather circumstances on WTGs.</p> <p>3.7.2(f) Clause 3.13.4 “Spot market” is on pages 60 to 63 of Addendum A1.</p> <p>Wind farm operators will need to present constantly information “in respect of each day”.</p> <p>3.7.2(f)(3)(iii) How can NEMMCO calculate “the capacity of semi-scheduled generating units to meet forecast power system</p>
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<p>being the lesser of the offered PASA availability and the corresponding unconstrained intermittent generation forecast prepared by NEMMCO; and</p> <p>(iv) an allocation of generation that cannot be generated continuously at the full capacity of the semi-scheduled generating units as defined in paragraph (iii) for the period covered due to specified weekly energy constraints;</p> <p>(4) identification and quantification of:</p> <p>(i) any projected violations of power system security;</p> <p>(ii) any days on which low reserve or lack of reserve conditions are forecast to apply;</p> <p>(iii) where a projected supply deficit in one region can be supplemented by a surplus in another region (dependent on forecast interconnector transfer capabilities);</p> <p>(iv) forecast interconnector transfer capabilities and the discrepancy between forecast interconnector transfer capabilities and the forecast capacity of the relevant interconnector in the absence of outages on the relevant interconnector only; and</p> <p>(v) when and where network constraints may become binding on the dispatch of generation or load.</p> <p>(g) NEMMCO must document the procedure it uses for preparation of the medium term PASA and make it available to all Scheduled Generators, Semi-Scheduled Generators and Market Participants on a cost recovery basis.</p>	<p>3.7.2(f)(3)(iv)</p> <p>3.7.2(g)</p>	<p>load”? This must assume NEMMCO can accurately forecast the weather in the instance of wind farms.</p> <p>Also, not all the energy available in the wind may be used because “this capacity being the lesser of the offered PASA availability and the corresponding unconstrained intermittent generation forecast prepared by NEMMCO”.</p> <p>3.7.2(f)(3)(iv) “Energy constraints” can limit wind farm active power output. This should be recognised in the language of the Rules.</p> <p>In Chapter 10 of version 14 of the National Electricity Rules there is a definition for constraint as follows. <i>constraint, constrained a limitation on the capability of a network, load or a generating unit such that it is unacceptable to either transfer, consume or generate the level of electrical power that would occur if the limitation was removed.</i></p> <p>At this juncture NEMMCO can decide what is “unacceptable” and constrain active power output from the wind farm. Ideally, all the energy available in the wind must generate electricity, and so this should be incorporated in the clause.</p>
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		3.7.2(g) What does “on a cost recovery basis” refer to? This documentation should be free to generators.
<p>3.7.3 Short term PASA</p> <p>(a) The short term PASA must be issued at least daily by NEMMCO in accordance with the timetable.</p> <p>(b) The short term PASA covers the period of six trading days starting from the end of the trading day covered by the most recently published pre-dispatch schedule with a half hourly resolution.</p> <p>(c) NEMMCO may publish additional updated versions of the short term PASA in the event of changes which, in the judgement of NEMMCO, are materially significant and should be communicated to Scheduled Generators, Semi-Scheduled Generators and Market Participants.</p> <p>(d) The following short term PASA inputs are to be prepared by NEMMCO:</p> <p>(1) forecast load which is to include:</p> <p>(i) the most probable half hourly profile on the basis of past trends, day type, and special events; and</p> <p>(ii) all scheduled load and other load except for pumped storage loads, which must subsequently be adjusted in accordance with dispatch offers for scheduled load;</p> <p>(2) reserve requirements for each region determined in accordance with the short term capacity reserve standards;</p> <p>(3) anticipated inter-regional network constraints and</p>	3.7.3(d)(4)	3.7.3(d)(4) Does this apply to a single WTG or to the aggregate of say 50 WTGs operated through a connection point?

<p>providing inputs for the PASA process must do so to the extent specified by NEMMCO.</p> <p>(g) Network Service Providers must provide to NEMMCO an outline of planned network outages in accordance with the timetable and provide to NEMMCO any other information on planned network outages that is reasonably requested by NEMMCO to assist NEMMCO to meet its obligations under clause 3.7.3 (h)(5).</p> <p>(h) NEMMCO must prepare and publish the following information as short term PASA outputs for each trading interval in the period covered in accordance with clause 3.13.4(c):</p> <p>(1) forecasts of the most probable power system load plus required reserve adjusted to make allowance for scheduled load, for each region and for the total power system;</p> <p>(2) forecasts of power system load for each region with 10% and 90% probability of exceedence;</p> <p>(3) forecasts of the most probable energy consumption for each region and for the total power system;</p> <p>(4) aggregate generating unit availability for each region calculated by adding the following categories:</p> <p>(i) the capacity of scheduled generating units that are able to operate at the full offered availability on a continuous basis to meet forecast power system load; and</p> <p>(ii) an allocation of generation that cannot be generated continuously at the offered availability of the scheduled generating units for the period covered due to specified daily energy constraints;</p>	<p>3.7.3(h)</p>	<p>3.7.3(e)(3) The words “current intention and best estimate” make allowance for possible wrong estimates of “projected daily energy availability. Words may be added to say “best estimate of projected daily energy” for wind farm operators.</p> <p>This means wind farm operators will need to operate weather forecast software to provide accurate estimates to NEMMCO.</p> <p>NEMMCO should provide such access to weather forecasting services so that the forecast of wind farm operators will be the same forecast as NEMMCO. (This should be provided free of charge to wind farm operators.)</p> <p>3.7.3(f) This clause should be deleted. On the one hand NEMMCO gives an exemption, and then due to “power system security” removes the exemption.</p> <p>3.7.3(h) Clause 3.13.4(c) is shown on page 60 of Addendum A1 and is titled “Spot Market”. The clause states “each day”.</p> <p>Information is based on “best estimate” and this may be stated in the clause.</p>
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<p>(iii) the capacity of semi-scheduled generating units to meet forecast power system load, this capacity being the lesser of the offered availability and the corresponding unconstrained intermittent generation forecast prepared by NEMMCO; and</p> <p>(iv) an allocation of generation that cannot be generated continuously at the full capacity of the semi-scheduled generating units as defined in paragraph (iii) for the period covered due to specified daily energy constraints;</p> <p>(4A) aggregate generating unit PASA availability for each region;</p> <p>(4B) the aggregated MW allowance (if any) made by NEMMCO for generation from non-scheduled generating systems in each forecast:</p> <p>(i) of the most probable peak power system load referred to in clause 3.7.3(h)(1); and</p> <p>(ii) referred to in clauses 3.7.3(h)(2), (3), (4) and (4A);</p> <p>(4C) in respect of each forecast:</p> <p>(i) of the most probable peak power system load referred to in clause 3.7.3(h)(1);</p> <p>(ii) referred to in clauses 3.7.3(h)(2), (3), (4) and (4A),</p> <p>a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.7.3(4B); and</p> <p>(5) identification and quantification of:</p> <p>(i) any projected violations of power system security;</p> <p>(ii) any trading intervals for which low reserve or lack of reserve</p> <p>conditions are forecast to apply;</p>		
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<p>(iii) where a projected supply deficit in one region can be supplemented by a surplus in another region (dependent on forecast interconnector transfer capabilities);</p> <p>(iv) forecast interconnector transfer capabilities and the discrepancy between forecast interconnector transfer capabilities and the forecast capacity of the relevant interconnector in the absence of outages on the relevant interconnector only; and</p> <p>(v) when and where network constraints may become binding on the dispatch of generation or load.</p> <p>(i) In the event that in performing the short-term PASA NEMMCO identifies any projected low reserve or lack of reserve conditions in respect of a participating jurisdiction, then NEMMCO must use its reasonable endeavours to advise the Jurisdictional Co-ordinator for that participating jurisdiction of any potential requirements during such conditions to shed sensitive loads.</p> <p>(j) NEMMCO must document the procedure it uses for preparation of the short term PASA and make it available to all Scheduled Generators, Semi-Scheduled Generators and Market Participants on a cost recovery basis.</p> <p>(k)[Deleted]</p>	<p>3.7.3(j)</p> <p>3.7.3(k)</p>	<p>3.7.3(j) This documentation should be provided free of charge to generators.</p> <p>3.7.3(k) This is already deleted in version 14 of the National Electricity Rules.</p>
<p>3.8 Central Dispatch and Spot Market Operation</p> <p>3.8.1 Central Dispatch</p> <p>(a) NEMMCO must operate a central dispatch process to dispatch scheduled generating units, semi-</p>		

<p>scheduled generating units, scheduled loads, scheduled network services and market ancillary services in order to balance power system supply and demand, using its reasonable endeavours to maintain power system security in accordance with Chapter 4 and to maximise the value of spot market trading on the basis of dispatch offers and dispatch bids.</p> <p>(b) The central dispatch process should aim to maximise the value of spot market trading i.e. to maximise the value of dispatched load based on dispatch bids less the combined cost of dispatched generation based on generation dispatch offers, dispatched network services based on network dispatch offers, and dispatched market ancillary services based on market ancillary service offers subject to:</p> <p>(1)dispatch offers, dispatch bids and market ancillary service offers;</p> <p>(2)constraints due to availability and commitment;</p> <p>(3)non-scheduled load requirements in each region;</p> <p>(4)power system security requirements determined as described in Chapter 4</p> <p>and the power system security and reliability standards;</p> <p>(5)intra-regional network constraints and intra-regional losses;</p> <p>(6)inter-regional network constraints and inter-regional losses;</p> <p>(7)constraints consistent with registered bid and offer data;</p> <p>(8)current levels of dispatched generation, load and</p>		
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<p>market network services;</p> <p>(9) constraints imposed by ancillary services requirements;</p> <p>(10) arrangements designed to ensure pro-rata loading of tied registered bid and offer data;</p> <p>(11) ensuring that as far as reasonably practical, in relation to a direction or dispatch of plant under a reserve contract:</p> <p>(A) the number of Affected Participants is minimised; and (B) the effect on interconnector flows is minimized; and</p> <p>(12) constraints due to unconstrained intermittent generation forecasts for semi-scheduled generating units.</p> <p>(c) NEMMCO must establish procedures to allow relaxation of power system constraints listed in clause 3.8.1(b) in order to resolve infeasible dispatch solutions, subject to the following principles:</p> <p>(1) the procedures are developed in consultation with Registered Participants to achieve a reasonable dispatch outcome while maintaining consistency with NEMMCO's obligations to maintain power system security and the pricing principles listed in clause 3.9.1; and</p> <p>(2) NEMMCO must report to Registered Participants any events requiring the relaxation of these constraints.</p> <p>(d) NEMMCO must develop and publish a dispatch algorithm to be used by NEMMCO for the purpose of central dispatch and pricing in accordance with clauses 3.8 and 3.9.</p>		
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<p>(e) NEMMCO must use the dispatch algorithm to determine the loading level in MW for each scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load in each dispatch interval in accordance with the principles set out in clause 3.8.1(b).</p> <p>(e1) NEMMCO must use the dispatch algorithm to determine the quantity of each market ancillary service which will be enabled for each ancillary service generating unit or ancillary service load.</p> <p>(e2) When NEMMCO determines the quantity of each market ancillary service which will be enabled, NEMMCO must determine:</p> <p>(1) the required quantity of each market ancillary service that may be sourced from any region (referred to as the “global market ancillary service requirement”); and</p> <p>(2) any required quantity of such market ancillary service which must only be sourced from one or more nominated regions (referred to as a “local market ancillary service requirement”).</p> <p>(f) NEMMCO may investigate from time to time:</p> <p>(1) the scope for further development of the dispatch algorithm beyond the minimum requirements specified in clause 3.8.1(b); and</p> <p>(2) the sufficiency of the dispatch algorithm in meeting the minimum requirements specified in clause 3.8.1(b), and following compliance with the Rules consultation procedures, publish a report setting out its recommendations.</p>		

<p>3.8.2 Participation in central dispatch</p> <p>(a) A Generator must submit generation dispatch offers in respect of each of its scheduled generating units and semi-scheduled generating units for each trading day in accordance with clause 3.8.6.</p> <p>(b) Generation dispatch offers for a scheduled generating unit or semi-scheduled generating unit must include a specified self-dispatch level and may include prices and MW quantities for increased or decreased levels of generation above or below this self-dispatch level.</p> <p>(b1) A Scheduled Network Service Provider must submit network dispatch offers in respect of each of its scheduled network services for each trading day in accordance with clause 3.8.6A.</p> <p>(c) Subject to clause 3.8.2 (d), dispatch bids may be submitted by Market Participants in respect of scheduled loads, in accordance with clause 3.8.7, and may specify prices and MW quantities for any trading interval either for reductions or increases in load.</p> <p>(c1) Market ancillary service offers may be submitted by Ancillary Service Providers in respect of market ancillary services in accordance with clause 3.8.7A.</p> <p>(d) Dispatch bids and market ancillary service offers will only be included in the central dispatch process by NEMMCO if it is satisfied that adequate communication and/or telemetry is available to support the issuing of dispatch instructions and the audit of responses.</p> <p>(e) If NEMMCO considers it reasonably necessary</p>		
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for adequate system operation and the maintenance of power system security, Registered Participants who may otherwise be exempted from participating in the central dispatch process must do so to the extent and in the capacity specified by NEMMCO.		
3.8.3 Bid and offer aggregation guidelines (a) Scheduled Generators, Semi-Scheduled Generators or Market Participants who wish to aggregate their scheduled generating units, semi-scheduled generating units, scheduled network services or scheduled loads for the purpose of central dispatch and settlements must apply to NEMMCO to do so. (b) NEMMCO must approve applications for aggregation if the following conditions are fulfilled by the Scheduled Generator, Semi-Scheduled Generator or Market Participant: (1) aggregated scheduled generating units, aggregated semi-scheduled generating units or aggregated scheduled loads must be connected at a single site with the same intra-regional loss factor and be operated by a single Scheduled Generator, Semi-Scheduled Generator or Market Participant; (1a) aggregated scheduled network services must be connected at the same two sites, have the same intra-regional loss factors, have the same distribution loss factors where applicable and be operated by the same Scheduled Generator, Semi-Scheduled Generator or Market Participant; and (2) power system security must not be materially		

<p>affected by the proposed aggregation.</p> <p>(c) Notwithstanding that one or more of the conditions set out in clause 3.8.3(b) may not have been fulfilled by the Scheduled Generator, Semi-Scheduled Generator or Market Participant, NEMMCO may approve an application for aggregation provided that such aggregation would not materially distort central dispatch.</p> <p>(d) For the purposes of chapter 3 and clause 4.9, unless the context requires otherwise, a reference to a scheduled generating unit, semi-scheduled generating unit, scheduled load or scheduled network service for which aggregation is approved under clause 3.8.3 is a reference to the aggregated scheduled generating unit, aggregated semi-scheduled generating unit, aggregated scheduled load or aggregated scheduled network service, respectively.</p> <p>(e) NEMMCO must evaluate applications for aggregation and reply within 20 business days of receipt of the application setting out whether the application is to be approved and the conditions that apply to the proposed approval.</p> <p>(f) Scheduled Generators, Semi-Scheduled Generators and Market Participants that have been granted aggregated status must, if required by NEMMCO, declare individual scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load availability and operating status to NEMMCO in the PASA process under clause 3.7 to allow power system security to be effectively monitored.</p>		
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<p>(g) NEMMCO must provide reasons to a Scheduled Generator, Semi-Scheduled Generator or Market Participant whose application for aggregation is denied by NEMMCO.</p> <p>(h)[Deleted]</p> <p>(i) NEMMCO must notify Scheduled Generators, Semi-Scheduled Generators and Market Participants of newly approved aggregations.</p> <p>(j) NEMMCO must maintain a database of aggregated scheduled generating units, aggregated semi-scheduled generating units, aggregated scheduled network services and aggregated scheduled loads and their components.</p>		
<p>3.8.4 Notification of scheduled capacity All Scheduled Generators, Semi-Scheduled Generators and Market Participants with scheduled generating units, semi-scheduled generating units, scheduled network services or scheduled loads must inform NEMMCO of their available capacity as follows in accordance with the timetable:</p> <p>(a) Scheduled Generators, Semi-Scheduled Generators and Market Participants must notify NEMMCO of the available capacity of each scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load for each trading interval of the trading day;</p> <p>(b) subsequent changes may only be made to the information provided under clause 3.8.4(c), (d) and (e) in accordance with clause 3.8.22;</p>	3.8.4(a)	<p>3.8.4(a) Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>

<p>(c) for scheduled generating units and semi-scheduled generating units, two days ahead of each trading day:</p> <p>(1) a MW available capacity profile that specifies the MW capacity available for dispatch for each of the 48 trading intervals in the trading day;</p> <p>(2) estimated commitment or decommitment times;</p> <p>(3) daily energy availability for energy constrained generating units; and</p> <p>(4) ramp rate constraints;</p> <p>(d) for scheduled loads, two days ahead of each trading day:</p> <p>(1) a MW available capacity profile that specifies the MW capacity available for dispatch for each of the 48 trading intervals in the trading day;</p> <p>(2) daily energy availability for energy constrained scheduled loads; and</p> <p>(3) ramp rate constraints;</p> <p>(e) for scheduled network services, two days ahead of each trading day:</p> <p>(1) a MW capacity profile that specifies the power transfer capability in each direction available for dispatch for each of the 48 trading intervals in the trading day; and</p> <p>(2) ramp rate constraints.</p>	<p>3.8.4(c)</p>	<p>3.8.4(c) Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>
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<p>3.8.6 Generating unit offers for dispatch The following requirements apply to all dispatch offers for scheduled generating units and semi-scheduled generating units:</p> <p>(a) dispatch offers must contain the Scheduled Generator's or Semi-Scheduled Generator's intended self-dispatch level for each trading interval, and may contain up to 10 price bands which may be either for possible dispatch above the intended self-dispatch level or for possible off-loading below the intended self-dispatch level by dispatch instruction;</p> <p>(b) the dispatch offer must specify for each of the 48 trading intervals in the trading day:</p> <p>(1) a MW capacity for the intended self-dispatch level;</p> <p>(2) an incremental MW amount for each price band specified in the dispatch offer; and</p> <p>(3) a MW/min ramp rate capability;</p> <p>(c) the MW quantities specified are to apply at the terminals of the scheduled generating unit or semi-scheduled generating unit or, with NEMMCO's agreement, at any other point in the Scheduled Generator's or Semi-Scheduled Generator's electrical installation or on the network;</p> <p>(d) a dispatch offer which specifies a self-dispatch level of more than zero must specify at least one price band for off-loading below the intended self-dispatch level and the total MW quantity in price bands specified for off-loading in each trading interval must equal the MW quantity of the self-dispatch level for that trading interval to enable</p>	<p>3.8.6</p>	<p>3.8.6 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>
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<p>possible off-loading to a zero dispatch level;</p> <p>(e) the dispatch offer must specify a loading price or an off-loading price for each price band specified in the dispatch offer, in dollars and whole cents per MWh, and this price is to apply to the price band throughout the trading day;</p> <p>(f) prices specified for each price band specified in the dispatch offer must increase monotonically with an increase in available MWs;</p> <p>(g) prices specified are to apply at the scheduled generating unit's or semi-scheduled generating unit's connection point and for the purposes of central dispatch shall be referred to the regional reference node to which that connection point is assigned as follows:</p> $RP = DOP \div LF$ <p>where</p> <p>RP is the price specified in the dispatch offer when referred to the appropriate regional reference node;</p> <p>DOP is the price as specified in the dispatch offer;</p> <p>and</p> <p>LF where the scheduled generating unit's or semi-scheduled generating Unit's connection point is a transmission network connection point, is the intra-regional loss factor at that connection point, or where the scheduled generating unit's or semi-scheduled generating unit's connection point is a distribution network connection point, is the product of the distribution loss factor at that connection point multiplied by the intra-regional loss factor at the transmission network connection point to which it is assigned;</p>		
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<p>(h) loading prices offered must be equal to or greater than \$0/MWh and may not exceed the product of VoLL multiplied by the intra-regional loss factor at the Scheduled Generator's or Semi-Scheduled Generator's transmission network connection point for the generating unit;</p> <p>(i) off-loading prices must be less than \$0/MWh, i.e. negative in sign and may not be less than the product of the market floor price multiplied by the intra-regional loss factor at the Scheduled Generator's or Semi-Scheduled Generator's transmission network connection point for the generating unit;</p> <p>(j) a loading price specified for a price band is to be interpreted as the minimum price at which up to the specified MW increment is to be loaded in the central dispatch process;</p> <p>(k)[Deleted]</p> <p>(l) an off-loading price specified for a price band is to be interpreted as the maximum price payable to NEMMCO by the Scheduled Generator or Semi-Scheduled Generator in respect of the generating unit's sent out generation with the generating unit's output reduced below its specified self-dispatch level in the central dispatch process by an amount less than the specified MW increment;</p> <p>(m) the MW quantity specified in each price band in each trading interval must be specified in whole MW; and</p> <p>(n) the dispatch offer may specify the daily energy available for energy constrained generating units.</p>		

<p>3.8.8 Validation of dispatch bids and offers</p> <p>(a) If a dispatch offer, dispatch bid or market ancillary service offer is made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is applicable), NEMMCO must make available to the Scheduled Generator, Semi-Scheduled Generator or Market Participant who submitted the dispatch offer, dispatch bid or market ancillary service offer the following information without delay:</p> <p>(1) acknowledgement of receipt of a valid dispatch offer, dispatch bid or market ancillary service offer; and</p> <p>(2) the data contained in the dispatch offer, dispatch bid or market ancillary service offer as it will be used by NEMMCO in the central dispatch process.</p> <p>(b) It is the responsibility of each Scheduled Generator, Semi-Scheduled Generator and Market Participant to check that the data contained in its dispatch offer, dispatch bid or market ancillary service offer as received and to be used by NEMMCO in the central dispatch process is correct.</p> <p>(c) If a dispatch offer, dispatch bid or market ancillary service offer is not made in accordance with clauses 3.8.6, 3.8.6A, 3.8.7 or 3.8.7A (whichever is applicable), NEMMCO must not include that dispatch offer, dispatch bid or market ancillary service offer in the central dispatch process and must without delay notify the Scheduled Generator, Semi-Scheduled Generator or Market Participant submitting the dispatch offer, dispatch bid or market ancillary service offer of its invalidity and provide to</p>	<p>3.8.8</p>	<p>3.8.8 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>
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that Scheduled Generator, SemiScheduled Generator or Market Participant details of the invalid data. (d) If any details contained within a dispatch offer, dispatch bid or market ancillary service offer are inconsistent with the registered bid and offer data provided by the relevant Scheduled Generator, Semi-Scheduled Generator or Market Participant then NEMMCO has the right to treat that dispatch offer, dispatch bid or market ancillary service offer as invalid and if it does so must notify the Scheduled Generator, Semi-Scheduled Generator or Market Participant without delay.		
3.8.9 Default offers and bids (a) Scheduled Generators, Semi-Scheduled Generators and Market Participants may, at any time, submit a dispatch offer, a dispatch bid or a market ancillary service offer in respect of a scheduled generating unit, semi-scheduled generating unit, scheduled load, scheduled network service, ancillary service generating unit or ancillary service load to apply from a specified future trading day. (b) A Scheduled Generator, Semi-Scheduled Generator or Market Participant may vary or withdraw a default dispatch bid, default dispatch offer or market ancillary service offer at any time prior to the deadline for submissions of dispatch offers, dispatch bids and market ancillary service offers for a trading day in accordance with the timetable.	3.8.9	3.8.9 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.

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

<p>3.8.10 Network constraints</p> <p>(a) In accordance with the NEMMCO power system security responsibilities and any other standards set out in Chapter 4, NEMMCO must determine any constraints on the dispatch of scheduled generating units, semi-scheduled generating units, scheduled network services, scheduled loads, ancillary service generating units or ancillary service loads which may result from planned network outages.</p> <p>(b) NEMMCO must represent intra-regional network constraints and inter-regional network constraints as inputs to the dispatch process in a form that can be reviewed after the trading interval in which they occurred.</p> <p>(c) The process used by NEMMCO to derive the network constraints must be clearly documented and made available to Scheduled Generators, Semi-Scheduled Generators and Market Participants.</p>		
<p>3.8.14 Dispatch under conditions of supply scarcity</p> <p>NEMMCO must ensure that, during times of supply scarcity, the actions set out below occur in the following sequence:</p> <p>(a) subject to any adjustments which may be necessary to implement action under clause 3.8.14</p> <p>(c), all valid dispatch bids and dispatch offers submitted by Scheduled Generators, Semi-Scheduled Generators or Market Participants are dispatched, including those priced at VoLL;</p> <p>(b) subject to any adjustments which may be necessary to implement action under clause</p>		

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3.8.14(c), after all valid dispatch bids and dispatch offers submitted by Scheduled Generators, Semi-Scheduled Generators and Market Participants have been exhausted, dispatch bids or dispatch offers submitted by NEMMCO in respect of plant or scheduled network services under contracts for the provision of reserves are dispatched; and (c) any further corrective actions required are implemented in accordance with clauses 4.8.5B and 4.8.9.		
3.8.16 Equal priced dispatch bids and dispatch offers If there are scheduled generating units, semi-scheduled generating units or scheduled loads, in the same region, for which the prices submitted in dispatch bids or dispatch offers for a particular trading interval result in identical prices at their regional reference node, then the MW quantities specified in the relevant price bands of those dispatch bids or dispatch offers must be dispatched on a pro-rata basis, where this can be achieved without imposing undue costs on any party, or violating other constraints.		
3.8.17 Self-commitment (a) Slow start generating units are generating units which are unable to synchronise and increase generation within 30 minutes of receiving an instruction from NEMMCO. (b) Slow start generating units must self-commit to be eligible for dispatch. (c) A Generator may only self-commit a scheduled	3.8.17 3.8.17(a)	3.8.17 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available. 3.8.17(a) (Here assume a wind farm is being classified as either a scheduled generator or a semi scheduled generator)

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<p>generating unit or semi-scheduled generating unit in accordance with this clause.</p> <p>(d) A Scheduled Generator or a Semi-Scheduled Generator has a right to synchronise its generating unit to the power system and have NEMMCO dispatch that generating unit subject to the dispatch procedures as set out in this clause 3.8.</p> <p>(e) A Scheduled Generator or a Semi-Scheduled Generator must advise NEMMCO of its intention to self-commit and synchronise a generating unit with a nameplate rating of 30 MW or more. Unless otherwise agreed with NEMMCO, the Generator must advise this intention through the PASA and pre-dispatch processes by submitting an amended available capacity profile of the relevant scheduled generating unit or semi-scheduled generating unit into the market information bulletin board.</p> <p>(f) The exact time of synchronisation may be subject to directions from NEMMCO in accordance with Chapter 4.</p> <p>(g) Scheduled Generators, Semi-Scheduled Generators and Market Participants must notify NEMMCO of any changes to self-commitment decisions without delay.</p> <p>(h) NEMMCO must notify all Scheduled Generators, Semi-Scheduled Generators and Market Participants of any changes to self-commitment decisions without delay.</p>		<p>(The definition of semi scheduled generator is in Chapter 10 of Addendum A1)</p>
3.8.18 Self-decommitment	3.8.18	3.8.18 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For
(a) A Generator may only self-decommit a scheduled		

<p>generating unit or semi-scheduled generating unit in accordance with this clause.</p> <p>(b) Scheduled Generators and Semi-Scheduled Generators must notify NEMMCO of their planned self-decommitment decisions in relation to slow start generating units at least 2 days in advance of dispatch.</p> <p>(b1) A Scheduled Generator or a Semi-Scheduled Generator must advise NEMMCO of its intention to self-decommit and de-synchronise a generating unit with a nameplate rating of 30 MW or more. Unless otherwise agreed with NEMMCO, the Generator must advise this intention through the PASA and pre-dispatch processes by submitting an amended available capacity profile of the relevant scheduled generating unit or semi-scheduled generating unit into the market information bulletin board.</p> <p>(c) Scheduled Generators, Semi-Scheduled Generators and Market Participants must notify NEMMCO as soon as practicable of any changes in their self-decommitment decisions.</p> <p>(d) NEMMCO must notify all Scheduled Generators, Semi-Scheduled Generators and Market Participants of any changes to self-decommitment decisions as soon as practicable.</p>		<p>example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>
<p>3.8.19 Dispatch inflexibilities</p> <p>(a) If a Scheduled Generator or Market Participant reasonably expects one or more of its scheduled generating units, scheduled network services or scheduled loads to be unable to operate in</p>	<p>3.8.19</p>	<p>3.8.19 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>

<p>accordance with dispatch instructions in any trading interval due to abnormal plant conditions or other abnormal operating requirements in respect of that scheduled generating unit, scheduled network service or scheduled load, it must advise NEMMCO through the PASA process or in its dispatch offer or dispatch bid in respect of that scheduled generating unit, scheduled network service or scheduled load, as appropriate under this Chapter, that the scheduled generating unit, scheduled network service or scheduled load is inflexible in that trading interval and must specify a fixed loading level at which the scheduled generating unit, scheduled network service or scheduled load is to be operated in that trading interval.</p> <p>(a1) If a Semi-Scheduled Generator reasonably expects one or more of its semi-scheduled generating units to be unable to operate in accordance with dispatch instructions in any trading interval due to abnormal plant conditions or other abnormal operating requirements in respect of that semi-scheduled generating unit, it must advise NEMMCO through the PASA process or in its dispatch offer in respect of that semi-scheduled generating unit, as appropriate under this Chapter, that the semi-scheduled generating unit is inflexible in that trading interval and must specify a maximum loading level at or below which the semi-scheduled generating unit is to be operated in that trading interval.</p> <p>(b) Where a Scheduled Generator, Semi-Scheduled Generator or Market Participant advises NEMMCO that a scheduled generating unit, semi-scheduled</p>		
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<p>generating unit, scheduled network service or scheduled load is inflexible in accordance with clause 3.8.19 (a) or clause 3.8.19 (a1) the Scheduled Generator, Semi-Scheduled Generator or Market Participant must:</p> <p>(1) provide NEMMCO with a brief, verifiable and specific reason why the scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load is inflexible at the same time as it advises NEMMCO of the inflexibility; and</p> <p>(2) provide to the AER, upon written request, in accordance with the guidelines issued by the AER from time to time in accordance with the Rules consultation procedures such additional information to substantiate and verify the reason for such inflexibility as the AER may require from time to time. The AER must provide information provided to it in accordance with this clause 3.8.19(b)(2) to any Market Participant that requests such information, except to the extent that the information can be reasonably claimed to be confidential information.</p> <p>(c) Other than in trading intervals for which it has been specified by a Scheduled Generator, Semi-Scheduled Generator or Market Participant in the relevant dispatch offer or dispatch bid for a scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load that the scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load is inflexible, then NEMMCO will dispatch the scheduled generating</p>		
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<p>unit, semi-scheduled generating unit, scheduled network service or scheduled load in accordance with the prices and price bands specified in the relevant dispatch offer or dispatch bid.</p> <p>(d) In respect of scheduled loads, scheduled generating units or semi-scheduled generating units which are not slow start generating units, Scheduled Generators, Semi-Scheduled Generators and Market Participants may provide NEMMCO, as part of the registered bid and offer data in respect of those scheduled loads or generating units, with a dispatch inflexibility profile.</p> <p>(e) A dispatch inflexibility profile for a generating unit must contain the following parameters to indicate its MW capacity and time related inflexibilities:</p> <p>(1) The time, T1, in minutes, following the issue of a dispatch instruction by NEMMCO to increase its loading from 0 MW, which is required for the plant to begin to vary its dispatch level from 0 MW in accordance with the instruction;</p> <p>(2) The time, T2, in minutes, that the plant requires after T1 (as specified in clause 3.8.19(e)(1)) to reach a specified minimum MW loading level;</p> <p>(3) The time, T3, in minutes, that the plant requires to be operated at or above its minimum loading level before it can be reduced below that level;</p> <p>(4) The time, T4, in minutes, following the issue of a dispatch instruction by NEMMCO to reduce loading from the minimum loading level (specified under clause 3.8.19(e)(2)) to zero, that the plant requires to completely comply with that instruction.</p>		
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<p>(5) T1, T2, T3 and T4 must all be equal to or greater than zero.</p> <p>(6) The sum (T1 + T2) must be less than or equal to 30 minutes.</p> <p>(7) The sum (T1 + T2 + T3 + T4) must be less than 60 minutes.</p> <p>(e1) A dispatch inflexibility profile for a scheduled load must contain parameters to indicate its MW capacity and time related inflexibilities.</p> <p>(f) NEMMCO must use reasonable endeavours not to issue a dispatch instruction which is inconsistent with a Scheduled Generator's, Semi-Scheduled Generator's or Market Participant's dispatch inflexibility profile.</p>		
<p>3.8.20 Pre-dispatch schedule</p> <p>(a) Each day, in accordance with the timetable, NEMMCO must prepare and publish a pre-dispatch schedule covering each trading interval of the period commencing from the next trading interval after the current trading interval up to and including the final trading interval of the last trading day for which all valid dispatch bids and dispatch offers have been received in accordance with the timetable and applied by the pre-dispatch process.</p> <p>(b) The pre-dispatch process is to have a resolution of one trading interval and no analysis will be made of operations within the trading interval, other than to ensure that contingency capacity reserves are adequate as set out in Chapter 4.</p> <p>(c) NEMMCO must determine the pre-dispatch</p>	3.8.20	<p>3.8.20 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>

<p>schedule for each trading interval on the basis of dispatch bids, dispatch offers and market ancillary service offers submitted for that trading interval, NEMMCO's forecast power system load for each region for that trading interval, NEMMCO's unconstrained intermittent generation forecast for each semi-scheduled generating unit for that trading interval, and by using a process consistent with the principles for central dispatch as set out in clause 3.8.1.</p> <p>(d) In determining the pre-dispatch schedule NEMMCO shall not take account of any dispatch inflexibility profile submitted in accordance with clause 3.8.19.</p> <p>(e) Any inputs made to the pre-dispatch process by NEMMCO for the purpose of achieving a physically realisable schedule or to satisfy power system security requirements must be made prior to release of the pre-dispatch schedule and recorded by NEMMCO in a manner suitable for audit.</p> <p>(f) The pre-dispatch schedule must include the details set out in clause 3.13.4(f).</p> <p>(g) Each Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider and Market Customer which has classified a scheduled load and Market Participant (which has classified an ancillary service generating unit or ancillary service load) must ensure that it is able to dispatch its plant as required under the pre-dispatch schedule and is responsible for changing inputs to the central dispatch process, if necessary to achieve this, via the rebidding provisions under clause 3.8.22.</p>		
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<p>(h) The pre-dispatch schedule must be re-calculated and the results re-published by NEMMCO regularly in accordance with the timetable, or more often if a change in circumstances is deemed by NEMMCO to be likely to have a significant effect on the operation of the market.</p> <p>(i) NEMMCO must fully document the operation of the pre-dispatch process, including the principles adopted in making calculations required to be included and all such documentation must be made available to Scheduled Generators, Semi-Scheduled Generators and Market Participants at a fee to be set by NEMMCO to cover its costs of supplying such documentation.</p> <p>(j) The following pre-dispatch outputs relating specifically to a generating unit, scheduled network service, scheduled load or ancillary service load operated by a Scheduled Generator, Semi-Scheduled Generator or Market Participant must be made available electronically to that Scheduled Generator, Semi-Scheduled Generator or Market Participant on a confidential basis:</p> <ul style="list-style-type: none"> (1) the scheduled times of commitment and de-commitment of individual slow start generating units; (2) scheduled half hourly loading for each scheduled entity; (3) scheduled provision of ancillary services; (4) scheduled constraints for the provision of ancillary services; and (5) scheduled constraints due to network limitations. <p>(k) Where the pre-dispatch schedule may have failed</p>		
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to maximise the joint value of energy and ancillary services pre-dispatch outputs of a scheduled generating unit or semi-scheduled generating unit, due to the scheduled generating unit or semi-scheduled generating unit operating outside its enablement limit, NEMMCO must notify the Scheduled Generator, Semi-Scheduled Generator or Market Participant operating the scheduled generating unit or semi-scheduled generating unit, electronically on a confidential basis.		
3.8.21 On-line dispatch process (a) Dispatch bids and dispatch offers must be centrally dispatched by NEMMCO using the dispatch algorithm. (a1) A dispatch interval is to be five minutes in duration. (b) The dispatch algorithm is to be run by NEMMCO for each dispatch interval. If the dispatch algorithm is not successfully run for any dispatch interval then the values of the last successful run of the dispatch algorithm must be used for that dispatch interval. (c) Central dispatch results in the setting of dispatch prices and ancillary services prices for each dispatch interval and spot prices for each trading interval in accordance with clause 3.9. (d) Where possible, dispatch instructions will be issued electronically via the automatic generation control system or via an electronic display in the Scheduled Generator's, Semi-Scheduled Generator's	3.8.21	3.8.21 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.

<p>or Market Participant’s plant control room. NEMMCO may issue dispatch instructions in some other form if in its reasonable opinion the methods described in this clause 3.8.21(d) are not possible. (e) A Scheduled Generator, Semi-Scheduled Generator or Market Participant must ensure it has facilities to receive dispatch instructions in the manner described in this clause. (f) Dispatch instructions that are issued via the automatic generation control system are to be issued progressively at intervals of no more than 5 minutes following re-evaluation of central dispatch to achieve a prompt and smooth implementation of the outcomes of each central dispatch update. (g) With the exception of instructions issued by telephone, all dispatch instructions and the times at which they are issued are to be logged automatically and dispatch instructions that are issued by telephone must be recorded by NEMMCO. (h) NEMMCO may modify or override the dispatch algorithm outcome in accordance with the requirements of clause 4.8.9 or due to plant not conforming to dispatch instructions and in such circumstances NEMMCO must record the details of the event and the reasons for its action for audit purposes. (i)[Deleted] (j) If a scheduled load, scheduled generating unit or semi-scheduled generating unit, in respect of which a dispatch inflexibility profile has been notified to NEMMCO in accordance with clause 3.8.19, is dispatched from 0 MW in any dispatch interval by</p>	<p>3.8.21(e)</p>	<p>3.8.21(e) Add to clause “assistance from NEMMCO will be provided at no charge”.</p>
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<p>the central dispatch process, then the specified dispatch inflexibility profile must be used by NEMMCO as a constraint on the dispatch of that plant for the relevant subsequent dispatch intervals.</p> <p>(k) A scheduled load or generating unit whose dispatch is constrained in any dispatch interval due to a dispatch inflexibility profile submitted under clause 3.8.19 cannot be used as the basis for setting the dispatch price in that dispatch interval at any location.</p> <p>(l) NEMMCO must fully document the operation of the process described in this clause 3.8.21, including the software, algorithms, and the principles adopted in making judgments where they are required in the process and all such documentation must be made available to Scheduled Generators, SemiScheduled Generators and Market Participants at a price reflective of costs incurred by NEMMCO in providing such documentation.</p> <p>(m) Where the central dispatch process may have failed to dispatch a scheduled generating unit or semi-scheduled generating unit to maximise the joint value of energy and ancillary services due to the scheduled generating unit or semi-scheduled generating unit operating outside its enablement limit, NEMMCO must notify the Scheduled Generator, Semi-Scheduled Generator or Market Participant operating the scheduled generating unit or semi-scheduled generating unit on a confidential basis.</p>		

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<p>3.8.22 Rebidding</p> <p>(a) Prices for each price band that are specified in dispatch bids, dispatch offers and market ancillary service offers are firm and no changes to the price for any price band are to be accepted under any circumstances.</p> <p>(b) Subject to clauses 3.8.22 (c) and 3.8.22A, a Scheduled Generator, Semi-Scheduled Generator or Market Participant may vary its available capacity, daily energy constraints, dispatch inflexibilities and ramp rates of generating units, scheduled network services and scheduled loads, and the response breakpoints, enablement limits and response limits of market ancillary services.</p> <p>(c) A Scheduled Generator, Semi-Scheduled Generator or Market Participant must provide:</p> <p>(1) all rebids to NEMMCO electronically unless otherwise approved by NEMMCO;</p> <p>(2) to NEMMCO, at the same time as the rebid is made:</p> <p>(i) a brief, verifiable and specific reason for the rebid; and</p> <p>(ii) the time at which the event(s) or other occurrence(s) adduced by the Scheduled Generator, Semi-Scheduled Generator or Market Participant as the reason for the rebid occurred;</p> <p>(3) to the AER, upon written request, in accordance with guidelines published by the AER from time to time under this clause 3.8.22 in accordance with the Rules consultation procedures such additional</p>	<p>3.8.22</p>	<p>3.8.22 Wind farm operators can provide wind farm data for a third party to process and forecast semi-scheduled capacity. For example, the wind farm operator can make available (i) average wind speed, (ii) average wind direction, and (iii) number of WTGs available.</p>
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<p>information to substantiate and verify the reason for a rebid as the AER may require from time to time. The AER must provide information provided to it in accordance with this clause 3.8.22 (c)(3) to any Scheduled Generator, Semi-Scheduled Generator or Market Participant that requests such information, except to the extent that the information can be reasonably claimed to be confidential information. The guidelines developed by the AER under this clause 3.8.22(c)(3) must include:</p> <p>(i) the amount of detail to be included in the information provided to NEMMCO under clause 3.8.22(c)(2); and</p> <p>(ii) procedures for handling claims by Scheduled Generators, Semi-Scheduled Generators or Market Participants in accordance with clause 3.8.22(c)(3) or 3.8.19(b)(2) that information provided to the AER by such Scheduled Generators, Semi-Scheduled Generators or Market Participants under those clauses is confidential information. The AER must publish the guidelines developed under this clause 3.8.22 and may amend such guidelines from time to time.</p> <p>(d) NEMMCO must:</p> <p>(1) subject to the Scheduled Generator, Semi-Scheduled Generator or Market Participant complying with clause 3.8.22(c)(1) and (c)(2)(i) and (ii), accept the rebid; and</p> <p>(2) publish, in accordance with clause 3.13.4(p), the time the rebid was made and the reason provided by the Scheduled Generator, Semi-Scheduled Generator or Market Participant under clause 3.8.22(c)(2)(i).</p>		
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3.8.22A Variation of offer, bid or rebid (a) Scheduled Generators, Semi-Scheduled Generators and Market Participants must make dispatch offers, dispatch bids and rebids in good faith. (b) In clause 3.8.22A(a) a dispatch offer, dispatch bid or rebid is taken to be made in good faith if, at the time of making such an offer, bid or rebid, a Scheduled Generator, Semi-Scheduled Generator or Market Participant has a genuine intention to honour that offer, bid or rebid, if the material conditions and circumstances upon which the offer, bid or rebid were based remain unchanged until the relevant dispatch interval. (c) A Scheduled Generator, Semi-Scheduled Generator or Market Participant may be taken to have contravened clause 3.8.22A(a) notwithstanding that, after all the evidence has been considered, the intention of the Scheduled Generator, Semi-Scheduled Generator or Market Participant is ascertainable only by inference from the conduct of the Scheduled Generator, Semi-Scheduled Generator or Market Participant, or of any other person, or from relevant circumstances.		
3.8.23 Failure to conform to dispatch instructions (a) If a scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load fails to respond to a dispatch		

<p>instruction within a tolerable time and accuracy (as determined in NEMMCO's reasonable opinion):</p> <p>(1) the scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load (as the case may be) is to be declared and identified as non-conforming; and</p> <p>(2) the scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load (as the case may be) cannot be used as the basis for setting spot prices.</p> <p>(3)[Deleted]</p> <p>(a1) To avoid doubt:</p> <p>(1) in a semi-dispatch interval, if a semi-scheduled generating unit's actual generation is less than the dispatch cap specified in a dispatch instruction at the target time, this does not constitute a semi-scheduled generating unit failing to respond to that dispatch instruction; and</p> <p>(2) in a non-semi-dispatch interval, a semi-scheduled generating unit need not respond to a dispatch instruction to the extent that the dispatch instruction relates to the semi-scheduled generating unit's generation.</p> <p>(b) If a scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load is identified as non-conforming under clause 3.8.23 (a):</p> <p>(1) NEMMCO must advise the Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer that the generating unit, scheduled network service or</p>		
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<p>scheduled load is identified as non-conforming, and request a reason for the non-compliance with the dispatch instruction, which reason is to be logged;</p> <p>(2) if in NEMMCO's opinion modification of plant parameters is necessary or desirable, NEMMCO must request the Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer to submit modified plant parameters to satisfy NEMMCO that a realistic real time dispatch schedule can be carried out;</p> <p>(3) should a Scheduled Generator or Semi-Scheduled Generator fail to meet the requests set out in clauses 3.8.23(b)(1) and (2) or if NEMMCO is not satisfied that the generating unit will respond to future dispatch instructions as required, NEMMCO must direct the generating unit's output to follow, as far as is practicable, a specified output profile to be determined at its discretion by NEMMCO;</p> <p>(4) should a Scheduled Network Service Provider fail to meet the requests set out in clauses 3.8.23(b)(1) and (2) or if NEMMCO is not satisfied that the scheduled network service will respond to future dispatch instructions as required, NEMMCO must direct the scheduled network service to follow, as far as is practicable, a specified transfer profile to be determined at its discretion by NEMMCO; and</p> <p>(5) should a Market Customer not meet the requests set out in clauses 3.8.23 (b)(1) and (2) within a reasonable time of the request, or if NEMMCO is not satisfied that the scheduled load will respond to future dispatch instructions as required, NEMMCO acting reasonably may invoke a default dispatch bid</p>		
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<p>lodged by the relevant Market Customer or apply constraints as it deems appropriate.</p> <p>(c) Until a Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer satisfactorily responds to the requests under clauses 3.8.23 (b)(1) and (2) and NEMMCO is satisfied that the generating unit, scheduled network service or scheduled load (as the case may be) will respond to future dispatch instructions as required, the generating unit, scheduled network service or scheduled load (as the case may be) continues to be non-conforming.</p> <p>(d) If a generating unit, scheduled network service or scheduled load (as the case may be) continues to be non-conforming after a reasonable period of time, NEMMCO must prepare a report setting out the details of the non-conformance and forward a copy of the report to the Scheduled Generator, Semi-Scheduled Generator, Scheduled Network Service Provider or Market Customer (as the case may be) and the AER.</p> <p>(e) The direction referred to in clauses 3.8.23(b)(3) and (4) must remain in place until the Scheduled Generator, Semi-Scheduled Generator or Scheduled Network Service Provider (whichever is relevant) satisfies NEMMCO of rectification of the cause of the non-conformance.</p> <p>(f) If an ancillary service generating unit or ancillary service load is enabled to provide a market ancillary service and fails to respond in the manner contemplated by the market ancillary service specification (as determined in NEMMCO's</p>		
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<p>reasonable opinion), then:</p> <p>(1) the ancillary service generating unit or ancillary service load is to be declared and identified as non-conforming;</p> <p>(2) NEMMCO must advise the relevant Market Participant that the ancillary service generating unit or ancillary service load is identified as non-conforming, and request a reason for the non-conformance. The relevant Market Participant must promptly provide a reason if requested to do so, and the reason is to be logged; and</p> <p>(3) NEMMCO may set a fixed level for the relevant ancillary service (in this clause 3.8.23 called the ‘fixed constraint’) for the ancillary service generating unit or ancillary service load and the relevant Market Participant must ensure that the ancillary service generating unit or ancillary service load complies with the fixed constraint set by NEMMCO.</p> <p>(g) NEMMCO must lift the fixed constraint in respect of an ancillary service generating unit or ancillary service load when NEMMCO is reasonably satisfied (as a result of a test or otherwise) that the ancillary service generating unit or ancillary service load is capable of responding in the manner contemplated by the market ancillary service specification.</p> <p>(h) In assessing a report of non-conformance with a dispatch instruction by a scheduled load, the AER shall have regard to whether a default dispatch bid had been lodged with NEMMCO and was, or could have reasonably been, applied in the circumstances</p>		
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applicable to that scheduled load.		
<p>3.9 Price Determination</p> <p>3.9.7 Pricing for constrained on scheduled generating units and semischeduled generating units</p> <p>(a) In the event that an intra-regional network constraint causes a scheduled generating unit or semi-scheduled generating unit to be constrained on in any dispatch interval, that generating unit must comply with dispatch instructions from NEMMCO in accordance with its availability as specified in its dispatch offer but may not be taken into account in the determination of the dispatch price in that dispatch interval.</p> <p>(b) A Scheduled Generator or Semi-Scheduled Generator that is constrained on in accordance with clause 3.9.7(a) is not entitled to receive from NEMMCO any compensation due to its dispatch price being less than its dispatch offer price.</p>		
<p>3.12A Mandatory restrictions</p> <p>3.12A.1 Restriction offers</p> <p>(a) NEMMCO must develop, and may vary from time to time, in accordance with the Rules consultation procedures a mandatory restrictions trading system. The trading system must include:</p> <p>(1) procedures for the acquisition by NEMMCO of capacity the subject of restriction offers;</p> <p>(2) the standard terms and conditions upon which NEMMCO shall accept a restriction offer;</p>		

<p>(3) the criteria to be applied by NEMMCO in the appointment of an appropriately qualified independent expert for the purposes of clause 3.12A.7(g)(ii); and</p> <p>(4) procedures for the rebidding and dispatch of capacity the subject of an accepted restriction offer.</p> <p>(b) The restriction offer procedures must take into account the following principles:</p> <p>(1) NEMMCO may accept a restriction offer for all or part of the capacity of a scheduled generating unit, semi-scheduled generating unit or scheduled network service, as recorded in the registered bid and offer data for that scheduled generating unit, semi-scheduled generating unit or scheduled network service.</p> <p>(2) NEMMCO must use its reasonable endeavours to acquire capacity from valid restriction offers or to terminate in whole or part an accepted restriction offer in a manner that minimises the estimated restriction shortfall amount.</p> <p>(3) NEMMCO may at any time terminate an accepted restriction offer in whole or in part by providing 4 hours notice to the relevant Scheduled Generator, Semi-Scheduled Generator or Scheduled Network Service Provider that an accepted restriction offer is so terminated.</p> <p>(4) The submission of restriction offers must be made in the form and by the means set out in procedures developed and published by NEMMCO for the purpose of the submission of restriction offers.</p>		
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<p>(5) If a restriction offer is made in accordance with the restriction offer procedures, NEMMCO must make available to the parties who submitted the restriction offer the following information without delay:</p> <p>(i) acknowledgment of receipt of a valid restriction offer; and</p> <p>(ii) notification detailing why a restriction offer is invalid, if appropriate.</p> <p>(6) If any details contained within a restriction offer are inconsistent with the registered bid and offer data provided by the relevant party then NEMMCO has the right to reject that restriction offer as invalid.</p> <p>(7) A valid restriction offer must set out for each trading interval of a trading day:</p> <p>(i) the price offered in\$/MWh or as otherwise permitted by the restriction offer procedures; and</p> <p>(ii) MW amount for that trading interval being offered.</p> <p>(8) NEMMCO must only accept restriction offers from Scheduled Generators, Semi-Scheduled Generators and Scheduled Network Service Providers with a connection point located in the region in which mandatory restrictions apply or are proposed to apply.</p> <p>(c) The standard terms and conditions developed by NEMMCO pursuant to clause 3.12A.1(a)(2) must take into account the following principles:</p> <p>(1) All capacity the subject of the restriction offer must be available for immediate dispatch in the central dispatch process at all times.</p> <p>(2) An accepted restriction offer is binding and may</p>		
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<p>only be revoked or varied if the Scheduled Generator, Semi-Scheduled Generator or Scheduled Network Service Provider notifies NEMMCO in accordance with the restriction offer procedures of a revocation or variation. Immediately upon receipt of such notification NEMMCO must amend the accepted restriction offer to reduce the capacity of the accepted restriction offer by the notified capacity. Such capacity must not be dispatched by NEMMCO pursuant to a dispatch offer for such capacity during the remainder of the trading day in which the accepted restriction offer was revoked or varied in accordance with this clause 3.12.A.1(c) provided that such capacity may be re-offered as a restriction offer.</p> <p>(3) A restriction offer may be amended or revoked in accordance with the restriction offer procedures at any time prior to it becoming an accepted restriction offer.</p>		
<p>3.12A.4 Rebid of capacity under restriction offers</p> <p>In each dispatch interval when mandatory restrictions apply, each scheduled generating unit, semi-scheduled generating unit or scheduled network service the subject of an accepted restriction offer with respect to that dispatch interval must rebid the total capacity the subject of such restriction offer by varying the respective dispatch offers or network dispatch offers in accordance with the procedures developed pursuant to clause 3.12A.1(a)(4).</p>		

<p>3.12A.5 Dispatch of restriction offers</p> <p>(a) In a dispatch interval NEMMCO may only dispatch the capacity of a scheduled generating unit, semi-scheduled generating unit or scheduled network service in accordance with the procedures for the rebidding and dispatch of capacity the subject of an accepted restriction offer developed by NEMMCO in consultation with Registered Participants. Such procedures must as far as reasonably practical incorporate the following principles:</p> <p>(i) dispatch of accepted restriction offers only after all the capacity of scheduled loads, scheduled generating units, semi-scheduled generating units and scheduled network services contained in valid dispatch offers and dispatch bids have been dispatched;</p> <p>(ii) recognise any requirement for advance notice or action for Generators to operate at minimum generation, provide advance notice to loads or obtain capacity of market network services that are under direction or reserve contracts;</p> <p>(iii) be consistent with the price of accepted restriction offers in accordance with clause 3.12A.6; and</p> <p>(iv) minimise the restriction shortfall amount.</p> <p>(b) Notwithstanding the provisions of this clause 3.12A.5, at no time is NEMMCO required to dispatch the capacity of a Scheduled Generator, Semi-Scheduled Generator or Scheduled Network Service Provider the subject of an accepted restriction offer if such dispatch would prevent</p>		
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NEMMCO from meeting its obligations for system security.		
3.12A.7 Determination of funding restriction shortfalls (a) NEMMCO is entitled to the trading amount received by Scheduled Generators, Semi-Scheduled Generators and Scheduled Network Service Providers from the dispatch of capacity the subject of an accepted restriction offer in accordance with 3.15.10B. (b) NEMMCO must, as soon as reasonably practicable following the end of a mandatory restriction period, calculate: (i) the aggregate amount payable to NEMMCO pursuant to clause 3.12A.7(a) from all accepted restriction offers in that mandatory restriction period; (ii) the aggregate amount payable by NEMMCO pursuant to all accepted restriction offers in that mandatory restriction period; and (iii) the sum of the amount determined under clause 3.12A.7(b)(i) less the amount determined under clause 3.12A.7(b)(ii) (the 'restriction shortfall amount'). (b1) The maximum amount payable to a Scheduled Generator, Semi-Scheduled Generator or Market Participant for any accepted restriction offer of that Scheduled Generator, Semi-Scheduled Generator or Market Participant during a mandatory restriction period is the aggregate of the maximum possible		

<p>spot price for each trading interval within the mandatory restriction period, being VoLL or an administered price cap as the case may be, multiplied by the capacity of the accepted restriction offer in MWh for each corresponding trading interval.</p> <p>(c) Notwithstanding any other provisions of the Rules, the absolute value of the restriction shortfall amount must not exceed the sum of the maximum possible spot price for a trading interval, being VoLL or an administered price cap as the case may be, multiplied by the aggregate of the capacity of all accepted restriction offers in MWh for that trading interval for all trading intervals in the mandatory restriction period.</p> <p>(d) Notwithstanding any other provision of the Rules, if the restriction shortfall amount is capped pursuant to clause 3.12A.7(c) and the restriction shortfall amount calculated pursuant to clause 3.12A.7 is a negative number, then the amount payable by NEMMCO pursuant to each accepted restriction offer is to be reduced pro-rata until clause 3.12A.7(c) is satisfied.</p> <p>(e) If the restriction shortfall amount is a negative number, Market Customers in the relevant region must pay to NEMMCO an amount determined in accordance with clause 3.12A.7(f) or 3.12A.7(g).</p> <p>(f) If the restriction shortfall amount is between minus \$100,000 and \$0, then each Market Customer in the relevant region must pay to NEMMCO an amount determined in accordance with the following formula:</p>		
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<p>MCP = RSA x (AGE)/(AAGE)</p> <p>Where:</p> <p>MCP is the amount payable by a Market Customer in accordance with this clause 3.12A.7(f).</p> <p>RSA is the restriction shortfall amount.</p> <p>AGE is the adjusted gross energy of a Market Customer in that region for the mandatory restriction period expressed in MWh.</p> <p>AAGE is the aggregate of the adjusted gross energy of all Market Customers in that region for the mandatory restriction period expressed in MWh.</p> <p>(g) If the restriction shortfall amount is less than minus \$100,000:</p> <p>(i) each Market Customer in the relevant region must pay to NEMMCO an amount determined in accordance with the following formula:</p> $RCP = (RSA + IE) \times (RD/TRD)$ <p>Where</p> <p>RCP is the amount payable to NEMMCO by a Market Customer in that region following the cessation of the mandatory restriction period.</p> <p>RSA is the restriction shortfall amount incurred by NEMMCO upon the cessation of the mandatory electricity restriction period.</p> <p>RD is the Market Customer's restriction demand reduction.</p> <p>TRD is the sum of RD for all Market Customers in the relevant region. IE is the amount of the independent expert's final tax invoice delivered to</p>		
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<p>NEMMCO in accordance with clause 3.12A.7(i)(11) plus any amounts payable by NEMMCO on behalf of the independent expert as determined by the dispute resolution panel established in accordance with clause 3.12A.7(m); and</p> <p>(ii) NEMMCO must within 10 days of the end of a mandatory restriction period appoint an appropriately qualified independent expert as NEMMCO's agent to determine the restriction demand reduction claimed by each Market Customer in a region for the purposes of clause 3.12A.7(g).</p> <p>(h) If the restriction shortfall amount is a positive number then NEMMCO must pay to Market Customers in the relevant region an amount equal to:</p> $RCRP = RSA \times (AGE)/(AAGE)$ <p>Where:</p> <p>RCRP is the payment to be made by NEMMCO to Market Customers pursuant to this clause 3.12A.7.</p> <p>RSA is the restriction shortfall amount.</p> <p>AGE is the adjusted gross energy of a Market Customer in that region for the mandatory restriction period expressed in MWh.</p> <p>AAGE is the aggregate of the adjusted gross energy of all Market Customers in that region for the mandatory restriction period expressed in MWh.</p> <p>(i) When appointing the independent expert under clause 3.12A.7(g), NEMMCO must include as part of the independent expert's terms of appointment the following requirements:</p>		
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<p>(1) The independent expert must prepare a statement of the principles which the independent expert believes should be followed in determining the restriction demand reduction of Market Customers.</p> <p>(2) Within 5 business days of his or her appointment, the independent expert must provide NEMMCO with details of his or her estimated fees and costs.</p> <p>(3) Within 5 business days of his or her appointment, the independent expert must provide the statement prepared under clause 3.12A.7(i)(1) to all Market Customers in the relevant region and request that each Market Customer in the relevant region provide him or her with details of the restriction demand reduction claimed by that Market Customer and such additional information specified by the independent expert to fulfil its obligations.</p> <p>(4) The independent expert must offer to meet with and consult each Market Customer who may be liable to make a payment to NEMMCO pursuant to clause 13.12A.7(g).</p> <p>(5) The independent expert must within 30 business days of his or her appointment or such later date as approved by NEMMCO in its sole discretion:</p> <p>(i) publish a draft report; and</p> <p>(ii) provide each Market Customer in the relevant region with a draft statement.</p> <p>(6) The draft report must contain:</p> <p>(i) the restriction shortfall amount based upon the independent expert's estimated fees and costs; and</p> <p>(ii) the methodology used by the independent expert in determining the restriction demand reduction of each Market Customer in a region. The draft report</p>		
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<p>must not contain details pertaining to individual Market Customers.</p> <p>(7) A draft statement provided to a Market Customer must contain:</p> <p>(i) the Market Customer's restriction demand reduction as determined by the independent expert;</p> <p>(ii) the estimated amount payable by that Market Customer under clause 3.12A.7(g), based upon the independent experts estimated fees and costs; and</p> <p>(iii) information showing how the estimated amount referred to in clause 3.12A.7(i)(7)(ii) was calculated.</p> <p>(8) The independent expert must within 50 business days of his or her appointment or such later date as approved by NEMMCO in its sole discretion make any necessary amendments to his or her draft report and draft statements following consultation with Market Customers, and:</p> <p>(i) publish his or her final report; and</p> <p>(ii) provide each Market Customer in the relevant region with a final statement.</p> <p>(9) The independent expert's final report must contain the information set out in clause 3.12A.7(i)(6).</p> <p>(10) A final statement provided to a Market Customer by the independent expert must contain the information set out in clause 3.12A.7(i)(7).</p> <p>(11) The independent expert must provide NEMMCO with his or her final tax invoice for services rendered at the time of publication of the final report.</p> <p>(i1) Each Market Customer must within 10 business days of the independent expert requesting</p>		
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<p>information in accordance with clause 3.12A.7(i)(3) deliver to the independent expert all such information.</p> <p>(i2) The independent expert may request a Market Customer to provide further information that he or she requires to prepare either the draft or final report or a draft or final statement within 5 business days of the request being made.</p> <p>(j) A Market Customer must not unreasonably withhold information sought by the independent expert and must use its reasonable endeavours to provide the independent expert with the information required within the relevant timeframe specified in this clause 3.12A.7.</p> <p>(k) If a Market Customer has not provided the independent expert with information required under this clause 3.12A.7 within the specified time period, then the independent expert is entitled to make such assumptions concerning that information as he or she thinks appropriate.</p> <p>(l) Subject to the review process specified in clause 3.12A.7(m), a determination made by an independent expert appointed under clause 3.12A.7(g) binds all Market Customers.</p> <p>(m) Following the publication of the independent expert's final report, a Market Customer may request the Adviser to establish a dispute resolution panel to redetermine that Market Customer's restriction demand reduction only if the Market Customer reasonably believes that the independent expert's determination:</p> <p>(1) has incorrectly assessed the restriction demand</p>		
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<p>reduction of that Market Customer by more than 10%; or</p> <p>(2) was made negligently or in bad faith.</p> <p>(n) The determination of a dispute resolution panel established under clause 3.12A.7(m):</p> <p>(1) binds all Market Customers and each Market Customer must comply with a determination of the dispute resolution panel; and</p> <p>(2) may only order reimbursement of the reasonable fees and expenses incurred by a Market Customer in disputing the independent expert's determination and no other amounts.</p> <p>(o) Any amounts determined by the dispute resolution panel as payable by NEMMCO on behalf of the independent expert for the reasonable fees and expenses incurred by a Market Customer in disputing the independent expert's determination must be included on the next statement provided under clauses 3.15.14 and 3.15.15.</p>		
<p>3.12A.9Review by AEMC</p> <p>(a) The AEMC must, in accordance with clause 3.12A.9(b), conduct a review of the operation of the provisions applicable to mandatory restrictions including:</p> <p>(1) the integration of restriction offers and mandatory restrictions into the market; and</p> <p>(2) any other matters which the AEMC reasonably believes are relevant to the operation of clauses 3.12A.1 to 3.12A.8 and clause 3.15.10B.</p> <p>(b) The review conducted by the AEMC in</p>		

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<p>accordance with clause 3.12A.9(a) must:</p> <p>(1) include an analysis of:</p> <p>(i) the accuracy of the forecast demand reduction due to restrictions and the impact any error had on the resulting spot price;</p> <p>(ii) whether the impact on the spot price resulting from an error in the forecast demand reduction due to restrictions adversely affects one group of Scheduled Generators, Semi-Scheduled Generators or Market Participants over another group;</p> <p>(iii) the restriction offer prices for contracts accepted by NEMMCO in meeting the mandatory restriction schedule including a comparison with the expected revenue the capacity subject to the restriction offer would have earned in the spot market taking into account the circumstances in which restriction offers were made;</p> <p>(2) be conducted in accordance with the Rules consultation procedures; and</p> <p>(3) commence following the first application of the mandatory restrictions where the estimated effect in MW of mandatory restrictions on a region's demand met or exceeded 10% of that region's estimated demand for the same period.</p> <p>(c)[Deleted]</p>		
<p>3.13 Market Information</p> <p>3.13.1 Provision of information</p> <p>(a) In addition to any specific obligation or power of</p>		

<p>NEMMCO under the Rules to provide information, NEMMCO must make available to Scheduled Generators, Semi-Scheduled Generators and Market Participants on request any information concerning the operation of the market not defined by the AEMC or the Rules as confidential or commercially sensitive and may charge a fee reflecting the cost of providing any information under this clause 3.13.1(a).</p> <p>(b) NEMMCO must make information available to the public on request in respect of the regional reference price at any regional reference node and, where requested and available, reasons for any significant movements in prices.</p>		
<p>3.13.2 Systems and procedures</p> <p>(a) Information must be provided to NEMMCO and by NEMMCO on the electronic communication system unless otherwise approved by NEMMCO. In circumstances where the electronic communication system is partially or wholly unavailable then information will, to the extent of that unavailability, be provided to NEMMCO and by NEMMCO by means of the backup procedures specified by NEMMCO from time to time.</p> <p>(b) Information must be provided by using the templates supplied in the electronic communication system unless otherwise approved by NEMMCO.</p> <p>(c) Where approved by NEMMCO, information may be transmitted to and from NEMMCO and the Scheduled Generator, Semi-Scheduled Generator or</p>		

<p>Market Participant concerned in any agreed format.</p> <p>(d) If possible, information provided to NEMMCO must be time stamped by NEMMCO on receipt by NEMMCO of the information by the electronic communication system and, if stamped, is deemed to be provided at the time indicated by the time stamp.</p> <p>(e) Information that is published by NEMMCO is deemed to be published when the information is placed on the market information bulletin board.</p> <p>(f) The market information bulletin board must be accessible by Scheduled Generators, Semi-Scheduled Generators and Market Participants via the electronic communication system subject to applicable security requirements.</p> <p>(g) Information published or notified to a Scheduled Generator, Semi-Scheduled Generator or Market Participant must be capable of being reviewed by that Scheduled Generator, Semi-Scheduled Generator or Market Participant and be capable of being downloaded from the market information bulletin board to the Scheduled Generator, Semi-Scheduled Generator or Market Participant via the electronic communication system.</p> <p>(h) All Scheduled Generators, Semi-Scheduled Generator and Market Participants must notify NEMMCO of, and NEMMCO must publish, any changes to submitted information within the times prescribed in the timetable.</p> <p>(i) NEMMCO must make a copy of all changes to the data available to each Scheduled Generator, Semi-Scheduled Generator and Market Participant for verification and resubmission by the Scheduled</p>		
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<p>Generator, Semi-Scheduled Generator or Market Participant as necessary.</p> <p>(j) All revisions must be provided on the electronic communication system and in the same format as the original information.</p> <p>(k) A Scheduled Generator, Semi-Scheduled Generator or Market Participant may withhold information from NEMMCO which must otherwise be provided under the Rules if:</p> <p>(1) the information is of a confidential or commercially-sensitive nature and is not information of a kind that, in the reasonable opinion of the AEMC, is fundamental to the efficient operation of the market; or</p> <p>(2) disclosure of the information would have the likely effect of causing detriment to the person required to provide it unless, in the reasonable opinion of the AEMC, the public benefit resulting from the provision of the information outweighs that detriment.</p> <p>(l)[Deleted]</p> <p>(m) Nothing in clause 3.13.2(k) allows a Scheduled Generator, Semi-Scheduled Generator or Market Participant to avoid providing information to NEMMCO under the Rules where that information is generally available.</p>		
<p>3.13.3 Standing data</p> <p>(a) NEMMCO must establish, maintain, update and publish:</p> <p>(1) a list of all of the Scheduled Generators, Semi-</p>		

<p>Scheduled Generators and Market Participants and a list of all applications to become a Scheduled Generator, Semi-Scheduled Generator or Market Participant, including the Scheduled Generator, Semi-Scheduled Generator and Market Participant information as set out in schedule 3.1;</p> <p>(2) a list of all of the Scheduled Generators, Semi-Scheduled Generators and Market Participants who will cease to be Scheduled Generators, Semi-Scheduled Generator or Market Participants and the time that each listed Scheduled Generator, Semi-Scheduled Generator or Market Participant will cease to be a Scheduled Generator, Semi-Scheduled Generator or Market Participant;</p> <p>(3) a list of all of the Scheduled Generators, Semi-Scheduled Generators and Market Participants who are or are going to be suspended and the time at which each listed Scheduled Generator, Semi-Scheduled Generator or Market Participant was suspended or will be suspended.</p> <p>(b) All Scheduled Generators, Semi-Scheduled Generators and Market Participants must provide NEMMCO with the registered bid and offer data relevant to their scheduled loads, scheduled network services and generating units in accordance with schedule 3.1.</p> <p>(c) All Scheduled Generators, Semi-Scheduled Generators and Market Participants will be required to provide NEMMCO with information as set out below:</p> <p>(1) forecasts for connection points as prescribed in clause 5.6.1; and</p>		
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<p>(2) metering information for settlements purposes as prescribed in Chapter 7. (d) Network Service Providers are to maintain a register of data provided by Scheduled Generators, Semi-Scheduled Generators and Market Participants for planning and design purposes in accordance with schedule 5.7 of Chapter 5 and are to provide a copy of this register of data to NEMMCO on request and in a form specified by NEMMCO.</p> <p>(e) Network Service Providers must, without delay, notify and provide NEMMCO with details of any additions or changes to the register of data described in clause 3.13.3(d).</p> <p>(f) Each year, by a date to be specified by NEMMCO, Network Service Providers must provide NEMMCO with the following information:</p> <p>(1) expected network capability under normal, outage and emergency conditions;</p> <p>(2) electrical data sufficient to allow power system modelling under steady state and dynamic conditions, this data to be made available in hard copy and an acceptable industry standard electronic format approved by NEMMCO; and</p> <p>(3) operating procedures and practices for network operation and maintenance.</p> <p>(g) Network Service Providers must notify NEMMCO of any changes to the information provided under clause 3.13.3(f) as soon as practicable.</p> <p>(h) Scheduled Generators, Semi-Scheduled Generators and Market Participants must notify NEMMCO of any changes to registered bid and</p>		
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<p>offer data one month prior to the implementation of planned changes and without unreasonable delay in the event of unplanned changes.</p> <p>(i) Network Service Providers must notify NEMMCO of any changes or additions to technical data one month prior to the implementation of planned changes and without unreasonable delay in the event of unplanned changes.</p> <p>(j) NEMMCO must conduct an annual review of Scheduled Generator, Semi-Scheduled Generator and Market Participant registered bid and offer data in consultation with Scheduled Generators, Semi-Scheduled Generators and Market Participants and Scheduled Generators, Semi-Scheduled Generators and Market Participants must advise NEMMCO of any required changes to the data.</p> <p>(k) Subject to the requirements relating to disclosure of information under clause 5.3.8(a), a Registered Participant may request from NEMMCO:</p> <p>(1) registered bid and offer data;</p> <p>(2) information that is reasonably required by the Registered Participant to carry out power system studies (including load flow and dynamic simulations) for planning and operational purposes including:</p> <p>(i) historical information relating to the operating conditions of the power system that is not confidential information;</p> <p>(ii) information and data provided to NEMMCO under paragraphs (f)(1), (f)(3) and (g); and</p> <p>(iii) details of the shared transmission and distribution network impedance data and other</p>		
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<p>technical data as listed in schedules 5.5.3 and 5.5.4; and</p> <p>(3) operation and maintenance procedures and practices for transmission network or distribution network operation, developed for the purposes of schedule 5.1 sufficient to enable the Registered Participant to carry out power system modelling under normal, outage and emergency conditions.</p> <p>(l) Where NEMMCO holds information requested under paragraph (k), it must be provided to the Registered Participant as soon as practicable.</p> <p>(m) Where special approvals or exemptions have been granted by NEMMCO, including approval to aggregate generating units, market network services, loads for central dispatch, or exemptions from central dispatch, details of such special arrangements must be published by NEMMCO.</p> <p>(n) NEMMCO must determine and publish intra-regional loss factors in accordance with clause 3.6.2 by 1 April each year and whenever changes occur.</p> <p>(o) Network Service Providers must advise NEMMCO of their distribution loss factors, duly authorised by the appropriate Jurisdictional Regulator, and NEMMCO must publish such distribution loss factors in accordance with clause 3.6.3(i).</p> <p>(p) NEMMCO must publish on a quarterly basis details of:</p> <p>(1) interconnector transfer capability; and</p> <p>(2) the discrepancy between interconnector transfer capability and the capacity of the relevant interconnector in the absence of outages on the</p>		
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<p>relevant interconnector only, for each day of the preceding quarter for all interconnectors. Statement of opportunities</p> <p>(q) By 31 October in each year, NEMMCO must prepare and publish at a reasonable charge to cover the cost of production, a statement of opportunities, including at least the following information for the subsequent 10 year period:</p> <p>(1) projections of aggregate MW demand and energy requirements for each region;</p> <p>(2) generating capabilities of existing generating units and generating units for which formal commitments have been made for construction or installation;</p> <p>(3) planned plant retirements;</p> <p>(4) a summary of network capabilities and constraints based upon Annual Planning Reports; and</p> <p>(5) operational and economic information about the market to assist planning by:</p> <p>(i) Scheduled Generators, Semi-Scheduled Generators and Market Participants; and</p> <p>(ii) potential Scheduled Generators, Semi-Scheduled Generators and Market Participants.</p> <p>(r) If after the publication of the most recent statement of opportunities, significant new information becomes available to NEMMCO relating to:</p> <p>(1) the matters covered by paragraphs (q)(1),(2) and (3); or</p> <p>(2) the matters covered by clause 5.6.5(c)(8) and (9), NEMMCO must, as soon as practicable, publish that</p>		
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<p>information in a descriptive form that is consistent with the statement of opportunities.</p> <p>(s) In preparing a statement of opportunities NEMMCO may seek the assistance of the Inter-regional Planning Committee.</p> <p>(t) As soon as practicable after a Scheduled Generator, Semi-Scheduled Generator, Market Participant or Network Service Provider becomes aware of any information required for publication by NEMMCO under paragraph (q), that information must be provided to NEMMCO by that Scheduled Generator, Semi-Scheduled Generator, Market Participant or Network Service Provider.</p>		
<p>3.13.4 Spot market</p> <p>(a) Each week, in accordance with the timetable, NEMMCO must publish details of the outcome of the medium term PASA.</p> <p>(b) The details to be published by NEMMCO under clause 3.13.4(a) must include the information specified in clause 3.7.2(f).</p> <p>(c) Each day, in accordance with the timetable, NEMMCO must publish details of the outcome of the short term PASA for each trading interval covered.</p> <p>(d) The details of the short term PASA published each day by NEMMCO under clause 3.13.4(c) must include the information specified in clause 3.7.3(h).</p> <p>(e) Each day, in accordance with the timetable, NEMMCO must publish a half hourly pre-dispatch schedule for the period described in clause 3.8.20(a).</p>		

<p>(f) Details of the pre-dispatch schedule to be published must include the following for each trading interval in the period covered:</p> <p>(1) forecasts of the most probable peak power system load plus required reserve for each region and for the total power system;</p> <p>(2) forecasts of the most probable energy consumption for each region and for the total power system;</p> <p>(3) forecast inter-regional loss factors;</p> <p>(4) aggregate generating plant availability for each region and aggregate availability of each type of market ancillary service for each region;</p> <p>(5) projected supply surpluses and deficits for each region, including shortages of reserve and projected market ancillary service surpluses and deficits for each region;</p> <p>(5A) the aggregated MW allowance(if any) made by NEMMCO for generation from non-scheduled generating systems in each forecast:</p> <p>(i) of the most probable peak power system load referred to in clause 3.13.4(f)(1);</p> <p>(ii) referred to in clause 3.13(4)(f)(2);</p> <p>(iii) of aggregate generating plant availability referred to in clause 3.13.4(f)(4); and</p> <p>(iv) of projected supply surpluses and deficits referred to in clause 3.13.4 (f)(5) but not including shortages of reserve or projected market ancillary service surpluses and deficits for each region.</p> <p>(5B) in respect of each forecast:</p> <p>(i) of the most probable peak power system load referred to in clause 3.13.4(f)(1);</p>		
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<p>(ii) referred to in clause 3.13.4(f)(2);</p> <p>(iii) of aggregate generating plant availability referred to in clause 3.13.4(f)(4); and</p> <p>(iv) of projected supply surpluses and deficits referred to in clause 3.13.4 (f)(5) but not including shortages of reserve or projected market ancillary service surpluses and deficits for each region, a value that is the sum of that forecast and the relevant aggregated MW allowance (if any) referred to in clause 3.13.4(f)(5A); and</p> <p>(6) identification and quantification of:</p> <p>(i) when and where the projected conditions are found to be inadequate;</p> <p>(ii) any trading intervals for which low reserve or lack of reserve conditions are forecast to apply;</p> <p>(iii) where a projected supply deficit in one region can be supplemented by a surplus in a neighbouring region (dependent on forecast interconnector capacities) and the expected interconnector flow;</p> <p>(iv) forecast interconnector transfer capabilities and the projected impact of any inter-network tests on those transfer capabilities; and</p> <p>(v) when and where network constraints may become binding on the dispatch of generation or load.</p> <p>(g) Each day, in accordance with the timetable, NEMMCO must publish forecasts of spot prices and ancillary service prices at each regional reference node for each trading interval or dispatch interval (as applicable) of the period described in clause 3.8.20 (a), with such forecasts being based on the pre-dispatch schedule information.</p>		
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<p>(h) Together with its forecast spot prices, NEMMCO must publish details of the expected sensitivity of the forecast spot prices to changes in the forecast load or generating unit availability.</p> <p>(i) In accordance with the timetable or more often if there is a change in circumstances which in the opinion of NEMMCO results in a significant change in forecast spot price, or in any event no more than 3 hours after the previous such publication, NEMMCO must prepare and publish updated pre-dispatch schedules and spot price forecasts, including the details specified in clause 3.13.4(f).</p> <p>(j) If NEMMCO considers there to be a significant change in a forecast spot price, NEMMCO must identify and publish the cause of such a change in terms of the aggregate supply and demand situation and any network constraints in or between the affected region(s).</p> <p>(k) NEMMCO must specify and publish its criteria for a significant change in forecast spot price for the purposes of activating an update in the published forecasts.</p> <p>(k1) In accordance with the timetable or no more than 3 hours after the last such notification, NEMMCO must notify electronically on a confidential basis each Semi-Scheduled Generator of the unconstrained intermittent generation forecast data used for the last pre-dispatch schedule published by NEMMCO under clause 3.13.4 (e) and relating specifically to the Semi-Scheduled Generator's semi-scheduled generating units.</p> <p>(l) Within 5 minutes of each time NEMMCO runs the</p>		
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<p>dispatch algorithm, NEMMCO must publish the dispatch price for each regional reference node calculated in accordance with clause 3.9.2 and the ancillary service price for each market ancillary service for each regional reference node calculated in accordance with clause 3.9.2A.</p> <p>(m) Within 5 minutes of the conclusion of each trading interval, NEMMCO must publish the regional reference prices for each region for that trading interval.</p> <p>(n) Each day, in accordance with the timetable, NEMMCO must publish the actual regional reference prices, ancillary service prices, regional and total interconnected system loads and energies, inter-regional flows, inter-regional loss factors and details of any network constraints for each trading interval in the previous trading day.</p> <p>(o) Within 2 business days of an event whereby a scheduled generating unit or semi-scheduled generating unit has been constrained off or constrained on in the central dispatch by a network constraint within its own region, NEMMCO must advise the Scheduled Generator or Semi-Scheduled Generator and the Network Service Provider, with whom the relevant Scheduled Generator or Semi-Scheduled Generator has a connection agreement in respect of that scheduled generating unit or semi-scheduled generating unit, of the following information:</p> <p>(1) the dispatch intervals in which the constraint applied; and</p> <p>(2) NEMMCO's reasonable estimate of the MW</p>		
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<p>quantities at which the scheduled generating unit or semi-scheduled generating unit would otherwise have been dispatched in each relevant trading interval in accordance with its dispatch offer and in the absence of the network constraint.</p> <p>(p) Each day, in accordance with the timetable, NEMMCO must publish details of final dispatch offers, dispatch bids and market ancillary service offers received and actual availabilities of generating units, scheduled network services, scheduled loads and market ancillary services for the previous trading day, including:</p> <p>(1) the number and times at which rebids were made, and the reason provided by the Scheduled Generator, Semi-Scheduled Generator or Market Participant for each rebid under clause 3.8.22(c)(2).</p> <p>(2) identification of the Scheduled Generator, Semi-Scheduled Generator or Market Participant submitting the dispatch bid, dispatch offer or market ancillary offer;</p> <p>(3) the dispatch bid or dispatch offer prices;</p> <p>(4) quantities for each trading interval;</p> <p>(5) the ramp rate of each generating unit, scheduled load and scheduled network service as measured by NEMMCO's telemetry system; and</p> <p>(6) identification of trading intervals for which the plant was specified as being inflexible in accordance with clause 3.8.19 and the reasons provided by the Scheduled Generator, Semi-Scheduled Generator or Market Participant in accordance with clause 3.8.19(b)(1).</p> <p>(q) Each day, in accordance with the timetable,</p>		
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<p>NEMMCO must publish details of actual generation, dispatched generation, dispatched network service or dispatched load for each scheduled generating unit, semi-scheduled generating unit, scheduled network service and scheduled load, respectively, and unconstrained intermittent generation forecast data for each semi-scheduled generating unit and as regional totals, in each trading interval for the previous trading day.</p> <p>(r) Each day, in accordance with the timetable, NEMMCO must publish details of actual generation for each non-scheduled generating unit or non-scheduled generating system, in each trading interval for the previous trading day.</p> <p>(s) Where NEMMCO publishes details as referred to in clause 3.13.4(r), the requirement to publish applies only to data available to NEMMCO.</p> <p>(t) NEMMCO may, in publishing the details referred to in clause 3.13.4(s), publish aggregated information of actual generation for non-scheduled generating units or non-scheduled generating systems that have a nameplate rating that is less than 30 MW.</p> <p>(u) Each time NEMMCO runs the dispatch algorithm it must, within 5 minutes, publish for the relevant dispatch interval:</p> <p>(1) details of any MW allowance made by NEMMCO for generation from non-scheduled generating systems in its forecast regional demand;</p> <p>(2) for each regional reference node the sum of the actual generation for each non-scheduled generating unit or non-scheduled generating system; and</p>		
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<p>(3) for each regional reference node, a value that is the sum of the regional demand value used by NEMMCO in its dispatch algorithm to calculate the dispatch price referred to in clause 3.13.4(l) and the sum of the actual generation referred to in clause 3.13.4(u)(2).</p> <p>(v) Where NEMMCO publishes the information referred to in clause 3.13.4(u), the requirement for NEMMCO to publish applies only to data available to NEMMCO.</p> <p>(w) Each day, in accordance with the timetable, NEMMCO must publish details of any operational irregularities arising on the previous trading day including, for example, any circumstances in which there was prima facie evidence of a failure to follow dispatch instructions.</p> <p>(x) Each trading interval, NEMMCO must, for each regional reference node, publish the demand for that trading interval, both inclusive and exclusive of the aggregate actual generation from non-scheduled generating systems.</p>		
<p>3.13.7 Monitoring of significant variation between forecast and actual prices by AER</p> <p>(a) The AER must, after consulting with the AEMC, specify and make available to Registered Participants and the public, criteria which the AER will use to determine whether there is a significant variation between the spot price forecast published by NEMMCO in accordance with clause 3.13.4 and the actual spot price in any trading interval. The</p>		

<p>AER must, in accordance with these criteria, monitor in each trading interval whether any such significant variation has occurred.</p> <p>(b) The AER must prepare and publish a report in respect of each three month period commencing on 1 January, 1 April, 1 July and 1 October in each year. The report must:</p> <p>(1) be published no later than 4 weeks after the end of each three month period;</p> <p>(2) identify and review each occasion when, in accordance with the criteria specified under clause 3.13.7(a), the AER considers that a significant price variation has occurred;</p> <p>(3) state why the AER considers that the significant price variation occurred;</p> <p>(4) be available to members of the public on request; and</p> <p>(5) be provided to the AEMC.</p> <p>(c) The ACCC or the AEMC may request the AER to report to it on a particular market outcome. If the ACCC or the AEMC makes a request of this type, the AER may provide a report on that market outcome. The report must review the market outcome raised by the ACCC or the AEMC (as the case may be) and state why the AER considers that the market outcome occurred.</p> <p>(d) The AER must, within 20 business days of the end of a week in which the spot price exceeded \$5,000/MWh in a trading interval or trading intervals, prepare and publish a report which must for each trading interval in which the spot price exceeded \$5,000/MWh in that week:</p>		
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<p>(1) describe the significant factors that contributed to the spot price exceeding \$5,000/MWh, including the withdrawal of generation capacity and network availability;</p> <p>(2) assess whether rebidding pursuant to clause 3.8.22 contributed to the spot price exceeding \$5,000/MWh; and</p> <p>(3) identify the marginal scheduled generating units and semi-scheduled generating units for the dispatch intervals in the relevant trading interval and all scheduled generating units and semi-scheduled generating units for which any dispatch offer for the trading interval was equal to or greater than \$5,000/MWh and compare these dispatch offers to relevant dispatch offers in previous trading intervals.</p> <p>(e) Where</p> <p>(1) prices at a regional reference node for a market ancillary service over a period significantly exceed the relevant spot price for energy; and</p> <p>(2) prices for that market ancillary service exceed \$5,000 for a number of trading intervals within that period, the AER must prepare and publish a report which:</p> <p>(3) describes the significant factors that contributed to the market ancillary service prices exceeding \$5,000/MWh;</p> <p>(4) identifies any linkages between spot prices in the energy market and market ancillary service prices contributing to the occurrence; and</p> <p>(5) assesses whether rebidding pursuant to clause 3.8.22 contributed to prices exceeding \$5,000/Mwh.</p>		
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<p>3.14 Administered Price Cap and Market Suspension</p> <p>3.14.6 Compensation due to the application of an administered price, VoLL or market floor price</p> <p>(a) Scheduled Generators and Semi-Scheduled Generators may claim compensation from NEMMCO in respect of scheduled generating units or semi-scheduled generating units if, due to the application of an administered price cap during either an administered price period or market suspension, the resultant spot price payable to dispatched generating units in any trading interval is less than the price specified in their dispatch offer for that trading interval.</p> <p>(a1) A Scheduled Network Service Provider may claim compensation from NEMMCO in respect of a scheduled network service if, due to the application of an administered price cap, VoLL, the market floor price or an administered price floor, the resultant revenue receivable in respect of dispatched network services in any trading interval is less than the minimum requirement specified by its network dispatch offer for that trading interval.</p> <p>(a2) A Market Participant which submitted a dispatch bid may claim compensation from NEMMCO in respect of a scheduled load if, due to the application of an administered price floor during either an administered price period or market suspension, the resultant spot price in any trading interval is greater than the price specified in the dispatch bid for that trading interval.</p> <p>(a3) In respect of an ancillary service generating unit or an ancillary service load, a Market Participant</p>		
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<p>may claim compensation from NEMMCO if, due to the application of an administered price cap, the resultant ancillary service price for that ancillary service generating unit or ancillary service load in any dispatch interval is less than the price specified in the relevant market ancillary service offer.</p> <p>(b) Notification of an intent to make a claim under clause 3.14.6(a), 3.14.6(a1), 3.14.6 (a2) or 3.14.6(a3) must be submitted to both NEMMCO and the AEMC within 2 business days of the trading interval in which dispatch prices were adjusted in accordance with clause 3.9.5 or notification by NEMMCO that an administered price period or period of market suspension has ended.</p> <p>(c) The AEMC must determine whether it is appropriate in all the circumstances for compensation to be payable by NEMMCO and, if so, the AEMC must determine an appropriate amount of compensation.</p> <p>(d) Before making a determination, the AEMC must request the Adviser to establish a three member panel from the group of persons referred to in clause 8.2.2 (e) to make recommendations on the matters to be determined by the AEMC.</p> <p>(e) The panel must conduct itself on the same basis as a DRP under clauses 8.2.6A to 8.2.6D and make its recommendations within the period specified for the making of a determination under clause 8.2.6D(b). The panel must base its recommendations on its assessment of a fair and reasonable amount of compensation taking into account:</p> <p>(1) all the surrounding circumstances;</p>		
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<p>(2) the actions of any relevant Registered Participants and NEMMCO;</p> <p>(3) in the case of a claim by a Scheduled Generator or Semi-Scheduled Generator, the difference between the spot price applicable due to the application of the administered price cap and the price specified by the Scheduled Generator or Semi-Scheduled Generator in its dispatch offer;</p> <p>(4) in the case of a claim by a Scheduled Network Service Provider, the difference between the revenue receivable by the Scheduled Network Service Provider for the dispatched network services as the result of the application of the administered price cap, VoLL or an administered price floor and the minimum revenue requirement specified in its network dispatch offer;</p> <p>(5) in the case of a Market Participant which submitted a dispatch bid, the difference between the spot price applicable due to the application of the administered price floor and the price specified by the Market Participant in its dispatch bid;</p> <p>(6) in the case of a claim in respect of an ancillary service generating unit, the difference between the ancillary service price applicable due to the application of the administered price cap and the price specified by the ancillary service generating unit in its market ancillary service offer; and</p> <p>(7) in the case of a claim in respect of an ancillary service generating unit, the difference between the ancillary service price applicable due to the application of the administered price floor and the price specified by the ancillary service load in its</p>		
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market ancillary service offer. (f)[Deleted]		
3.15 Settlements 3.15.6A Ancillary service transactions (a) In each trading interval, in relation to each enabled ancillary service generating unit or enabled ancillary service load, an ancillary services transaction occurs, which results in a trading amount for the relevant Market Participant determined in accordance with the following formula: TA = the aggregate of EA x ASP/(12) for each dispatch interval in a trading interval where: TA (in \$) = the trading amount to be determined (which is a positive number); EA (in MW) = the amount of the relevant market ancillary service which the ancillary service generating unit or ancillary service load has been enabled to provide in the dispatch interval; and ASP (in \$ per MW per hour) = the ancillary service price for the market ancillary service for the dispatch interval for the region in which the ancillary service generating unit or ancillary service load has been enabled.		

<p>(b) In each trading interval, in relation to each Market Participant which provides non-market ancillary services under an ancillary services agreement, an ancillary services transaction occurs, which results in a trading amount for the relevant Market Participant determined in accordance with that agreement.</p> <p>(c) In each trading interval, in relation to each Market Customer, an ancillary services transaction occurs, which results in a trading amount for the Market Customer determined in accordance with the following formula:</p> $TA = TNCASP \times TCE / ATCE \times -1$ <p>where:</p> <p>TA (in \$)= the trading amount to be determined (which is a negative number);</p> <p>TNCASP (in \$)= all amounts payable by NEMMCO in respect of the trading interval under ancillary services agreements in respect of the provision of NCAS;</p> <p>TCE (in MWh)= the customer energy for the Market Customer for the trading interval; and</p> <p>ATCE (in MWh)= the aggregate customer energy figures for all Market Customers for the trading interval.</p> <p>(d) In each trading interval, in relation to each</p>		
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<p>Market Generator, an ancillary services transaction occurs, which results in a trading amount for the Market Generator determined in accordance with the following formula:</p> $TA = \text{TSRP}/2 \times \text{TGE}/\text{ATGE} \times -1$ <p>where:</p> <p>TA (in \$)= the trading amount to be determined (which is a negative number);</p> <p>TSRP (in \$)= the total of all amounts payable by NEMMCO in respect of the trading interval under ancillary services agreements in respect of the provision of system restart ancillary services;</p> <p>TGE (in MWh)= the generator energy for the Market Generator for the trading interval; and</p> <p>ATGE (in MWh)= the aggregate of the generator energy figures for all Market Generators for the trading interval.</p> <p>(e) In each trading interval, in relation to each Market Customer, an ancillary services transaction occurs, which results in a trading amount determined in accordance with the following formula:</p> $TA = \text{TSRP}/2 \times \text{TCE}/\text{ATCE} \times -1$ <p>where:</p> <p>TA (in \$) = the trading amount to be determined (which is a negative number);</p>		
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<p>TSRP (in \$) = has the meaning given in clause 3.15.6A(d);</p> <p>TCE (in MWh) = the customer energy for the Market Customer for the trading interval; and ATCE (in MWh) = the aggregate of the customer energy figures for all Market Customers for the trading interval.</p> <p>(f) The total amount calculated by NEMMCO under clause 3.15.6A(a) for each of the fast raise service, slow raise service or delayed raise service in respect of each dispatch interval which falls within the trading interval must be allocated to each region in accordance with the following procedure and the information provided under clause 3.9.2A(b). NEMMCO must:</p> <p>(1) allocate for each region and for each dispatch interval within the relevant trading interval the proportion of the total amount calculated by NEMMCO under clause 3.15.6A(a) for each of the fast raise service, slow raise service or delayed raise service between global market ancillary services requirements and local requirements pro-rata to the respective marginal prices for each such service;</p> <p>(2) calculate for each relevant dispatch interval the sum of the costs of acquiring the global market ancillary service requirements for all regions and the sum of the costs of acquiring each local ancillary service requirement for all regions, as determined pursuant to clause 3.15.6A(f)(1); and</p> <p>(3) allocate for each relevant dispatch interval the sum of the costs of the global market ancillary</p>		
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<p>service requirement and each local ancillary service requirement calculated in clause 3.15.6A(f)(2) to each region as relevant to that requirement pro-rata to the aggregate of the generator energy for the Market Generators in each region during the trading interval.</p> <p>For the purpose of this clause 3.15.6A(f) RTCRSP is the sum of:</p> <p>(i) the global market ancillary service requirement cost for that region, for all dispatch intervals in the relevant trading interval, as determined pursuant to clause 3.15.6A(f)(3); and</p> <p>(ii) all local market ancillary service requirement costs for that region, for all dispatch intervals in the relevant trading interval, as determined pursuant to clause 3.15.6A(f)(3).</p> <p>In each trading interval, in relation to each Market Generator in a given region, an ancillary services transaction occurs, which results in a trading amount for that Market Generator determined in accordance with the following formula:</p> $TA = RTCRSP \times TGE / RATGE \times -1$ <p>where:</p> <p>TA (in \$) = the trading amount to be determined (which is a negative number);</p> <p>RTCRSP (in \$) = the total of all amounts calculated by NEMMCO as appropriate to recover from the given region as calculated in this clause 3.15.6A(f) for the fast raise service, slow raise service or</p>		
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<p>delayed raise service in respect of dispatch intervals which fall in the trading interval; TGE (in MWh) = the generator energy figures for the Market Generator in that region for the trading interval; and RATGE (in MWh) = the aggregate of the generator energy figures for all Market Generators in that region for the trading interval.</p> <p>(g) The total amount calculated by NEMMCO under clause 3.15.6A(a) for each of the fast lower service, slow lower service or delayed lower service in respect of each dispatch interval which falls within the trading interval must be allocated to each region in accordance with the following procedure and the information provided under clause 3.9.2A(b). NEMMCO must:</p> <p>(1) allocate for each region and for each dispatch interval within the relevant trading interval the proportion of the total amount calculated by NEMMCO under clause 3.15.6A(a) for each of the fast lower service, slow lower service or delayed lower service between global market ancillary service requirements and local requirements pro rata to the respective marginal prices of each such service;</p> <p>(2) calculate for each relevant dispatch interval the sum of the costs of acquiring the global market ancillary service requirements for all regions and the sum of the costs of acquiring each local ancillary service requirement for all regions, as determined pursuant to clause 3.15.6A(g)(1); and</p>		
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<p>(3) allocate for each relevant dispatch interval the sum of the costs of the global market ancillary service requirement and each local ancillary service requirement calculated in clause 3.15.6A(g)(2) to each region as relevant to that requirement pro-rata to the aggregate of the customer energy figures for all Market Customers in each region during the trading interval.</p> <p>For the purpose of this clause 3.15.6A(g) RTCLSP is the sum of:</p> <p>(i) the global market ancillary service requirement cost for that region, for all dispatch intervals in the relevant trading interval, as determined pursuant to clause 3.15.6A(g)(3); and</p> <p>(ii) all local market ancillary service requirement costs for that region, for all dispatch intervals in the relevant trading interval, as determined pursuant to clause 3.15.6A(g)(3).</p> <p>In each trading interval, in relation to each Market Customer in a given region, an ancillary services transaction occurs, which results in a trading amount for that Market Customer determined in accordance with the following formula:</p> $TA = RTCLSP \times TCE/RATCE \times -1$ <p>where:</p> <p>TA (in \$) = the trading amount to be determined (which is a negative number);</p> <p>RTCLSP (in \$) = the total of all amounts calculated by NEMMCO as appropriate to recover from the</p>		
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<p>given region as calculated in this clause 3.15.6A(g) for the fast lower service, slow lower service or delayed lower service in respect of dispatch intervals which fall in the trading interval;</p> <p>TCE (in MWh) = the customer energy for the Market Customer in that region for the trading interval; and</p> <p>RATCE (in MWh) = the aggregate of the customer energy figures for all Market Customers in that region for the trading interval.</p> <p>(h) In each trading interval, in relation to each Market Generator or Market Customer which has metering to allow their individual contribution to the aggregate deviation in frequency of the power system to be assessed, an ancillary services transaction occurs, which results in a trading amount for that Market Generator or Market Customer determined in accordance with the following formula:</p> <p>$TA = PTA \times -1$</p> <p>and</p> <p>PTA = the aggregate of(TSFCAS x MPF/AMPF) for each dispatch interval in the trading interval where:</p> <p>TA (in \$) = the trading amount to be determined (which is a negative number);</p> <p>TSFCAS (in \$) = the total of all amounts calculated by NEMMCO under clause 3.15.6A(a) for the</p>		
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<p>regulating raise service or the regulating lower service in respect of a dispatch interval; MPF (a number) = the factor last set by NEMMCO for the Market Generator or Market Customer, as the case may be, under clause 3.15.6A(j); and AMPF (a number) = the aggregate of the MPF figures for all Market Participants for the dispatch interval.</p> <p>(i) In each trading interval, in relation to each Market Customer for whom the trading amount is not calculated in accordance with the formula in clause 3.15.6A(h), an ancillary services transaction occurs, which results in a trading amount for that Market Customer determined in accordance with the following formula:</p> $TA = PTA \times TCE/ATCE \times -1$ <p>and</p> <p>PTA= the aggregate of (TSFCAS x MPF/AMPF) for each dispatch interval in the trading interval where:</p> <p>TA (in \$) = the trading amount to be determined (which is a negative number); TSFCAS (in \$)= has the meaning given in clause 3.15.6A(h); MPF (a number) = the aggregate of the factor set by NEMMCO under clause 3.15.6A(j) for Market Customers, for whom the trading amount is not calculated in accordance with the formula in clause</p>		
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<p>3.15.6A(h); AMPF (a number) = the aggregate of the MPF figures for all Market Participants for the dispatch interval; TCE (in MWh) = the customer energy for the Market Customer for the trading interval; and ATCE (in MWh) = the aggregate of the customer energy figures for all Market Customers, for whom the trading amount is not calculated in accordance with the formula in clause 3.15.6A(h), for the trading interval. (j) NEMMCO must determine a factor for each Market Participant for the purposes of clauses 3.15.6A(h) and (i) in accordance with the procedure contemplated by clause 3.15.6A(k). (k) NEMMCO must prepare a procedure for determining contribution factors for use in clause 3.15.6A(j) taking into account the following principles: (1) the contribution factor for a Market Participant should reflect the extent to which the Market Participant contributed to the need for regulation services; (2) the contribution factor for all Market Customers that do not have metering to allow their individual contribution to the aggregate need for regulation services to be assessed must be equal; (3) the individual Market Participant's contribution to the aggregate need for regulation services will be determined over a period of time to be determined by NEMMCO; and (4) a Registered Participant which has classified a</p>		
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<p>scheduled generating unit, scheduled load, ancillary service generating unit or ancillary service load (called a ‘Scheduled Participant’) will not be assessed as contributing to the deviation in the frequency of the power system if within a dispatch interval:</p> <p>(a) the Scheduled Participant achieves its dispatch target at a uniform rate;</p> <p>(b) the Scheduled Participant is enabled to provide a market ancillary service and responds to a control signal from NEMMCO to NEMMCO’s satisfaction; or</p> <p>(c) the Scheduled Participant is not enabled to provide a market ancillary service, but responds to a need for regulation services in a way that tends to reduce the aggregate deviation.</p> <p>(5) a Semi-Scheduled Generator will not be assessed as contributing to the deviation in the frequency of the power system if within a dispatch interval, the semi-scheduled generating unit:</p> <p>(i) ramps its actual generation at a uniform rate over a semi-dispatch interval to the dispatch cap;</p> <p>(ii) ramps its actual generation at a uniform rate over a non-semi-dispatch interval;</p> <p>(iii) is enabled to provide a market ancillary service and responds to a control signal from NEMMCO to NEMMCO’s satisfaction; or</p> <p>(iv) is not enabled to provide a market ancillary service, but responds to a need for regulation services in a way that tends to reduce the aggregate deviation.</p> <p>(l) NEMMCO may amend the procedure referred to</p>		
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<p>in clause 3.15.6A(j) from time to time.</p> <p>(m) NEMMCO must comply with the Rules consultation procedures when making or amending the procedure referred to in clause 3.15.6A(j).</p> <p>(n) NEMMCO must publish, in accordance with the timetable, the historical data used in determining a factor for each Market Participant for the purposes of clauses 3.15.6A(h) and (i) in accordance with the procedure contemplated by clause 3.15.6A(k).</p> <p>(na) Notwithstanding any other provisions of the Rules, NEMMCO must publish the factors determined in accordance with clause 3.15.6A(j) at least 10 business days prior to the application of those factors in accordance with clauses 3.15.6A(h) and 3.15.6A(i).</p> <p>(o) In this clause 3.15.6A:</p> <p>(1) ‘generator energy’ in respect of a Market Generator for a trading interval means the sum of the adjusted gross energy figures calculated for that trading interval in respect of that Market Generator’s applicable connection points, provided that, if the sum of those figures is negative, then the Market Generator’s generator energy for that trading interval is zero;</p> <p>(2) a connection point is an applicable connection point of a Market Generator if:</p> <p>(A) the Market Generator is financially responsible for the connection point; and</p> <p>(B) the connection point connects a market generating unit to the national grid;</p> <p>(3) ‘customer energy’ in respect of a Market Customer for a trading interval means the sum of the</p>		
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<p>adjusted gross energy figures calculated for that trading interval in respect of that Market Customer's relevant connection points; and</p> <p>(4) a connection point is a relevant connection point of a Market Customer if:</p> <p>(A) the Market Customer is financially responsible for the connection point; and</p> <p>(B) the load at that connection point has been classified (or is deemed to be classified) as a market load.</p>		
<p>3.15.7 Payment to Directed Participants</p> <p>(a) Subject to clause 3.15.7(b), NEMMCO must pay compensation to Directed Participants calculated in accordance with clauses 3.15.7, 3.15.7A and 3.15.7B, as the case may be, for any service which the Directed Participant was required to provide in order to comply with the direction.</p> <p>(b) For the purpose of clause 3.15.8 and 3.15.10C the amount of compensation due to a Directed Participant pursuant to clause 3.15.7(a) must include interest on the sum of that amount less any payment made in accordance with clause 3.15.10C(a), computed at the average bank bill rate for the period beginning on the day on which payment was required to be made under clauses 3.15.16 and 3.15.17 in respect of the final statement for the billing period in which the direction was issued and ending on the day on which payment is required to be made pursuant to clause 3.15.10C.</p> <p>(c) Subject to clause 3.15.17(d) and clause 3.15.7B,</p>		

<p>the compensation payable to each Directed Participant for the provision of energy or market ancillary services pursuant to a direction is to be determined in accordance with the formula set out below:</p> $DCP = AMP \times DQ$ <p>where:</p> <p>DCP = the amount of compensation the Directed Participant is entitled to receive;</p> <p>AMP = the price below which are 90% of the spot prices or market ancillary service prices (as the case may be) for the relevant service provided by Scheduled Generators, Semi-Scheduled Generators, Scheduled Network Service Providers or Market Customers in the region to which the direction relates, for the 12 months immediately preceding the trading day in which the direction was issued; and</p> <p>DQ = is either:</p> <p>(A) the difference between the total adjusted gross energy delivered or consumed by the Directed Participant and the total adjusted gross energy that would have been delivered or consumed by the Directed Participant had the direction not been issued; or</p> <p>(B) the amount of the relevant market ancillary service which the Directed Participant has been enabled to provide in response to the direction.</p> <p>(d) If at the time NEMMCO issues a direction, the Directed Participant had submitted a valid dispatch bid, dispatch offer or rebid for dispatch of the service that is to be dispatched in accordance with the direction, the Directed Participant is entitled to</p>		
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<p>receive compensation for the provision of that service at a price equal to the price in that dispatch bid, dispatch offer or rebid as appropriate.</p> <p>(e) NEMMCO must, in accordance with the intervention settlement timetable, advise each Directed Participant in writing of the amount the Directed Participant is entitled to receive pursuant to clause 3.15.7 (d).</p>		
<p>3.15.7A Payment to Directed Participants for services other than energy and market ancillary services</p> <p>(a) Subject to clause 3.15.7(d) and clause 3.15.7B, NEMMCO must compensate each Directed Participant for the provision of services pursuant to a direction other than energy and market ancillary services, at the fair payment price of the services determined in accordance with this clause 3.15.7A.</p> <p>(b) Subject to clause 3.15.7A(e) and clause 3.15.7A(e1), NEMMCO must, in accordance with the intervention settlement timetable and any guidelines developed by NEMMCO in accordance with the Rules consultation procedures, determine if in NEMMCO's reasonable opinion, an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the direction within a reasonable time period.</p> <p>(b1) If NEMMCO determines pursuant to clause 3.15.7A(b) that an independent expert could reasonably be expected to determine a fair payment price for the services provided pursuant to the</p>		

<p>direction within a reasonable time period it must as soon as reasonably practicable after making such determination publish its determination and, subject to clause 3.15.7A(e1), appoint an independent expert, in accordance with the intervention settlement timetable, to determine the fair payment price for the services provided pursuant to the direction.</p> <p>(c) NEMMCO must include as part of the terms of appointment of an independent expert the following requirements:</p> <p>(1) that the independent expert must, in determining the fair payment price of the relevant service for the purposes of clause 3.15.7A, take into account:</p> <p>(i) other relevant pricing methodologies in Australia and overseas, including but not limited to:</p> <p>(A) other electricity markets;</p> <p>(B) other markets in which the relevant service may be utilised; and</p> <p>(C) relevant contractual arrangements which specify a price for the relevant service;</p> <p>(ii) the following principles:</p> <p>(A) the disinclination of Scheduled Generators, Semi-Scheduled Generators, Market Generators, Scheduled Network Service Providers or Market Customers to provide the service the subject of the direction must be disregarded;</p> <p>(B) the urgency of the need for the service the subject of the direction must be disregarded;</p> <p>(C) the Directed Participant is to be treated as willing to supply at the market price that would otherwise prevail for the directed services the subject</p>		
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<p>of the direction in similar demand and supply conditions; and</p> <p>(D) the fair payment price is the market price for the directed services the subject of the direction that would otherwise prevail in similar demand and supply conditions;</p> <p>(2) that the independent expert must determine and publish a draft report, in accordance with the intervention settlement timetable, setting out:</p> <p>(i) a description of the services provided in response to the direction;</p> <p>(ii) the independent expert’s draft determination of each fair payment price for the services provided;</p> <p>(iii) the methodology and assumptions used by the independent expert in making the draft determination of the fair payment price; and</p> <p>(iv) a request for submissions from interested parties on the matters set out in the draft report;</p> <p>(3) that the independent expert must, in accordance with the intervention settlement timetable, determine the fair payment price for the services provided, taking into account the submissions received, and must prepare and publish a final report setting out:</p> <p>(i) the description of the services provided in response to the direction;</p> <p>(ii) the independent expert’s determination of the fair payment price for the services provided;</p> <p>(iii) the methodology and assumptions used by the independent expert in making the determination of each fair payment price; and</p> <p>(iv) summaries of the submissions made by interested parties;</p>		
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<p>(4) that the independent expert must deliver to NEMMCO a final tax invoice for the services rendered at the time he or she publishes the final report; and</p> <p>(5) that a report published by the independent expert pursuant to clause 3.15.7A(c) must not disclose confidential information or the identity of a Directed Participant.</p> <p>(d) In accordance with the intervention settlement timetable, NEMMCO must calculate the compensation payable to the Directed Participant using the fair payment price published by the independent expert under clause 3.15.7A(c)(3).</p> <p>(e) The fair payment price determined in accordance with clause 3.15.7A(c)(3) is to be the fair payment price for that service to be applied in all future occurrences where there is a direction for that service at any time within a period of 12 calendar months from the date on which the determination of that price was published.</p> <p>(e1) NEMMCO must not appoint an independent expert under clause 3.15.7A(b1) in respect of a direction for a service in respect of which:</p> <p>(1) there is a determination of an independent expert in place in accordance with clause 3.15.7A(e) in relation to that service; or</p> <p>(2) NEMMCO has appointed an independent expert to determine the fair payment price for that service under clause 3.15.7A and the independent expert has not yet made a determination of the fair payment price.</p>		
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<p>In these circumstances, NEMMCO must apply to the subsequent direction the fair payment price for that service determined, or to be determined, by the independent expert.</p> <p>(f) Within 1 business day of calculating the compensation payable pursuant to clause 3.15.7A(a) by application of clause 3.15.7A(e) or pursuant to clause 3.15.7A(d), NEMMCO must advise the relevant Directed Participant in writing of the amount of compensation.</p> <p>(g) The determination of a fair payment price pursuant to clause 3.15.7A(c)(1) and the calculation of compensation payable to Directed Participants pursuant to clause 3.15.7A(d) is final and binding.</p>		
<p>3.15.7B Claim for additional compensation by Directed Participants</p> <p>(a) Subject to clauses 3.15.7B(a1) and 3.15.7B(a4), a Directed Participant entitled to compensation pursuant to clause 3.15.7 or clause 3.15.7A may, in accordance with the intervention settlement timetable, make a written submission to NEMMCO claiming an amount equal to the sum of:</p> <p>(1) the aggregate of the loss of revenue and additional net direct costs incurred by the Directed Participant in respect of a scheduled generating unit, semi-scheduled generating unit or scheduled network services, as the case may be, as a result of the provision of the service under direction; less</p> <p>(2) the amount notified to that Directed Participant pursuant to clause 3.15.7(c) or clause 3.15.7A(f);</p>		

<p>less</p> <p>(3) the aggregate amount the Directed Participant is entitled to receive in accordance with clause 3.15.6(c) for the provision of a service rendered as a result of the direction.</p> <p>(a1) Subject to clause 3.15.7B(a4), if NEMMCO determines pursuant to clause 3.15.7A(a) that an independent expert could not reasonably be expected to determine within a reasonable period of time the relevant fair payment price, a Directed Participant may, in accordance with the intervention settlement timetable, make a written submission to NEMMCO claiming compensation from NEMMCO for the provision of services under the direction equal to:</p> <p>(1) loss of revenue and additional net direct costs which the Directed Participant incurred as a result of the provision of services under the direction; and</p> <p>(2) a reasonable rate of return on the capital employed in the provision of the service determined by reference as far as reasonably practicable to rates of return for the provision of similar services by similar providers of such services.</p> <p>(a2) Subject to clause 3.15.7B(a4), if a Directed Participant entitled to compensation pursuant to clause 3.15.7(d) considers that the amount notified pursuant to clauses 3.15.7(e) is less than the amount it is entitled to receive pursuant to that clause, the Directed Participant may, in accordance with the intervention settlement timetable, make a written submission to NEMMCO requesting compensation from NEMMCO for that difference.</p> <p>(a3) For the purposes of the calculation of additional</p>		
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<p>net direct costs pursuant to clause 3.15.7B(a)(1) and clause 3.15.7B(a1)(1), the additional net direct costs incurred by the Directed Participant in respect of that scheduled generating unit, semi-scheduled generating unit or scheduled network services, as the case may be, includes without limitation:</p> <p>(1) fuel costs in connection with the scheduled generating unit, semi- scheduled generating unit or scheduled network services;</p> <p>(2) incremental maintenance costs in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network services;</p> <p>(3) incremental manning costs in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network services;</p> <p>(4) acceleration costs of maintenance work in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network services, where such acceleration costs are incurred to enable the scheduled generating unit, semi-scheduled generating unit or scheduled network services to comply with the direction;</p> <p>(5) delay costs for maintenance work in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network service, where such delay costs are incurred to enable the scheduled generating unit, semi-scheduled generating unit or scheduled network service to comply with the direction;</p> <p>(6) other costs incurred in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network services, where</p>		
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<p>such costs are incurred to enable the scheduled generating unit, semi-scheduled generating unit or scheduled network service to comply with the direction; and</p> <p>(7) any compensation which the Directed Participant receives or could have obtained by taking reasonable steps in connection with the scheduled generating unit, semi-scheduled generating unit or scheduled network services being available.</p> <p>(a4) In respect of a single intervention price trading interval, a Directed Participant may only make a claim pursuant to clauses 3.15.7B(a), 3.15.7B(a1) or 3.15.7B(a2) if the amount of the claim in respect of that intervention price trading interval is greater than \$5,000.</p> <p>(b) The submissions pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) must:</p> <p>(1) itemise each component of a claim;</p> <p>(2) contain sufficient data and information to substantiate each component of a claim for loss of revenue and additional direct costs incurred and the reasonable rate of return, as the case may be; and</p> <p>(3) be signed by an authorised officer of the applicant certifying that the written submission is true and correct.</p> <p>(c) NEMMCO must, in accordance with the intervention settlement timetable:</p> <p>(1) refer an affected participant's adjustment claim or market customer's additional claim to an independent expert to determine such claim in accordance with clause 3.12.11A if the claim is equal to or greater than \$20,000 and the additional</p>		
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<p>intervention claim that includes that claim is equal to or greater than \$100,000; and (2) determine in its sole discretion if all other claims by a Directed Participant in respect of that direction pursuant to clauses 3.15.7B(a), 3.15.7B(a1) and 3.15.7B(a2) are reasonable and if so pay the amount claimed in accordance with clause 3.15.10C. (d) If NEMMCO considers that a claim by a Directed Participant under clause 3.15.7B(a) or 3.15.7B(a1) or 3.15.7B(a2) is unreasonable, it must, in accordance with the intervention settlement timetable: (1) advise the Directed Participant of its determination in writing, setting out its reasons; and (2) refer the matter to an independent expert to determine the claim for compensation in accordance with clause 3.12.11A.</p>		
<p>3.15.10 Administered price, VoLL or market floor price compensation payments (a) In the event that the AEMC awards compensation to a Scheduled Generator, Semi-Scheduled Generator, Market Participant which submitted a dispatch bid or Scheduled Network Service Provider in accordance with clause 3.14.6, then NEMMCO must determine an amount which shall be payable by all Market Customers who purchased electricity from the spot market in a region in which the regional reference price was affected by the imposition of an administered price or VoLL, or market floor price in the trading interval</p>		

<p>or trading intervals in respect of which such compensation has been awarded.</p> <p>(b) NEMMCO shall determine the amounts payable for each relevant trading interval by each of the affected Market Customers under clause 3.15.10(a) as follows:</p> $APC \times E_i / \sum E_i$ <p>where</p> <p>APC is the total amount of any compensation payments awarded by the AEMC to Scheduled Generators, Semi-Scheduled Generators, Market Participants which submitted dispatch bids or Scheduled Network Service Providers in respect of that trading interval in accordance with clause 3.14.6.</p> <p>E_i is the sum of all of the Market Customer's adjusted gross energy amounts, determined in accordance with clauses 3.15.4 and 3.15.5, in respect of each trading interval in the billing period and each connection point for which the Market Customer is financially responsible in any region or regions affected by the imposition of an administered price or VoLL or market floor price.</p> <p>$\sum E_i$ is the sum of all amounts determined as "E_i" in accordance with this clause 3.15.10 for all Market Customers in all regions affected by the imposition of an administered price or VoLL or market floor price in that trading interval.</p> <p>(c) Within 15 business days of being notified by the AEMC that compensation is to be paid to a Scheduled Generator, Semi-Scheduled Generator, Market Participant which submitted a dispatch bid or</p>		
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Scheduled Network Service Providers in accordance with clause 3.14.6, NEMMCO shall include in statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable by or to Market Participants as determined in accordance with this clause 3.15.10.		
3.15.10B Restriction contract amounts (a) If clause 3.12A.7(g) applies then NEMMCO must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after the end of the relevant mandatory restriction period separate details of amounts payable: (1) by Market Customers in the relevant region in which the mandatory restrictions apply an amount equal to: EMCP = RSA x AGE/AAGE Where: EMCP is the payment to be made by Market Customers to NEMMCO. RSA is the restriction shortfall amount. AGE is the adjusted gross energy of a Market Customer in that region for the mandatory restriction period expressed in MWh. AAGE is the aggregate of the adjusted gross energy of all Market Customers in that region for the mandatory restriction period expressed in MWh; (2) by Scheduled Generators, Semi-Scheduled		

<p>Generators and Scheduled Network Service Providers to NEMMCO in accordance with clause 3.12A.7(a); and</p> <p>(3) the amounts payable by NEMMCO to the Scheduled Generators, Semi-Scheduled Generators or Scheduled Network Service Providers pursuant to accepted restriction offers.</p> <p>(b) Immediately upon the later of the publication of the independent expert's final report in accordance with clause 3.12A.7(i)(8) and the determination of a dispute resolution panel pursuant to clause 3.12A.7(m), if any, NEMMCO must include in the next statements provided under clauses 3.15.14 and 3.15.15 separate details of any amounts payable:</p> <p>(i) by a Market Customer equal to the amount as determined in accordance with clause 3.12A.7(g)(i) less the amount determined in accordance with clause 3.15.10B(a)(1), if such number is positive together with interest on such amount calculated by applying the bank bill rate on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b); and</p> <p>(ii) to a Market Customer equal to the amount determined in accordance with clause 3.15.10B(a)(1) less the amount determined in accordance with clause 3.12A.7(g)(i), if such number is positive together with interest on such amount calculated by applying the bank bill rate on the date of this statement for the period from the date of the statement referred to in clause 3.15.10B(a) to the date of this statement under clause 3.15.10B(b).</p>		
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<p>(c) If clauses 3.12A.7(f) or 3.12A.7(h) apply then NEMMCO must include in the next statement provided under clauses 3.15.14 and 3.15.15 immediately after the end of the relevant mandatory restriction period separate details of any amounts payable:</p> <p>(i) by or to Market Customers as determined in accordance with clauses 3.12A.7(e) or 3.12A.7(h) respectively;</p> <p>(ii) by Scheduled Generators, Semi-Scheduled Generators and Scheduled Network Service Providers to NEMMCO in accordance with clause 3.12A.7(a); and</p> <p>(iii) the amounts payable by NEMMCO to the Scheduled Generators, Semi-Scheduled Generators or Scheduled Network Service Providers pursuant to all accepted restriction offers.</p>		
<p>3.16 Participant compensation fund</p> <p>3.16.1 Establishment of Participant compensation fund</p> <p>(a) NEMMCO must continue to maintain, in the books of the corporation, a fund called the Participant compensation fund for the purpose of paying compensation to Scheduled Generators, Semi-Scheduled Generators and Scheduled Network Service Providers as determined by the dispute resolution panel for scheduling errors under this Chapter 3.</p> <p>(b) NEMMCO must pay to the Participant compensation fund that component of Participant</p>		

<p>fees under clause 2.11 attributable to the Participant compensation fund.</p> <p>(c) The funding requirement for the Participant compensation fund for each financial year is the lesser of:</p> <p>(1) \$1,000,000; and</p> <p>(2) \$5,000,000 minus the amount which NEMMCO reasonably estimates will be the balance of the Participant compensation fund at the end of the relevant financial year.</p> <p>(d) The Participant compensation fund is to be maintained by NEMMCO and is the property of NEMMCO.</p> <p>(e) Any interest paid on money held in the Participant compensation fund will accrue to and form part of the Participant compensation fund.</p> <p>(f) NEMMCO must pay from the Participant compensation fund all income tax on interest earned by the Participant compensation fund and must pay from the Participant compensation fund all bank account debit tax, financial institutions duty and bank fees in relation to the Participant compensation fund.</p> <p>(g) Upon ceasing to be a Scheduled Generator, a Scheduled Generator is not entitled to a refund of any contributions made to the Participant compensation fund.</p> <p>(g1) Upon ceasing to be a Semi-Scheduled Generator, a Semi-Scheduled Generator is not entitled to a refund of any contributions made to the Participant compensation fund.</p> <p>(h) Upon ceasing to be a Scheduled Network Service</p>		
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Provider, a Scheduled Network Service Provider is not entitled to a refund of any contributions made to the Participant compensation fund.		
3.16.2 Dispute resolution panel to determine compensation (a) Where a scheduling error occurs, a Market Participant may apply to the dispute resolution panel for a determination as to compensation under this clause 3.16.2. (b) Where a scheduling error occurs, the dispute resolution panel may determine that compensation is payable to Market Participants and the amount of any such compensation payable from the Participant compensation fund. (c) A determination by the dispute resolution panel as to compensation must be consistent with this clause 3.16.2. (d) A Scheduled Generator who receives an instruction in respect of a scheduled generating unit to operate at a lower level than the level at which it would have been instructed to operate had the scheduling error not occurred, will be entitled to receive in compensation an amount determined by the dispute resolution panel. (d1) A Semi-Scheduled Generator who receives an instruction in respect of a semi- scheduled generating unit to operate at a lower level than the level at which it would have been instructed to operate had the scheduling error not occurred, will be entitled to receive in compensation an amount		

<p>determined by the dispute resolution panel.</p> <p>(e) A Scheduled Network Service Provider who receives an instruction in respect of its scheduled network services to transfer less power on the scheduled network service than it would have been instructed to transfer had the scheduling error not occurred, will be entitled to receive in compensation an amount determined by the dispute resolution panel.</p> <p>(f) A Scheduled Generator who receives a dispatch instruction in respect of a scheduled generating unit to operate at a level consistent with a dispatch offer price (with reference to the relevant regional reference node) which is higher than the dispatch price, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the dispute resolution panel.</p> <p>(f1) A Semi-Scheduled Generator who receives a dispatch instruction in respect of a semi-scheduled generating unit to operate at a level consistent with a dispatch offer price (with reference to the relevant regional reference node) which is higher than the dispatch price, due to the operation of clause 3.9.2B, is entitled to receive in compensation an amount determined by the dispute resolution panel.</p> <p>(g) A Scheduled Network Service Provider who receives an instruction in respect of its scheduled network services to transfer power on the scheduled network service consistent with a network dispatch offer price but receives less net revenue than would be expected under clause 3.8.6A(f) due to adjustment of the spot price for a trading interval</p>		
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<p>under clause 3.9.2B, is entitled to receive in compensation an amount determined by the dispute resolution panel.</p> <p>(h) In determining the level of compensation to which Market Participants are entitled in relation to a scheduling error, the dispute resolution panel must:</p> <p>(1) Where the entitlement to compensation arises under clauses 3.16.2(f) or 3.16.2 (f1), determine compensation on the basis of the actual loading level and not the dispatch instruction applicable to the relevant scheduled generating unit or semi-scheduled generating unit for that dispatch interval;</p> <p>(2) Where the entitlement to compensation arises under clause 3.16.2(g), determine compensation on the basis of the actual loading level and not the dispatch instruction applicable to the relevant scheduled network service for that dispatch interval;</p> <p>(3) Use the spot price as determined under clause 3.9, including any spot prices that have been adjusted in accordance with clause 3.9.2B;</p> <p>(4) Take into account the current balance of the Participant compensation fund and the potential for further liabilities to arise during the year;</p> <p>(5) Recognise that the aggregate liability in any year in respect of scheduling errors cannot exceed the balance of the Participant compensation fund that would have been available at the end of that year if no compensation payments for scheduling errors had been made during that year.</p> <p>(i) The manner and timing of payments from the Participant compensation fund are to be determined by the dispute resolution panel.</p>		
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(j) To the maximum extent permitted by law, NEMMCO is not liable in respect of a scheduling error except out of the Participant compensation fund as contemplated in this clause 3.16.2.		
<p>Schedule 3.1 - Registered Bid and Offer Data</p> <p>The registered bid and offer data are the standard data requirements for verification and compilation of dispatch bids and dispatch offers on the trading day schedule. All Scheduled Generators, Semi-Scheduled Generators and Market Participants must notify NEMMCO of their registered bid and offer data in accordance with this schedule 3.1 in respect of each of their scheduled loads, scheduled generating units and semi-scheduled generating units at least six weeks prior to commencing participation in the market.</p> <p>Scheduled Generators, Semi-Scheduled Generators and Market Participants must review their registered bid and offer data annually in accordance with the timetable advised by NEMMCO and provide details of any changes to NEMMCO.</p> <p>Registered bid and offer data may be updated by a Scheduled Generator, SemiScheduled Generator or Market Participant at any time but may be subject to audit at NEMMCO's request.</p> <p>A copy of all changes to the data must be returned to each Scheduled Generator, Semi-Scheduled</p>		

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Generator and Market Participant for verification and resubmission by the Scheduled Generator or Market Participant as necessary. Registered bid and offer data may include tolerance levels.			
Scheduled Generating Unit Data:			
Data	Units of Measurement		
Power station information:			
node number/identifier			
total station registered capacity	MW		
total station sent out capacity at registered capacity	MW		
daily energy constraint, if applicable	MWh per day		
Generating unit information:			
full load	MW (generated and sent out)		
normal or technical minimum load	MW (generated and sent out)		
additional emergency generation above registered capacity	MW		
normal and maximum ramp rates	MW/minute		
response time to full	minutes		

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

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ramp rates			
response time to full load from cold standby	minutes		
aggregation data			
capability chart			
notice to synchronise	minutes		
minimum shutdown time	minutes		
maximum shutdowns per day			
Scheduled Load Data:			
Data	Units of Measurement		
node number/identifier			
normally on or normally off			
maximum load	MW		
daily energy constraint if applicable	MWh per day		
normal and maximum ramp rates	MW/min		
aggregation data			
Scheduled Network Service Data:			
Data	Units of Measurement		
node number/identifier for connection points A and B			
Registered power transfer capability to node 1 (may be	MW		

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seasonal etc)			
Registered power transfer capability to node 2 (may be seasonal etc).	MW		
Additional transient power transfer capability in each direction	MW		
Normal and maximum transfer ramp rates (if applicable)	MW/min		
Loss vs flow as piecewise linear relationships for each direction which, taken together, are convex over the entire range of power transfer capabilities in both directions			
Aggregation data			
Dispatch Inflexibility Profile			
Data	Units of Measurements		
Time for response from receipt of dispatch instruction from zero load, T1 (see clause 3.8.19(e)(1))	minutes		
Time after T1 required	minutes		

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to reach minimum loading level (see clause 3.8.19(e)(2))			
Time after T2 for which plant must operate at or above the minimum loading level (see clause 3.8.19(e)(3))	minutes		
Time required by plant to reduce from its minimum loading level to zero (see clause 3.8.19(e)(4))	minutes		
minimum loading level (see clauses 3.8.19(e)(2),(3),(4))	MW		
<p>Aggregation Data</p> <p>Where dispatch bids or dispatch offers are submitted for aggregated generating units, market network services or loads as approved by NEMMCO under clause 3.8.3 then, unless otherwise exempted by NEMMCO, each Scheduled Generator, Semi-Scheduled Generator and Market Participant must provide the information required in accordance with this schedule 3.1 for each generating unit, market network service or load included in those dispatch bids or dispatch offers both separately and in aggregated form.</p>			
<p>4.Power System Security</p> <p>4.1 Introduction</p>			

<p>4.1.1 Purpose</p> <p>(a) This Chapter:</p> <p>(1) provides the framework for achieving and maintaining a secure power system;</p> <p>(2) provides the conditions under which NEMMCO can intervene in the processes of the spot market and issue directions to Registered Participants so as to maintain or re-establish a secure and reliable power system;</p> <p>(3) has the following aims:</p> <p>(i) to detail the principles and guidelines for achieving and maintaining power system security;</p> <p>(ii) to establish the processes for the assessment of the adequacy of power system reserves;</p> <p>(iii) to establish processes to enable NEMMCO to plan and conduct operations within the power system to achieve and maintain power system security; and</p> <p>(iv) to establish processes for the actual dispatch of scheduled generating units, semi-scheduled generating units, scheduled loads, scheduled network services and ancillary services by NEMMCO.</p> <p>(b) By virtue of this Chapter and the National Electricity Law, NEMMCO has responsibility to maintain and improve power system security. This Chapter also requires the Jurisdictional System Security Coordinator for each participating jurisdiction to advise NEMMCO of the requirements of the participating jurisdiction regarding sensitive loads and priority of load shedding and requires NEMMCO to provide copies of the relevant load shedding procedures to the Jurisdictional System</p>	<p>4.1.1(a)(3)</p>	<p>4.1.1(a)(3) A point (v) could be added to the clause to say “aim to integrate intermittent energy sources as technically possible”.</p>
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Security Coordinator.		
<p>4.3 Power System Security Responsibilities and Obligations</p> <p>4.3.1 Responsibility of NEMMCO for power system security The NEMMCO power system security responsibilities are:</p> <p>(a) to maintain power system security;</p> <p>(b) to monitor the operating status of the power system;</p> <p>(c) to co-ordinate the System Operators in undertaking certain of its activities and operations and monitoring activities of the power system;</p> <p>(d) to ensure that high voltage switching procedures and arrangements are utilised by Network Service Providers to provide adequate protection of the power system;</p> <p>(e) to assess potential infringement of the technical envelope or power system operating procedures which could affect the security of the power system;</p> <p>(f) to ensure that the power system is operated within the limits of the technical envelope;</p> <p>(g) to ensure that all plant and equipment under its control or co-ordination is operated within the appropriate operational or emergency limits which are advised to NEMMCO by the respective Network Service Providers or Registered Participants;</p> <p>(h) to assess the impacts of technical and any operational plant on the operation of the power system;</p> <p>(i) to arrange the dispatch of scheduled generating</p>		

<p>units, semi-scheduled generating units, scheduled loads, scheduled network services and ancillary services (including dispatch by remote control actions or specific directions) in accordance with the Rules, allowing for the dynamic nature of the technical envelope;</p> <p>(j) to determine any potential constraint on the dispatch of generating units, loads, market network services and ancillary services and to assess the effect of this constraint on the maintenance of power system security;</p> <p>(k) to assess the availability and adequacy, including the dynamic response, of contingency capacity reserves and reactive power reserves in accordance with the power system security and reliability standards and to ensure that appropriate levels of contingency capacity reserves and reactive power reserves are available:</p> <p>(1) to ensure the power system is, and is maintained, in a satisfactory operating state; and</p> <p>(2) to arrest the impacts of a range of significant multiple contingency events (affecting up to 60% of the total power system load) to allow a prompt restoration or recovery of power system security, taking into account under-frequency initiated load shedding capability provided under connection agreements or otherwise;</p> <p>(l) to determine the required levels of short term capacity reserves and medium term capacity reserves in accordance with the power system security and POWER SYSTEM SECURITY reliability standards,</p>		
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<p>and to assess the availability of the actual short term capacity reserve and actual medium term capacity reserve in accordance with the projected assessment of system adequacy (PASA), described in Chapter 3, which would be available to supplement utilised contingency capacity reserves and, if necessary, initiate action in relation to the trading in reserves in accordance with Chapter 3;</p> <p>(m) to make available to Registered Participants as appropriate, information about the potential for, or the occurrence of, a situation which could significantly impact, or is significantly impacting, on power system security, and advise of any low reserve condition for the relevant periods where the short term capacity reserve and/or medium term capacity reserve is assessed as being less than that determined in accordance with the short term capacity reserve standard or medium term capacity reserve standard respectively;</p> <p>(n) to refer to Registered Participants, as NEMMCO deems appropriate, information of which NEMMCO becomes aware in relation to significant risks to the power system where actions to achieve a resolution of those risks are outside the responsibility or control of NEMMCO;</p> <p>(o) to utilise resources and services provided or procured as ancillary services or otherwise to maintain or restore the satisfactory operating state of the power system;</p> <p>(p) to procure adequate system restart ancillary services in accordance with clause 3.11.4A to enable NEMMCO to co-ordinate a</p>		
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<p>response to a major supply disruption;</p> <p>(q) to interrupt, subject to clause 4.3.2(l), Registered Participant connections as necessary during emergency situations to facilitate the re-establishment of the satisfactory operating state of the power system;</p> <p>(r) to issue a direction or clause 4.8.9 instruction (as necessary) to any Registered Participant;</p> <p>(s) to co-ordinate and direct any rotation of widespread interruption of demand in the event of a major supply shortfall or disruption;</p> <p>(t) to liaise with participating jurisdictions should there be a need to manage an extensive disruption, including the use of emergency services powers in a participating jurisdiction;</p> <p>(u) to determine the extent to which the levels of contingency capacity reserves and reactive power reserves are or were appropriate through appropriate testing, auditing and simulation studies;</p> <p>(v) to investigate and review all major power system operational incidents and to initiate action plans to manage any abnormal situations or significant deficiencies which could reasonably threaten power system security. Such situations or deficiencies include without limitation:</p> <p>(1) power system frequencies outside those specified in the definition of satisfactory operating state;</p> <p>(2) power system voltages outside those specified in the definition of satisfactory operating state;</p> <p>(3) actual or potential power system instability; and</p> <p>(4) unplanned/unexpected operation of major power system equipment; and (w) to ensure that each</p>	4.3.1(q)	4.3.1(q) “To interrupt” in the clause is costly to wind farm operators. NEMMCO should compensate for lost revenue due to “interrupt”.
	4.3.1(r)	4.3.1(r) “Direction” in the clause is costly to wind farm operators. NEMMCO should compensate for lost revenue due to “interrupt”.
	4.3.1(s)	4.3.1(s) How will the “co-ordinate” work?
	4.3.1(v)	4.3.1(v) “Investigate” should include input from the wind farm operator, and this should be in the clause.
		Mathematical models of WTGs can be given to NEMMCO but the long term experience of wind farm operators and wind turbine manufacturers is not present in a mathematical model.

[illegible]

4.2.2(a). (d)[Deleted] (e) NEMMCO must use its reasonable endeavours to ensure that adequate facilities are available and are under the direction of NEMMCO to allow the managed recovery of the satisfactory operating state of the power system.		
4.8 Power System Security Operations 4.8.5 Managing declarations of conditions (a) NEMMCO must as soon as reasonably practicable publish any declaration under clause 4.8.4. (a1) The publication of any such declaration must, to the extent reasonably practicable, include the following: (1) the nature and extent of the low reserve or lack of reserve condition; and (2) the time period over which the low reserve or lack of reserve condition applies. (b) If NEMMCO makes a declaration under clause 4.8.4, NEMMCO must use its reasonable endeavours to follow the processes set out in clauses 4.8.5A and 4.8.5B. (c) Following a declaration under clause 4.8.4, NEMMCO must as soon as reasonably practicable publish notice of: (1) any cancellation of that declaration; or (2) any significant change in the low reserve or lack of reserve condition due to changed positions of Scheduled Network Service Providers, Market Customers, Scheduled Generators and Semi-		

<p>Scheduled Generators or due to other reasons.</p> <p>4.8.5A Determination of the latest time for intervention by direction or dispatch of reserve contract</p> <p>(a) NEMMCO must immediately publish a notice of any foreseeable circumstances that may require NEMMCO to issue a direction or dispatch reserves it has available under reserve contracts under clause 4.8.6.</p> <p>(a1) Any such notice must include the forecast circumstances creating the need to issue a direction or dispatch reserves.</p> <p>(b) NEMMCO must, as soon as reasonably practicable after the publication of a notice pursuant to clause 4.8.5A(a), estimate and publish the latest time at which it would need to intervene to issue a direction under clause 4.8.9, or dispatch reserves it has available under reserve contracts under clause 4.8.6, should the response from the market not be such as to obviate the need to issue a direction or dispatch reserves.</p> <p>(c) In order to estimate the time referred to in clause 4.8.5A(b), NEMMCO may request information from a Scheduled Network Service Provider, Scheduled Generator, Semi-Scheduled Generator or Market Customer and may specify the time within which that information is to be provided. Such information may include, but is not limited to:</p> <p>(1) plant status;</p> <p>(2) any expected or planned plant outages and the</p>		
	4.8.5A(c)	4.8.5A(c) A wind farm operator typically does not operate a manned 24hour control room.
	4.8.5A(c)(1)	4.8.5A(c)(1) “Plant” for a “connection point” refers to “all equipment involved in generating, utilising or transmitting

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<p>MW capacity affected by the outage, proposed start date and time and expected end date and time associated with the outage and an indication of the possibility of deferring the outage;</p> <p>(3) estimates of the relevant costs to be incurred by the Scheduled Network Service Provider, Scheduled Generator, Semi-Scheduled Generator or Market Customer should it be the subject of a direction, but only if NEMMCO considers it reasonably likely that such Scheduled Network Service Provider, Scheduled Generator, Semi-Scheduled Generator or Market Customer will be subject to a direction.</p> <p>(d) A Scheduled Network Service Provider, Scheduled Generator, Semi-Scheduled Generator or Market Customer must use reasonable endeavours:</p> <p>(1) to comply with a request for information pursuant to clause 4.8.5A(c); and</p> <p>(2) to provide NEMMCO with the information required in the time specified by NEMMCO.</p> <p>(e) NEMMCO must regularly review its estimate of the latest time at which it would need to intervene to issue a direction under clause 4.8.9 or to dispatch reserves it has available under reserve contracts under clause 4.8.6 and must publish any revisions to the estimate.</p> <p>(f) NEMMCO must treat any information provided in response to a request under clause 4.8.5A(c) as confidential information and use it for the sole purpose of assessing to which Scheduled Network Service Provider, Market Customer, Scheduled Generator or Semi-Scheduled Generator it should issue directions.</p>	<p>4.8.5A(c)(2)</p> <p>4.8.5A(c)(3)</p> <p>4.8.5A(d)</p> <p>4.8.5A(e)</p>	<p>electrical energy” as per Chapter 10 of version 14 of National Electricity Rules.</p> <p>Thus “plant” refers to all WTGs that comprise the wind farm. Is this the intention of NEMMCO to know the status of each WTG?</p> <p>4.8.5A(c)(2) “Outage” is defined to be “any full or partial unavailability of equipment” as per Chapter 10 of version 14 of National Electricity Rules.</p> <p>Does this mean each WTG in a wind farm? Or does this mean a fraction of the entire wind farm? The clause should be more specific.</p> <p>4.8.5A(c)(3) (refers to clause “4.8.9 Power to issue directions and clause 4.8.9 instructions” of version 14 of National Electricity Rules) How quickly are these costs to be provided to NEMMCO? Wind farm operators typically do not have 24hour manned control rooms.</p> <p>4.8.5A(d) There should be a clause on dispute resolution included.</p> <p>4.8.5A(e)What is the definition of “regularly review?” There should be a reference to time, either daily, hourly, or every five minutes.</p>
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<p>4.9 Power System Security Related Market Operations</p> <p>4.9.2 Instructions to Generators</p> <p>(a) To implement central dispatch or, where NEMMCO has the power to direct or to instruct a Scheduled Generator either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, NEMMCO may at any time give an instruction to a Scheduled Generator in relation to its scheduled generating units (a dispatch instruction), in accordance with clause 4.9.5, nominating:</p> <p>(1) whether the facilities for generation remote control by NEMMCO, if available, must be in service; and</p> <p>(2) the level or schedule of power to be supplied by the generating unit over the specified period.</p> <p>(a1) To implement central dispatch or, where NEMMCO has the power to direct or to instruct a Semi-Scheduled Generator either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, NEMMCO may at any time give an instruction to a Semi-Scheduled Generator in relation to its semi-scheduled generating units (a dispatch instruction), in accordance with clause 4.9.5, nominating:</p> <p>(1) whether the facilities for generation remote control by NEMMCO, if available, must be in service; and</p> <p>(2) the maximum level of power to be supplied by the generating unit.</p>	<p>4.9.2(a)</p> <p>4.9.2(a1)</p> <p>4.9.2(a1)(2)</p>	<p>4.9.2(a) The words “NEMMCO may at any time give an instruction to a Scheduled Generator.” Wind farm operators typically do not operate 24hour manned control centres.</p> <p>4.9.2(a1) The words “NEMMCO may at any time give an instruction to a Scheduled Generator.” Wind farm operators typically do not operate 24hour manned control centres.</p> <p>For the case of the wind farm generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>4.9.2(a1)(2) Words should be added “subject to available energy source e.g. wind”. A wind farm cannot increase active output</p>

<p>(b) Subject to paragraph (c), NEMMCO may at any time give an instruction to a Generator in relation to its generating units with a nameplate rating of 30MW or more, or its generating systems of combined nameplate rating of 30 MW or more, nominating that:</p> <p>(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);</p> <p>(2) the generating unit's or generating system's voltage control system set-point is to be set to give a nominated voltage; or</p> <p>(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.</p> <p>(c) Unless otherwise provided under an ancillary services agreement or a connection agreement, NEMMCO must not give an instruction under paragraph (b) that requires a generating unit or generating system to supply or absorb reactive power at a level outside the plant's relevant performance standard.</p> <p>(d) A Scheduled Generator or Semi-Scheduled Generator must with respect to its scheduled generating units or semi-scheduled generating units that have an availability offer of greater than 0 MW (whether synchronised or not), ensure that appropriate personnel are available at all times to receive and immediately act upon dispatch instructions issued by NEMMCO to the Scheduled Generator or Semi-Scheduled Generator.</p>	<p>4.9.2(b)</p> <p>4.9.2(b)(1)</p> <p>4.9.2(b)(2)</p> <p>4.9.2(b)(3)</p> <p>4.9.2(c)</p> <p>4.9.2(d)</p>	<p>power without sufficient wind energy.</p> <p>For the case of the wind farm generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>4.9.2(b) The words “NEMMCO may at any time give an instruction to a Scheduled Generator.” Wind farm operators typically do not operate 24hour manned control centres.</p> <p>4.9.2(b)(1) Wind farms operate via the connection point. There may be a sub station near the connection point, and its transformer may have a tap changer. NEMMCO should not vary the voltage of this transformer and must not control this transformer. Wind farm operators must control the entire wind farm to avoid dangers and risks.</p> <p>Also, WTGs may not stay connected to the electricity grid under certain voltage conditions, especially WTGs comprising of induction machines and power conditioners.</p> <p>4.9.2(b)(2) NEMMCO should not be allowed to nominate the voltage at the connection point. Generally voltage and reactive power flows are subject to load flow studies, and these studies are performed prior to connection, and the wind farm is setup based on these studies. Changing voltage may put the wind farm at risk and in danger.</p> <p>4.9.2(b)(3) NEMMCO should not require wind farms to absorb reactive power. Generally voltage and reactive power flows are subject to load flow studies, and these studies are performed prior to connection, and the wind farm is setup based on these</p>
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<p>4.9.2A Dispatch Instructions to Scheduled Network Service Providers</p> <p>(a) Where NEMMCO has the power to direct or to instruct a Scheduled Network Service Provider either under Chapter 3 or this Chapter, for the purpose of giving effect to that direction or instruction, NEMMCO may at any time give an instruction to a Scheduled Network Service Provider in relation to its scheduled network services (a dispatch instruction), in accordance with clause 4.9.5, nominating:</p> <p>(1) whether the facilities for remote control by NEMMCO, if available, must be in service; and</p> <p>(2) the level or schedule of power to be transferred by the scheduled network service over the specified period.</p> <p>(b)[Deleted]</p> <p>(c) A Scheduled Network Service Provider must, with respect to its scheduled network services that have an availability offer of greater than 0 MW, ensure that appropriate personnel are available at all times to receive and immediately act upon dispatch instructions issued to the Scheduled Network Service Provider by NEMMCO.</p>	<p>4.9.2A(a)</p> <p>4.9.2A(c)</p> <p>4.9.3(a)</p>	<p>studies. Changing reactive may put the wind farm at risk and in danger.</p> <p>4.9.2(c) Wind farms should not be required to absorb reactive power.</p> <p>4.9.2(d) The words “at all times” do not consider that wind farm operators typically do not operate 24hour manned control centres. May be consideration should be given to an automated process.</p> <p>4.9.2A(a)The words “at any time” do not consider that wind farm operators typically do not operate 24hour manned control centres.</p> <p>4.9.2A(c) The words “available at all times” do not consider that wind farm operators typically do not operate 24hour manned control centres.</p> <p>4.9.3(a) The words “available at all times” do not consider that wind farm operators typically do not operate 24hour manned control centres.</p>
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<p>(d) A Market Customer must, with respect to scheduled loads in relation to which a dispatch bid has been submitted for a particular trading interval, ensure that appropriate personnel or electronic facilities are available at all times to receive and immediately act upon dispatch instructions issued to the Market Customer by NEMMCO.</p> <p>(e)[Deleted]</p>	<p>4.9.3(d)</p>	<p>4.9.3(d) The words “appropriate personnel ... available at all times” do not consider that wind farm operators typically do not operate 24hour manned control centres.</p> <p>For a wind farm to be to receive NEMMCO’s electronic instructions new software needs to be developed and NEMMCO may need to develop this software for wind farm operators.</p>
<p>4.9.4 Dispatch related limitations on Scheduled Generators and SemiScheduled Generators A Generator must not, unless in the Generator's reasonable opinion public safety would otherwise be threatened or there would be a material risk of damaging equipment or the environment:</p> <p>(a) send out any energy from a scheduled generating unit or semi-scheduled generating unit, except:</p> <p>(1) in accordance with the self-commitment procedures specified in clause 4.9.6;</p> <p>(2) in accordance with a dispatch instruction;</p> <p>(3) as a consequence of operation of the generating unit's automatic frequency response mode to power system conditions;</p> <p>(4) in response to remote control signals given by NEMMCO or its agent; or</p> <p>(5) in connection with a test conducted in accordance with the requirements of this Chapter or Chapter 5;</p> <p>(b) adjust the transformer tap position or excitation control system voltage set-point of a scheduled generating unit or semi-scheduled generating unit except:</p>	<p>4.9.4(a)</p> <p>4.9.4(a)(1)</p> <p>4.9.4(a)(2)</p> <p>4.9.4(a)(3)</p> <p>4.9.4(a)(4)</p> <p>4.9.4(a)(5)</p> <p>4.9.4(b)</p>	<p>4.9.4(a) The words “send out energy” imply both reactive and active power. This may be better separated into two sections, one for reactive power, and the other for active output power.</p> <p>4.9.4(a)(1) The words “expected synchronising time at least one hour before expected actual synchronising time” at 4.9.6 are awkward. A WTG may disconnect and reconnect many times (dependant on climatic surroundings). The clause could be modified to say specifically synchronous machines.</p> <p>4.9.4(a)(2) The words “in accordance to dispatch instruction” cannot necessarily be complied with by a wind farm. The active power output of a WTG is variable and dependant on energy in the wind. Some allowance should be made for wind farm operators.</p> <p>4.9.4(a)(3) The words “frequency response mode to power</p>

<p>(1) in accordance with a dispatch instruction; (2) in response to remote control signals given by NEMMCO or its agent; (3) if, in the Generator's reasonable opinion, the adjustment is urgently required to prevent material damage to the Generator's plant or associated equipment, or in the interests of safety; or (4) in connection with a test conducted in accordance with the requirements of clause 5.7; (c) energise a connection point in relation to a scheduled generating unit or semi-scheduled generating unit without obtaining prior approval from NEMMCO immediately prior to energisation; (d) synchronise to, or de-synchronise from, the power system a generating unit with a nameplate rating of 30MW or more that is classified as a scheduled generating unit or a semi-scheduled generating unit without prior approval from NEMMCO or other than in response to a dispatch instruction except de-synchronisation as a consequence of the operation of automatic protection equipment or where such action is urgently required to prevent material damage to plant or equipment or in the interests of safety; (e) change the frequency response mode of a scheduled generating unit or semi-scheduled generating unit without the prior approval of NEMMCO; or (f) remove from service or interfere with the operation of any power system stabilising equipment installed on a scheduled generating unit or semi-scheduled generating unit.</p>	<p>4.9.4(c)</p> <p>4.9.4(d)</p> <p>4.9.4(e)</p> <p>4.9.4(f)</p>	<p>system conditions” cannot be complied with by a wind farm. A wind farm consisting of induction machines does not offer frequency control. Hence, there may be some output energy. To stop energy output the WTG may need to be disconnected from the electricity grid.</p> <p>4.9.4(a)(4) A wind farm may output energy as a function of wind conditions. Allowance should be made for wind farm operators.</p> <p>4.9.4(a)(5) A wind farm may output energy as a function of wind conditions. Allowance should be made for wind farm operators.</p> <p>4.9.4(b) Before the connection point there may be a sub station and that sub station may have a transformer with a tap changer. NEMMCO should not want to control the nominal voltage of this transformer. Induction machines with power conditioners cannot tolerate voltages other than nominal normal voltage. A WTG may disconnect from the electricity grid when the voltage is not within specification.</p> <p>4.9.4(c) This clause needs clarification. A connection point is “the agreed point of supply” as per Chapter 10 of version 14 of the National Electricity Rules. The wind farm operator may need to perform maintenance, or simply open the connection point. NEMMCO should not need to give approval.</p> <p>4.9.4(d) A WTG may synchronise or de-synchronise from the electricity grid many times (and this depends in part upon the available energy in the wind). NEMMCO approval should not be required.</p>
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<p>4.9.5 Form of dispatch instructions</p> <p>(a) A dispatch instruction for a scheduled generating unit, a dispatch instruction for a semi-scheduled generating unit, a dispatch instruction for a scheduled network service and a dispatch instruction for a scheduled load must include the following:</p> <p>(1) specific reference to the scheduled generating unit, semi-scheduled generating unit, scheduled network service or scheduled load or other facility to which the dispatch instruction applies;</p> <p>(2) the desired outcome of the dispatch instruction such as active power, reactive power, transformer tap or other outcome;</p> <p>(3) in the case of a dispatch instruction under clause 4.9.2, the ramp rate (if applicable) which is to be followed by the generating unit or a specific target time to reach the outcome specified in the dispatch instruction;</p> <p>(4) the time the dispatch instruction is issued;</p> <p>(5) if the time at which the dispatch instruction is to take effect is different from the time the dispatch instruction is issued, the start time; and</p> <p>(6) in the case of a dispatch instruction for a semi-scheduled generating unit:</p> <p>(i) a notification as to whether the dispatch interval to which the dispatch instruction relates is a semi-dispatch interval or a non-semi-dispatch interval; and</p> <p>(ii) the dispatch cap.</p> <p>(a1) A dispatch instruction for an ancillary service must include:</p>	<p>4.9.5</p> <p>4.9.5(a)(1)</p> <p>4.9.5(a)(2)</p> <p>4.9.5(a)(3)</p> <p>4.9.5(a)(4)</p> <p>4.9.5(a)(5)</p> <p>4.9.5(a)(6)</p> <p>(ii)</p> <p>4.9.5(a1)</p>	<p>4.9.4(e) Induction machines do not offer frequency control. WTGs with induction generators may change frequency at will. NEMMCO approval should not be required. May be a set of acceptable limits could be offered by the clause.</p> <p>4.9.4(f) This clause is the aim of control systems. However, the clause should specify limits within which a WTG should operate.</p> <p>4.9.5 Here NEMMCO needs to develop software that could be given to wind farm operators to suit “form of dispatch instruction”.</p> <p>4.9.5(a)(1) The clause should include “connection point”.</p> <p>4.9.5(a)(2) The clause should include “connection point”. Also, a transformer tap is not part of the “connection point”, so this should be optional.</p> <p>4.9.5(a)(3) “Ramp rate” is defined in Chapter 10 of version 14 of National Electricity Rules. This needs to be redefined or to include “a connection point”. Also, for a connection point there may be no fixed ramp rate. A wind farm may not have a ramp rate that could form a dispatch instruction.</p> <p>4.9.5(a)(4) The time of dispatch may need to be linked or synchronised to NEMMCO’s time. The times in a wind farm are usually the time the server on the wind farm is set to. So, NEMMCO’s time may not be wind farm time.</p> <p>4.9.5(a)(5) The time of dispatch may need to be linked or</p>
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<p>(1) specific reference to the generating unit or load to which the dispatch instruction applies; (2) the desired outcome of the dispatch instruction; (3) the time the dispatch instruction is issued; and (4) if the time at which the dispatch instruction is to take effect is different from the time the dispatch instruction is issued, the start time. (b) The dispatch instruction must be provided as provided in clause 3.8.21.</p>		<p>synchronised to NEMMCO’s time. The times in a wind farm are usually the time the server on the wind farm is set to. So, NEMMCO’s time may not be wind farm time.</p>
<p>4.9.6 Commitment of scheduled generating units and semi-scheduled generating units</p>		
<p>(a) Self-commitment</p>	<p>4.9.5(b)</p>	<p>4.9.5(a)(6)(ii) The “dispatch cap” is not defined in Chapter 10 of version 14 of the National Electricity Rules, but is defined in this proposed rule change. The words “connection point” should be included in the clause, which is the active power output at the connection point.</p>
<p>In relation to a generating unit of nameplate rating of 30 MW or more that is classified as a scheduled generating unit or a semi-scheduled generating unit:</p>	<p>4.9.6(a)</p>	<p>4.9.5(a1) The words “connection point” should be included in the clause.</p>
<p>(1) The Generator must confirm with NEMMCO, in accordance with clause 3.8.17 (e), the expected synchronising time at least one hour before the expected actual synchronising time, and update this advice 5 minutes before synchronising unless otherwise agreed with NEMMCO. NEMMCO may require further notification immediately before synchronisation.</p>	<p>4.9.6(a)(1)</p>	<p>4.9.5(b) The words “connection point” should be included in the clause.</p>
<p>(2) NEMMCO may require the Generator to advise NEMMCO when a scheduled generating unit or semi-scheduled generating unit reaches the self-dispatch level (being a self-dispatch level that is greater than zero MW) and must not increase output above that level unless instructed otherwise by NEMMCO to increase output or unless the increase in output results from the generating unit being</p>	<p>4.9.6(a)(2)</p>	<p>4.9.6(a) The words “connection point” should be included in the clause.</p>
		<p>4.9.6(a)(1) A WTG may synchronise and de-synchronise many times (according to the supply of energy). A wind farm operator should not need to contact NEMMCO.</p>
		<p>A wind farm operator typically does not have a 24hour manned control centre.</p>
		<p>4.9.6(a)(2) A wind farm operator typically does not have a 24hour manned control centre.</p>

<p>placed under remote control to be loaded in accordance with Chapter 3.</p> <p>(b) Instructions by NEMMCO to commit a generating unit for service</p> <p>(1) A dispatch instruction for a scheduled generating unit or semi-scheduled generating unit to commit given by NEMMCO in response to a dispatch offer must be consistent with the start-up time specified in the latest dispatch offer in relation to the generating unit.</p> <p>(2) When NEMMCO issues a dispatch instruction for a scheduled generating unit or semi-scheduled generating unit to commit, NEMMCO must nominate the time at which the generating unit is to be synchronised.</p> <p>(3) After a dispatch instruction for commitment of a scheduled generating unit or semi-scheduled generating unit has been issued, the relevant Generator must promptly advise NEMMCO of any inability to meet the nominated time to synchronise.</p> <p>(4) Unless instructed otherwise by NEMMCO, at the time a dispatch instruction to commit takes effect, the relevant scheduled generating unit or semi-scheduled generating unit must remain on self-dispatch level until NEMMCO issues a further dispatch instruction.</p> <p>4.9.7 Decommitment, or output reduction, by Scheduled Generators and Semi-Scheduled Generators</p> <p>(a) In relation to a generating unit of nameplate rating of 30 MW or more that is classified as a</p>	<p>4.9.6(b)</p> <p>4.9.6(b)(1)</p> <p>4.9.6(b)(2)</p> <p>4.9.6(b)(3)</p> <p>4.9.6(b)(4)</p> <p>4.9.7(a)</p>	<p>4.9.6(b) This clause should be modified to include the words “connection point”.</p> <p>4.9.6(b)(1) Active output power from a WTG is based on available energy in the energy source, and so may have different start-up times.</p> <p>4.9.6(b)(2) “Synchronisation” of a WTG is determined by the intermittent energy source. WTG may synchronise or disconnect many times and subsequently some allowance should be made for this.</p> <p>4.9.6(b)(3) How does the wind farm operator “advise NEMMCO”? This clause needs clarification, whether it is electronic or verbal. What is the definition of “promptly”? Wind farm operators typically do not have 24hour manned control centres.</p> <p>4.9.6(b)(4) A WTG cannot remain “on self-dispatch level” due to sporadic nature of the energy source. The words “connection point” could be added to the clause.</p> <p>4.9.7(a) From page 31 clause 3.8.18 says “at least two days in advance of dispatch” which is not possible with certainty for</p>
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<p>scheduled generating unit or a semi-scheduled generating unit, the Generator must confirm with NEMMCO, in accordance with clause 3.8.18 (b1), the expected de-synchronising time at least one hour before the expected actual de-synchronising time, and update this advice 5 minutes before de-synchronising unless otherwise agreed with NEMMCO. NEMMCO may require further notification immediately before de-synchronisation.</p> <p>(b) The Scheduled Generator or Semi-Scheduled Generator must not decommit a generating unit with a nameplate rating of 30 MW or more unless it has confirmed with NEMMCO:</p> <p>(1) the time to commence decreasing the output of the generating unit;</p> <p>(2) the ramp rate to decrease the output of the generating unit;</p> <p>(3) the time to de-synchronise the generating unit; and</p> <p>(4) the output from which the generating unit is to be de-synchronised.</p> <p>4.9.8 General responsibilities of Registered Participants</p> <p>(a) A Registered Participant must comply with a dispatch instruction given to it by NEMMCO unless to do so would, in the Registered Participant's reasonable opinion, be a hazard to public safety or materially risk damaging equipment.</p> <p>(b) A Scheduled Generator must ensure that each of its scheduled generating units is at all times able to comply with its latest generation dispatch offer.</p>	<p>4.9.7(b)</p> <p>4.9.7(b)(3)</p> <p>4.9.7(b)(4)</p> <p>4.9.8</p>	<p>wind farm operators and WTGs. WTGs synchronise and de-synchronous in proportion to available energy and allowance needs to be made for this.</p> <p>4.9.7(b)“Decommit” is defined to be “ceasing to generate” as per Chapter 10 of National Electricity Rules. WTGs synchronise and de-synchronous in response to available energy and allowance needs to be made for this. Also, the clause should include the words “connection point”.</p> <p>4.9.7(b)(3) The time to de-synchronise is not constant and is linked to the prevailing site conditions.</p> <p>4.9.7(b)(4) The output from which the generating unit is to be de-synchronised (in this case the WTG) is variable and depends upon prevailing site conditions.</p> <p>4.9.8 There should be the words “connection point” in the clause. Here there are just names and the words “must comply.” The clause should make reference to a dispute resolution process.</p>
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<p>(b1) A Scheduled Network Service Provider must ensure that each of its scheduled network services is at all times able to comply with its latest network dispatch offer.</p> <p>(b2) A Semi-Scheduled Generator must ensure that each of its semi-scheduled generating units is at all times able to comply with its latest generation dispatch offer.</p> <p>(c) A Registered Participant must ensure that each of its facilities is at all times able to comply with its relevant dispatch bid (as adjusted by any subsequent restatement of that bid under Chapter 3).</p> <p>(d) A Market Participant which has classified a generating unit or load as an ancillary service generating unit or an ancillary service load, as the case may be, must ensure that the ancillary service generating unit or ancillary service load is at all times able to comply with the latest market ancillary service offer for the relevant trading interval.</p> <p>4.9.9 Scheduled Generator plant changes A Scheduled Generator must notify NEMMCO without delay of any event that has changed or is likely to change the operational availability of any of its scheduled generating units, whether the relevant generating unit is synchronised or not, as soon as the Scheduled Generator becomes aware of the event.</p> <p>4.9.9A Scheduled Network Service Provider plant changes A Scheduled Network Service Provider must notify NEMMCO without delay of any event that has</p>	<p>4.9.9</p>	<p>4.9.9 The clause should define “any event that has changed”. Weather conditions change and so available energy changes, so how often is this change to be reported?</p>
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<p>changed or is likely to change the operational availability of any of its scheduled network services as soon as the Scheduled Network Service Provider becomes aware of the event.</p>		
<p>4.9.9B Ancillary service plant changes A Market Participant that has classified a generating unit or load as an ancillary service generating unit or an ancillary service load must notify NEMMCO without delay of any event that has changed or is likely to change the availability of a market ancillary service, or the capability of the generating unit or load to respond in the manner contemplated by the market ancillary service specification, as soon as the Market Participant becomes aware of the event.</p>	4.9.9B	4.9.9B The clause should define “any event that has changed”. Weather conditions change and so available energy changes, so how often is this change to be reported?
<p>4.9.9C Semi-Scheduled Generator plant changes A Semi-Scheduled Generator must notify NEMMCO without delay of any event that has changed or is likely to change the operational availability of any of its semischeduled generating units, whether the relevant generating unit is synchronised or not, as soon as the Semi-Scheduled Generator becomes aware of the event.</p>	4.9.9C	4.9.9C The clause should define “any event that has changed”. Weather conditions change and so available energy changes, so how often is this change to be reported?
<p>4.11 Power System Security Support 4.11.1 Remote control and monitoring devices (a) All remote control, operational metering and monitoring devices and local circuits as described in schedules 5.2, 5.3 and 5.3a, must be installed and maintained in accordance with the standards and protocols determined and advised by NEMMCO (for</p>		

<p>use in the control centres) for each:</p> <p>(1) scheduled generating unit and semi-scheduled generating unit connected to the transmission or distribution network; and</p> <p>(2) substation connected to the network.</p> <p>(b) The provider of any ancillary services must arrange the installation and maintenance of all remote control equipment and remote monitoring equipment in accordance with the standards and protocols determined and advised by NEMMCO for use in the relevant control centre.</p> <p>(c) The control and monitoring devices must include provision for indication of active power and reactive power output, provision for signalling the status and any associated alarm condition relevant to achieving adequate control of the transmission network, and provision for indication of generating plant active and reactive output.</p> <p>(d) Where reasonably necessary to allow NEMMCO to discharge its market and power system security functions NEMMCO may, by notice in writing, require a Network Service Provider, a Generator or a Market Network Service Provider to:</p> <p>(1) install remote monitoring equipment which, in NEMMCO's reasonable opinion, is adequate to enable NEMMCO to remotely monitor the performance of a transmission system or distribution system, generating unit (including its dynamic performance) or a market network service facility as appropriate; and</p> <p>(2) upgrade, modify or replace any remote monitoring equipment already installed in a facility</p>		
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<p>provided that the existing remote monitoring equipment is, in the reasonable opinion of NEMMCO, no longer fit for the intended purpose.</p> <p>(e) A Network Service Provider, Generator or Market Network Service Provider who receives a notice in accordance with clause 4.11.1(d), must comply with the notice within 120 business days or such further period that NEMMCO requires.</p> <p>(f)[Deleted]</p> <p>(g) A Generator or Market Network Service Provider wishing to receive dispatch instructions electronically from NEMMCO's automatic generation control system under clause 3.8.21 (d) must comply with NEMMCO's reasonable requirements in respect of how the remote control signals are issued by the automatic generation control system and transmitted to the facility.</p>	<p>4.11.1(g)</p>	<p>4.11.1(g) Consideration should be given to types of control systems of WTG manufacturers, and issue of compatibility with dispatch instructions generated automatically from NEMMCOs automatic generation control system.</p>
<p>5. Network Connection</p> <p>5.7 Inspection and Testing</p> <p>5.7.7 Inter-network power system tests</p> <p>(a) For each kind of development or activity described in the first column of chart 1 below, the Proponent is as set out in the second column and the Relevant Transmission Network Service Provider (“Relevant TNSP”) is as set out in the third column, respectively, opposite the description of the development or activity.</p> <p>(b) A Registered Participant, not being a Transmission Network Service Provider, determined in accordance with clause 5.7.7(a) to be a Proponent for a development or activity detailed in chart 1, may</p>		

<p>require the Relevant TNSP corresponding to that development or activity to undertake on their behalf their obligations as the Proponent and, where the Relevant TNSP receives a written request to undertake those obligations, the Relevant TNSP must do so.</p> <p>(c) Where, in this clause 5.7.7, there is a reference to a Proponent that reference includes a Relevant TNSP required in accordance with clause 5.7.7(b) to undertake the obligations of another Registered Participant.</p> <p>(d) If a Relevant TNSP is required by a Registered Participant in respect of a scheduled generating unit, a semi-scheduled generating unit, a scheduled load or a market network service, any of which have a nameplate rating in excess of 30 MW, to act as a Proponent in accordance with clause 5.7.7(b), that Relevant TNSP is entitled to recover all reasonable costs incurred from the Registered Participant that required the Relevant TNSP to act as the Proponent.</p> <p>(e) A Registered Participant wishing to undertake a development or conduct an activity listed in item 1, 2, 3 or 4 of chart 1 must notify NEMMCO not less than 80 business days before the transmission line, generating unit, facility or network development is planned to be commissioned, modified or replaced, giving details of the development or activity.</p> <p>(f) If NEMMCO receives a notice under clause 5.7.7(e), then it must provide a copy of the notice to each member of the Inter-regional Planning Committee and consult with the Inter-regional Planning Committee about the potential impact of</p>		
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<p>the development or activity.</p> <p>(g) NEMMCO or the Relevant TNSP in respect of a development or activity may notify the Proponent of the development or activity that NEMMCO or the Relevant-TNSP believes that an inter-network test is required in relation to that development or activity.</p> <p>(h) NEMMCO or the Relevant TNSP may only give a notice under clause 5.7.7(g) if NEMMCO or the Relevant TNSP considers that:</p> <p>(1) the development or activity may have a material impact on the magnitude of the power transfer capability of more than one transmission network and, in the circumstances, an inter-network test is required; or</p> <p>(2) if the Inter-regional Planning Committee has published guidelines under clause 5.7.7(k), an inter-network test is required having regard to those guidelines and the surrounding circumstances.</p> <p>(i) If NEMMCO or the Relevant TNSP gives a notice under clause 5.7.7(g), then they must also promptly give a copy of the notice to each member of the Inter-regional Planning Committee.</p> <p>(j) A Registered Participant undertaking a development or activity listed in chart 1 must provide such information to NEMMCO or the Relevant TNSP in respect of the development or activity as NEMMCO or the Relevant TNSP reasonably requests in order to make an assessment under this clause 5.7.7.</p> <p>(k) The Inter-regional Planning Committee may develop, publish and amend from time to time, in accordance with the Rules consultation procedures, a</p>	<p>5.7.7(j)</p>	<p>5.7.7(j) The statement “must provide such information to NEMMCO,” should comprise a list of specific data items to be provided.</p>
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<p>set of guidelines to assist Registered Participants to determine when an inter-network test may be required.</p> <p>(l) If the Inter-regional Planning Committee has published guidelines in accordance with clause 5.7.7(k), then NEMMCO and the Relevant TNSP must consider those guidelines in determining whether an inter-network test is required under clause 5.7.7(g) or 5.7.7(n).</p> <p>(m) If NEMMCO or the Relevant TNSP gives notice under clause 5.7.7(g), then the Proponent must, in consultation with NEMMCO, prepare a draft test program for the inter-network test and submit it to each member of the Inter-regional Planning Committee and the Relevant TNSP (if the Relevant TNSP gave the notice given under clause 5.7.7(g)).</p> <p>(n) If NEMMCO determines that an inter-network test is required for a reason contemplated in item 5 or 6 of chart 1, then it must prepare a draft test program for the inter-network test and submit it to each member of the Inter-regional Planning Committee at least 40 business days prior to the proposed test.</p> <p>(o) The Inter-regional Planning Committee must:</p> <p>(1) meet within 15 business days of the members receiving a draft test program under clauses 5.7.7(m) or (n); and</p> <p>(2) within a period of not more than 10 business days make a recommendation to NEMMCO on the draft test program that identifies changes the Inter-regional Planning Committee proposes to the test program.</p>		
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<p>(p) NEMMCO must:</p> <p>(1) publish a copy of the draft test program and any relevant changes recommended by the Inter-regional Planning Committee and invite interested Registered Participants to make written submissions;</p> <p>(2) only accept as valid submissions received not later than the date specified in the notice publishing the copy of the draft test program (not to be less than 14 days after the date of publication); and</p> <p>(3) provide the Inter-regional Planning Committee with copies of all valid submissions and seek its final recommendation.</p> <p>(q) The Inter-regional Planning Committee must consider and take into account all valid submissions received and may amend its recommendation.</p> <p>(r) NEMMCO must determine and publish in accordance with clause 3.13.13 the test program for an inter-network test after taking into account the draft test program submitted to the Inter-regional Planning Committee, the Inter-regional Planning Committee’s recommendation and any valid submissions received from Registered Participants.</p> <p>(s) In making a recommendation under clause 5.7.7(o) and in determining the test program, the Inter-regional Planning Committee and NEMMCO must so far as practicable have regard to the following principles:</p> <p>(1) power system security must be maintained in accordance with Chapter 4;</p> <p>(2) the variation from the central dispatch outcomes that would otherwise occur if there was no inter-</p>		
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<p>network test should be minimised; (3) the duration of the tests should be as short as possible consistent with test requirements and power system security; and (4) subject to clauses 5.7.7(s)(1), (2) and (3), the test facilitation costs borne or payable under clause 5.7.7 (aa) by the Proponent should be minimised. (t) An inter-regional test must not be conducted within 20 business days after NEMMCO publishes the test program for the inter-network test determined by NEMMCO under clause 5.7.7(r). (u) The Proponent in respect of an inter-network test must seek to enter into agreements with other Registered Participants to provide the test facilitation services identified in the test program in order to ensure that the power system conditions required by the test program are achieved. (v) If the Proponent approaches another Registered Participant seeking to enter into an agreement under clause 5.7.7(u) then the Proponent and the Registered Participant must negotiate in good faith concerning the provision of the relevant test facilitation service. (w) If: (1) a Proponent approaches another Registered Participant as described in clause 5.7.7(v); and (2) the Proponent and the other Registered Participant have not agreed the terms and conditions to be included in the agreement under which the Registered Participant will provide the test facilitation service requested within 15 business days of the approach, then those terms and conditions</p>	<p>5.7.7(s)(4)</p> <p>5.7.7(t)</p> <p>5.7.7(u)</p> <p>5.7.7(w)</p> <p>5.7.7(x)</p>	<p>5.7.7(s)(4) A point (5) could be added to the effect that “tests are subject to available energy source such as wind”.</p> <p>5.7.7(t) A point (1) could be added to the effect that “tests are subject to available energy source such as wind”. Also, suitable climate conditions may exist, but the “test must not be conducted within 20 business days after NEMMCO publishes the test program for the inter-network test determined by NEMMCO under clause 5.7.7(r)”. The point is why is there a 20 day limit? It might be better so say two days, so that more opportunity is given to wind farm operators to perform the test. 5.7.7(u) With connection “to provide the test facilitation services identified in the test program in order to ensure that the power system conditions required by the test program are achieved”. These facilitation services may be dependant on the wind and favourable climatic circumstances.</p> <p>5.7.7(w) A point (3) could be added where allowance is given to wind farm operators. Cost of the wind farm operator could be passed onto NEMMCO.</p> <p>5.7.7(x) A point (3) could be added where allowance is given to wind farm operators. Cost of the wind farm operator could be passed onto NEMMCO.</p>
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<p>must be determined in accordance with clause 8.2 and a dispute of this type is deemed to fall within clause 8.2.5(c)(2).</p> <p>(x) If the dispute concerns the price which the Proponent is to pay for a test facilitation service, then it must be resolved applying the following principles:</p> <p>(1) the other Registered Participant is entitled to recover the costs it incurs, and a reasonable rate of return on the capital it employs, in providing the test facilitation service, determined taking into account the additional costs associated with:</p> <p>(i) maintaining the equipment necessary to provide the test facilitation service;</p> <p>(ii) any labour required to operate and maintain the equipment used to provide the test facilitation service; and</p> <p>(iii) any materials consumed when the test facilitation service is utilised; and</p> <p>(2) the other Registered Participant is entitled to be compensated for any commercial opportunities foregone by providing the test facilitation service.</p> <p>(y) When the terms and conditions are determined in accordance with clause 8.2 under this clause 5.7.7, then the Proponent and the other Registered Participant must enter into an agreement setting out those terms and conditions.</p> <p>(z) If NEMMCO is not the Proponent in respect of an inter-network test, the Proponent must:</p> <p>(1) prior to the scheduled date of the inter-network test, confirm to NEMMCO that the test facilitation services identified in the test program will be</p>	<p>5.7.7(y)</p> <p>5.7.7(z)</p>	<p>5.7.7(y) The wording could be changed to permit “agreement resolution via a judicial court where market forces and costs could be expressed”.</p> <p>5.7.7(z) A point (4) could be added to say “costs of the wind farm operator will be met by NEMMCO”. Also, availability of energy source e.g. the wind may add additional costs.</p>
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<p>available to be utilised, who will be providing them and the operational arrangements for utilising them;</p> <p>(2) provide sufficient information to enable NEMMCO to utilise the test facilitation services in conducting the inter-network test; and</p> <p>(3) respond promptly to any queries NEMMCO raises with the Proponent concerning the availability of the test facilitation services and NEMMCO's ability to utilise those services in conducting the inter-network tests.</p> <p>(aa) The Proponent in respect of an inter-network test must bear all of the following costs associated with that inter-network test:</p> <p>(1) any amounts payable under an agreement under which test facilitation services are provided;</p> <p>(2) the Proponent's own costs associated with the inter-network test and in negotiating and administering the agreements referred to in clause 5.7.7(u); and</p> <p>(3) if the Proponent is not NEMMCO and the amount of settlements residue on any directional interconnector for a trading interval during which there is an impact on central dispatch outcomes as a result of the inter-network test is negative, then the Proponent must enter into an agreement with NEMMCO to pay that amount to NEMMCO.</p> <p>(ab) If the Proponent is NEMMCO and the amount of settlements residue on any directional interconnector for a trading interval during which there is an impact on central dispatch outcomes as a result of the inter-network test is negative, then NEMMCO must adjust that residue to be zero and</p>		
<p>(aa) The Proponent in respect of an inter-network test must bear all of the following costs associated with that inter-network test:</p> <p>(1) any amounts payable under an agreement under which test facilitation services are provided;</p> <p>(2) the Proponent's own costs associated with the inter-network test and in negotiating and administering the agreements referred to in clause 5.7.7(u); and</p> <p>(3) if the Proponent is not NEMMCO and the amount of settlements residue on any directional interconnector for a trading interval during which there is an impact on central dispatch outcomes as a result of the inter-network test is negative, then the Proponent must enter into an agreement with NEMMCO to pay that amount to NEMMCO.</p> <p>(ab) If the Proponent is NEMMCO and the amount of settlements residue on any directional interconnector for a trading interval during which there is an impact on central dispatch outcomes as a result of the inter-network test is negative, then NEMMCO must adjust that residue to be zero and</p>	<p>5.7.7(aa)(1)(2)(3)</p>	<p>5.7.7(aa)(1)(2)(3) The wind farm operator cannot “bear all of the following costs”.</p>
<p>(ab) If the Proponent is NEMMCO and the amount of settlements residue on any directional interconnector for a trading interval during which there is an impact on central dispatch outcomes as a result of the inter-network test is negative, then NEMMCO must adjust that residue to be zero and</p>	<p>5.7.7(ab)</p>	<p>5.7.7(ab) The wind farm operator cannot bear all of the costs.</p>

<p>must recover the amount as provided for in clause 2.11.3(b)(2A).</p> <p>(ac) NEMMCO must establish operational conditions to achieve the particular power transfer levels for each stage of the inter-network test as contemplated by the test program:</p> <p>(1) utilizing where practicable and economic to do so the test facilitation services identified in the test program; and</p> <p>(2) otherwise, by applying to the minimum extent necessary to fulfil the test requirements, inter-network testing constraints.</p> <p>(ad) An inter-network test must be coordinated by an officer nominated by the Inter-regional Planning Committee who has authority to stop the test or any part of it or vary the procedure within pre-approved guidelines determined by the Inter-regional Planning Committee if that officer considers any of these actions to be reasonably necessary.</p> <p>(ae) Each Registered Participant must:</p> <p>(1) cooperate with NEMMCO in planning, preparing for and conducting inter-regional tests;</p> <p>(2) act in good faith in respect of, and not unreasonably delay, an inter-network test; and</p> <p>(3) comply with any instructions given to it by NEMMCO under clause 5.7.7(f).</p> <p>(af) NEMMCO may utilise test facilitation services under agreements entered into by the Proponent under this clause 5.7.7 during an inter-network test in order to achieve operational conditions on the power system which are reasonably required to achieve valid test results.</p>	5.7.7(ac)	5.7.7(ac) Add a point (3) which says “subject to available energy source e.g. wind”.
	5.7.7(ae)	5.7.7(ae) Add a point (4) on dispute resolution, with the costs of the wind farm operator recoverable from NEMMCO.
	5.7.7(f)	5.7.7(f) Add a point that the Wind farmer operate can claim costs from NEMMCO.
		Also, add a point to which says “subject to available energy source e.g. wind”.

<p>Schedule 5.2 - Conditions for Connection of Generators</p> <p>S5.2.5 Technical requirements</p> <p>S5.2.5.11 Frequency control</p> <p>(a) For the purpose of this clause S5.2.5.11: maximum operating level means in relation to:</p> <p>(1) a non-scheduled generating unit, the maximum sent out generation consistent with its nameplate rating;</p> <p>(2) a scheduled generating unit, the maximum sent out generation (but not emergency generation) consistent with its registered bid and offer data;</p> <p>(3) a non-scheduled generating system, the combined maximum sent out generation consistent with the nameplate ratings of its in-service generating units;</p> <p>(4) a scheduled generating system, the combined maximum sent out generation (but not emergency generation) of its in-service generating units, consistent with its registered bid and offer data;</p> <p>(5) a semi-scheduled generating unit, the maximum sent out generation (but not emergency generation) consistent with its registered bid and offer data; and</p> <p>(6) a semi-scheduled generating system, the combined maximum sent out generation (but not emergency generation) of its in-service generating units, consistent with its registered bid and offer data.</p> <p>minimum operating level means in relation to:</p> <p>(1) a non-scheduled generating unit, its minimum sent out generation for continuous stable operation;</p>	<p>S5.2.5.11</p>	<p>S5.2.5.11 An asynchronous machine has no frequency control.</p> <p>We propose that the definition of “generating unit” in Chapter 10 of version 14 of National Electricity Rules incorporate aggregated wind farm generators. Alternatively, clauses 5.2 should be amended to replace “generating unit” with “generating system”.</p> <p>Generally it is expected wind farms will be able to conform to the minimum access standard.</p>
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<p>(2) a scheduled generating unit, its minimum sent out generation for continuous stable operation consistent with its registered bid and offer data;</p> <p>(3) a non-scheduled generating system, the combined minimum operating level of its in-service generating units;</p> <p>(4) a scheduled generating system, the combined minimum sent out generation of its in-service generating units, consistent with its registered bid and offer data;</p> <p>(5) a semi-scheduled generating unit, the minimum sent out generation for continuous stable operation consistent with its registered bid and offer data; and</p> <p>(6) a semi-scheduled generating system, the combined minimum sent out generation of its in-service generating units, consistent with its registered bid and offer data. pre-disturbance level means in relation to a generating unit and a frequency disturbance, the generating unit's level of output just before the system frequency first exceeds the upper or lower limit of the normal operating frequency band during the frequency disturbance. system frequency means the frequency of the transmission system or distribution system to which the generating unit or generating system is connected.</p> <p>Automatic access standard</p> <p>(b) The automatic access standard is:</p> <p>(1) a generating system's active power transfer to the power system must not:</p> <p>(i) increase in response to a rise in system frequency;</p> <p>or</p>		
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<p>(ii) decrease in response to a fall in system frequency;</p> <p>(2) a generating system must be capable of automatically reducing its active power transfer to the power system:</p> <p>(i) whenever the system frequency exceeds the upper limit of the normal operating frequency band;</p> <p>(ii) by an amount that equals or exceeds the least of:</p> <p>(A) 20% of its maximum operating level times the frequency difference between system frequency and the upper limit of the normal operating frequency band;</p> <p>(B) 10% of its maximum operating level; and</p> <p>(C) the difference between the generating unit's pre-disturbance level and minimum operating level, but zero if the difference is negative; and</p> <p>(iii) sufficiently rapidly for the Generator to be in a position to offer measurable amounts of lower services to the spot market for market ancillary services; and</p> <p>(3) a generating system must be capable of automatically increasing its active power transfer to the power system:</p> <p>(i) whenever the system frequency falls below the lower limit of the normal operating frequency band;</p> <p>(ii) by the amount that is equals or exceeds the least of:</p> <p>(A) 20% of its maximum operating level times the percentage frequency difference between the lower limit of the normal operating frequency band and system frequency;</p> <p>(B) 5% of its maximum operating level; and</p>	<p>S5.2.5.11(b)(2)</p> <p>S5.2.5.11(b)(2)(i)</p> <p>S5.2.5.11(b)(2)(ii)</p> <p>S5.2.5.11(b)(2)(iii)</p> <p>S5.2.5.11(b)(3)</p>	<p>S5.2.5.11(b)(2) A WTG that comprises of an asynchronous machine has no frequency control.</p> <p>S5.2.5.11(b)(2)(i) Consideration should b given to a WTG. The WTG may disconnect from the electricity grid.</p> <p>S5.2.5.11(b)(2)(ii) Consideration should be given to a WTG. The WTG may disconnect from the electricity grid.</p> <p>S5.2.5.11(b)(2)(ii)(A)(B)(C) Consideration should b given to a WTG. The WTG may disconnect from the electricity grid.</p> <p>S5.2.5.11(b)(2)(iii) Consideration should b given to a WTG. The WTG may disconnect from the electricity grid. It may take up to 15 minutes for the WTG to reconnect. The WTG may not be in a position to offer services to the spot market.</p> <p>S5.2.5.11(b)(3) A WTG cannot always increase its active power on demand. The clause should take into account the wording “on condition of available energy source.” This would allow for variability in the wind.</p>
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<p>(C) one third of the difference between the generating unit's maximum operating level and pre-disturbance level, but zero if the difference is negative; and</p> <p>(iii) sufficiently rapidly for the Generator to be in a position to offer measurable amounts of raise services to the spot market for market ancillary services.</p> <p>Minimum access standard</p> <p>(c) The minimum access standard is a generating system under relatively stable input energy, active power transfer to the power system must not:</p> <p>(1) increase in response to a rise in system frequency; and</p> <p>(2) decrease more than 2% per Hz in response to a fall in system frequency.</p> <p>Negotiated access standard</p> <p>(d) A Generator proposing a negotiated access standard in respect of paragraph (c)(2) must demonstrate to NEMMCO that the proposed increase and decrease in active power transfer to the power system are as close as practicable to the automatic access standard for that plant.</p> <p>(e) The negotiated access standard must record the agreed values for maximum operating level and minimum operating level, and where relevant the method of determining the values such that those values for a generating system must take into account its in-service generating units.</p> <p>(f) NEMMCO must advise on matters relating to</p>		
	S5.2.5.11(c)(1)(2)	S5.2.5.11(c)(1)(2) A WTG may disconnect in response to a rise in system frequency. A WTG may disconnect in response to a decrease in frequency. It may take up to 15 minutes for the WTG to reconnect.
	S5.2.5.11(d)	S5.2.5.11(d) Allowance should be made for a WTG and the situation of the grid connection point.
	S5.2.5.11(f)	S5.2.5.11(f) Regarding “NEMMCO must advise” consideration

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<p>negotiated access standards under this clause S5.2.5.11.</p> <p>General requirements</p> <p>(g) Each control system used to satisfy this clause S5.2.5.11 must be adequately damped.</p> <p>(h) The amount of a relevant market ancillary service for which the plant may be registered must not exceed the amount that would be consistent with the performance standard registered in respect of this requirement.</p>	<p>f)</p> <p>S5.2.5.11(g)</p>	<p>should be made to receive input from WTG manufacturers, or as a minimum the wind farm operator.</p> <p>S5.2.5.11(g) Adequately damped is defined in Chapter 10 of National Electricity Rules Version 14. It is possible that a WTG may be unable to meet these requirements due to variability in the prevailing climatic conditions.</p> <p>(Below is part National Electricity Rules Version 14 from Section 10 Glossary)</p> <p><i>adequately damped</i></p> <p><i>In relation to a control system, when tested with a step change of a feedback input or corresponding reference, or otherwise observed, any oscillatory response at a frequency of:</i></p> <p><i>(a) 0.05 Hz or less, has a damping ratio of at least 0.4;</i></p> <p><i>(b) between 0.05 Hz and 0.6 Hz, has a halving time of 5 seconds or less</i></p> <p><i>(equivalent to a damping coefficient -0.14 nepers per second or less); and</i></p> <p><i>(c) 0.6 Hz or more, has a damping ratio of at least 0.05 in relation to a minimum access standard and a damping ratio of at least 0.1 otherwise.</i></p>
<p>S5.2.5.14 Active power control</p> <p>(a) The automatic access standard is a generating system comprised of generating units with a combined nameplate rating of 30 MW or more must</p>		

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<p>have an active power control system capable of:</p> <p>(1) for a scheduled generating unit or, if subject to aggregation approved by NEMMCO under clause 3.8.3, an aggregated scheduled generating system:</p> <p>(i) maintaining and changing its active power output in accordance with its dispatch instructions; and</p> <p>(ii) ramping its active power output linearly from one dispatch level to another; and</p> <p>(2) subject to energy source availability, for a non-scheduled generating unit or non-scheduled generating system:</p> <p>(i) automatically reducing or increasing its active power output within 5 minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a control centre, subject to subparagraph (iii),</p> <p>(ii) automatically limiting its active power output, to below the level specified in subparagraph (i); and</p> <p>(iii) not changing its active power output within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a control centre.</p> <p>(3) subject to energy source availability, for a semi-scheduled generating unit or, if subject to aggregation approved by NEMMCO under clause 3.8.3, an aggregated semi-scheduled generating system:</p> <p>(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</p>	<p>S5.2.5.14 (a) (1) (i)</p> <p>S5.2.5.14 (a) (1) (ii)</p> <p>S5.2.5.14 (a) (2) (i)</p> <p>S5.2.5.14 (a) (2) (ii)</p> <p>S5.2.5.14 (a) (2) (iii)</p> <p>S5.2.5.14 (a) (3) (i)</p>	<p>S5.2.5.14 (a) (1) (i) A WTG cannot maintain active power. A WTG cannot change active power in accordance with dispatch instructions. A WTG can decrease in power, at a certain ramp rate.</p> <p>S5.2.5.14 (a) (1) (ii) A WTG cannot ramp active power output linearly from one dispatch level to another</p> <p>Generally, a curve in active power output results.</p> <p>S5.2.5.14 (a) (2) (i) A WTG can reduce its active output power but the ramp rate may not be constant. “At a constant rate” may be deleted from the clause.</p> <p>“Ramping up of active power” is to be revised from 5 minutes to 15 minutes for practicality.</p> <p>Consultation with manufacturers of WTGs is essential for NEMMCO to work with practical operational dispatch set points and limits.</p> <p>It is suggested when the wind farm is generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>S5.2.5.14 (a) (2) (ii) It is difficult for WTG to meet S5.2.5.14(a)(2)(i), so to “automatically limit active power” will also be difficult.</p>
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<p>subparagraph(iii),</p> <p>(ii) automatically limiting its active power output, to or below the level specified in subparagraph (i);</p> <p>(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</p> <p>(iv) ramping its active power output linearly from one dispatch level to another.</p> <p>Minimum access standard</p> <p>(b) The minimum access standard is a generating system comprised of generating units with a combined nameplate rating of 30 MW or more must have an active power control system capable of:</p> <p>(1) for a scheduled generating unit or, if subject to aggregation approved by NEMMCO under clause 3.8.3, an aggregated scheduled generating system, maintaining and changing its active power output in accordance with its dispatch instructions; and</p> <p>(2) for a non-scheduled generating system:</p> <p>(i) reducing its active power output, within 5 minutes, to or below the level required to manage network flows that is specified in a verbal instruction issued by the control centre;</p> <p>(ii) limiting its active power output to or below the level specified in subparagraph (i);</p> <p>(iii) subject to energy source availability, ensuring that the change of active power output in a 5 minute period does not exceed a value specified in a verbal instruction issued by the control centre; and</p> <p>(iv) being upgraded to receive electronic instructions from the control centre and fully implement them</p>	<p>S5.2.5.14 (a) (3) (ii)</p> <p>S5.2.5.14 (a) (3) (iii)</p> <p>S5.2.5.14 (a) (3) (iv)</p> <p>S5.2.5.14 (b) (1)</p> <p>S5.2.5.14 (b) (2) (i)</p> <p>S5.2.5.14 (b) (2) (iii)</p> <p>S5.2.5.14 (b) (2) (iv)</p>	<p>S5.2.5.14 (a) (2) (iii) It is difficult for WTG to restrict active power output. Extreme weather conditions (e.g. wind gusts) may cause WTG to over shoot active power output issued by a control centre.</p> <p>S5.2.5.14 (a) (3) (i) Active power output can be a curve (hence not at a constant rate). WTG cannot increase active power output. WTG can reduce active power output but not at a constant rate (it may be a curve).</p> <p>The reference to “constant rate” is to be deleted from the clause, to reflect practicality.</p> <p>Ramping up of active power is to be revised from five minutes to fifteen minutes to reflect practicality.</p> <p>S5.2.5.14 (a) (3) (ii) WTG has some active power out limiting ability, but severe weather conditions may force the limit to be exceeded.</p> <p>Consultation with manufacturers of WTGs is mandatory to ensure practical operational dispatch set points and limits are used by NEMMCO.</p> <p>It is suggested when the wind farm is generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>S5.2.5.14 (a) (3) (iii) Not changing active power output within five minutes and limited to level in instruction issued by control centre is influenced by the weather conditions especially severe wind gusts.</p>
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<p>within 5 minutes.</p> <p>(3) subject to energy source availability, for a semi-scheduled generating unit or, if subject to aggregation approved by NEMMCO under clause 3.8.3, an aggregated semi-scheduled generating system:</p> <p>(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),</p> <p>(ii) automatically limiting its active power output, to or below the level specified in subparagraph (i); and</p> <p>(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.</p> <p>Negotiated access standard</p> <p>(c) A negotiated access standard may provide that if the number or frequency of verbal instructions becomes difficult for a control centre to manage, NEMMCO may require the Generator to upgrade its facilities to receive electronic instructions and fully implement them within 5 minutes.</p> <p>(d) The negotiated access standard must document to NEMMCO's satisfaction any operational arrangements necessary to manage network flows that may include a requirement for the generating system to be operated in a manner that prevents its output changing within 5 minutes by more than an amount specified by a control centre.</p> <p>(e) NEMMCO must advise on matters relating to</p>	<p>S5.2.5.14 (b) (3) (i)</p> <p>S5.2.5.14 (b) (3) (iii)</p> <p>S5.2.5.14 (c)</p> <p>S5.2.5.14 (d)</p>	<p>Consultation with manufacturers of WTGs is mandatory to ensure practical operational dispatch set points and limits are used by NEMMCO.</p> <p>It is suggested when the wind farm is generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>S5.2.5.14 (a) (3) (iv) Ramping linearly from active power output from one dispatch level to another is a problem. WTG cannot increase active power output.</p> <p>The reference to “linear” is to be deleted to reflect practicality. S5.2.5.14 (b) (1) Maintain active power out in accordance with dispatch instructions. The WTG responds to prevailing climatic conditions.</p> <p>S5.2.5.14 (b) (2) (i) Reducing active power output, within five minutes a verbal instruction issued by the control centre. WTG has no human to receive the verbal instruction. Also, wind farms are typically not manned 24 hours a day.</p> <p>Consideration is to be given for adding an automation option.</p> <p>S5.2.5.14 (b) (2) (iii) In ensuring the change of active power output in a five minute period does not exceed a value specified in a verbal instruction, there is no human at the WTG to receive the command.</p> <p>S5.2.5.14 (b) (2) (iv) It may be possible to upgrade typical wind farm SCADA systems to receive electronic instructions from</p>
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<p>negotiated access standards under this clause S5.2.5.14.</p> <p>General requirements</p> <p>(f) Each control system used to satisfy the requirements of paragraphs (a) and (b) must be adequately damped.</p>	<p>S5.2.5.14 (f)</p>	<p>the control centre. Such upgrades will have cost implications.</p> <p>There is a need to clarify the use of the word “implement”. It is possible to send out an active power control command, but it may not be possible to meet such an active power (due to available energy). Thus, may be the words “available energy” could be in the clause.</p> <p>S5.2.5.14 (b) (3) (i) The WTG may not be capable of making active power changes in a purely linear fashion.</p> <p>The reference to “constant rate” is to be deleted to reflect practicality.</p> <p>Ramping up of active power is to be revised from five minutes to fifteen minutes to reflect practicality</p> <p>Consultation with manufacturers of WTGs is mandatory to ensure practical operational dispatch set points and limits are used by NEMMCO.</p> <p>It is suggested when the wind farm is generating less than 50% output, then the frequent cycling of dispatch set point from very low to very high is not to be used by NEMMCO.</p> <p>S5.2.5.14 (b) (3) (iii) A WTG is not capable of holding active power output within five minutes within the raise and lower amounts specified in an instruction electronically issued by a control centre.</p> <p>S5.2.5.14 (c) It may be possible to upgrade typical wind farm SCADA systems to receive electronic instructions from the</p>
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		<p>control centre. Such upgrades will have cost implications.</p> <p>There is a need to clarify the use of the word “implement”. It is possible to send out an active power control command, but it may not be possible to meet such an active power (due to available energy). Thus, may be the words “available energy” could be in the clause.</p> <p>S5.2.5.14 (d) A WTG is not capable of holding active power output within five minutes within the raise and lower amounts specified in an instruction issued by a control centre.</p> <p>The words “subject to energy source availability” may be added to reflect the real environment of wind farms.</p> <p>S5.2.5.14 (f) Adequately damped is defined in Chapter 10 of National Electricity Rules Version 14. It is possible that a WTG may be unable to meet these requirements due to variability in the prevailing climatic conditions.</p> <p>(Below is part National Electricity Rules Version 14 from Section 10 Glossary)</p> <p><i>adequately damped</i> <i>In relation to a control system, when tested with a step change of a feedback input</i> <i>or corresponding reference, or otherwise observed, any oscillatory response at a frequency of:</i> <i>(a) 0.05 Hz or less, has a damping ratio of at least 0.4;</i> <i>(b) between 0.05 Hz and 0.6 Hz, has a halving time of 5 seconds or less</i> <i>(equivalent to a damping coefficient –0.14 nepers per second or</i></p>
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		<p><i>less); and</i> <i>(c) 0.6 Hz or more, has a damping ratio of at least 0.05 in relation to a minimum access standard and a damping ratio of at least 0.1 otherwise.</i></p> <p>Rather than the above, reasonable damping criteria appropriate criteria for aggregated asynchronous generators with power conditioners would be more practical.</p>
<p>S5.2.6 Monitoring and control requirements S5.2.6.1 Remote monitoring Automatic access standard (a) The automatic access standard is a: (1) scheduled generating unit; (2) non-scheduled generating unit with a nameplate rating of 30 MW or more; (3) non-scheduled generating system with a combined nameplate rating of 30 MW or more; (4) semi-scheduled generating unit; or (5) generating system that is an aggregate approved by NEMMCO under clause 3.8.3, must have remote monitoring equipment to transmit to NEMMCO's control centres in real time in accordance with clause 4.11, the quantities that NEMMCO reasonably requires to discharge its market and power system security functions set out in Chapters 3 and 4. (b) The quantities referred to under paragraph (a) that NEMMCO may request include: (1) in respect of a generating unit with a nameplate</p>	<p>S5.2.6.1(b))</p>	<p>S5.2.6.1(b) The clause should state that these parameters will be “average values” for the wind farm site to reflect practicality (for existing wind farms).</p>

<p>rating of 30 MW or more, and a scheduled generating unit or semi-scheduled generating unit not part of an aggregate approved by NEMMCO under clause 3.8.3:</p> <p>(i) current, voltage, active power and reactive power in respect of generating unit stators or power conversion systems (as applicable);</p> <p>(ii) the status of all switching devices that carry the generation; and</p> <p>(iii) tap-changing transformer tap position;</p> <p>(2) in respect of a non-scheduled generating system that includes a generating unit with a nameplate rating of less than 30 MW, or a generating system that is an aggregate approved by NEMMCO under clause 3.8.3:</p> <p>(i) its connected status, tap-changing transformer tap position and voltages;</p> <p>(ii) active power and reactive power aggregated for groups of identical generating units;</p> <p>(iii) either the numbers of identical generating units operating or the operating status of each non-identical generating unit; and</p> <p>iv) aggregate active power and reactive power for an aggregated generating system approved by NEMMCO under clause 3.8.3;</p> <p>(3) in respect of an auxiliary supply system with a capacity of 30 MW or more associated with a generating unit or generating system, active power and reactive power;</p> <p>(4) in respect of reactive power equipment that is part of a generating system but not part of a particular generating unit, its reactive power;</p>	<p>S5.2.6.1 (b) (1) (i),</p> <p>S5.2.6.1 (b) (1) (ii)</p> <p>S5.2.6.1 (b) (1) (iii)</p>	<p>The clause could then state “for new wind farms”, these parameters should be clearly defined to provide certainty to requirements.</p> <p>It would be unreasonable to provide this information for each WTG in the wind farm.</p> <p>S5.2.6.1 (b) (1) (i) Current, voltage, active power in respect of the wind farm connection point.</p> <p>S5.2.6.1 (ii) The status of switching devices at the connection point of the wind farm.</p> <p>S5.2.6.1 (b) (1) (iii) There may be at the connection point a transformer with a tap-changer at the connection point, and this position may be requested by NEMMCO.</p>
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<p>(5) in respect of a wind farm type of generating system:</p> <p>(i) wind speed;</p> <p>(ii) wind direction; and</p> <p>(iii) ambient temperature; and</p> <p>(6) any other quantity that NEMMCO reasonably requires to discharge its market and power system security functions as set out in Chapters 3 and 4.</p>	<p>S5.2.6.1 (b) (5) (i) S5.2.6.1 (b) (5) (ii) S5.2.6.1 (b) (5) (iii)</p>	<p>S5.2.6.1 (b) (5) (i) Change to average wind speed</p> <p>S5.2.6.1 (b) (5) (ii) Change to average wind direction</p> <p>S5.2.6.1 (b) (5) (iii) Change to average ambient temperature</p>
<p>S5.2.6.1 Remote monitoring Minimum access standard</p> <p>(c) The minimum access standard is a:</p> <p>(1) scheduled generating unit;</p> <p>(2) generating system that is an aggregate approved by NEMMCO under clause 3.8.3;</p> <p>(3) non-scheduled generating system with a combined nameplate rating of 30 MW or more; or</p> <p>(4) semi-scheduled generating unit; must have remote monitoring equipment to transmit to NEMMCO's control centres in real time:</p> <p>(5) the active power output of the scheduled generating unit, semi-scheduled generating unit, aggregated generating system or non-scheduled generating system (as applicable);</p> <p>(6) if connected to a transmission system, the reactive power output of the scheduled generating unit, semi-scheduled generating unit, aggregated generating system or non-scheduled generating system (as applicable); and</p> <p>(7) if a wind farm type of generating system:</p> <p>(i) number of units operating;</p>	<p>S5.2.6.1(c)) (5)</p> <p>S5.2.6.1(c)) (6)</p> <p>S5.2.6.1(c)</p>	<p>S5.2.6.1(c) (5) Add to clause active power at the point of connection.</p> <p>S5.2.6.1(c) (6) Add to clause reactive power at the point of connection.</p> <p>S5.2.6.1(c) (7) (i) Change to number of individual WTGs.</p>

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(ii) wind speed; and (iii) wind direction, in accordance with clause 4.11.) (7) (i) S5.2.6.1(c)) (7) (ii) S5.2.6.1(c)) (7) (iii)	S5.2.6.1(c) (7) (ii) Change to average wind speed. S5.2.6.1(c) (7) (iii) Change to average wind direction.
S5.2.6 Monitoring and control requirements S5.2.6.1 Remote monitoring Automatic access standard (a) The automatic access standard is a: (1) scheduled generating unit; (2) non-scheduled generating unit with a nameplate rating of 30 MW or more; (3) non-scheduled generating system with a combined nameplate rating of 30 MW or more; (4) semi-scheduled generating unit; or (5) generating system that is an aggregate approved by NEMMCO under clause 3.8.3, must have remote monitoring equipment to transmit to NEMMCO's control centres in real time in accordance with clause 4.11, the quantities that NEMMCO reasonably requires to discharge its market and power system security functions set out in Chapters 3 and 4. (b) The quantities referred to under paragraph (a) that NEMMCO may request include: (1) in respect of a generating unit with a nameplate rating of 30 MW or more, and a scheduled generating unit or semi-scheduled generating unit not part of an aggregate approved by NEMMCO		

<p>under clause 3.8.3:</p> <p>(i) current, voltage, active power and reactive power in respect of generating unit stators or power conversion systems (as applicable);</p> <p>(ii) the status of all switching devices that carry the generation; and</p> <p>(iii) tap-changing transformer tap position;</p> <p>(2) in respect of a non-scheduled generating system that includes a generating unit with a nameplate rating of less than 30 MW, or a generating system that is an aggregate approved by NEMMCO under clause 3.8.3:</p> <p>(i) its connected status, tap-changing transformer tap position and voltages;</p> <p>(ii) active power and reactive power aggregated for groups of identical generating units;</p> <p>(iii) either the numbers of identical generating units operating or the operating status of each non-identical generating unit; and</p> <p>(iv) aggregate active power and reactive power for an aggregated generating system approved by NEMMCO under clause 3.8.3;</p> <p>(3) in respect of an auxiliary supply system with a capacity of 30 MW or more associated with a generating unit or generating system, active power and reactive power;</p> <p>(4) in respect of reactive power equipment that is part of a generating system but not part of a particular generating unit, its reactive power;</p> <p>(5) in respect of a wind farm type of generating system:</p> <p>(i) wind speed;</p>	<p>S5.2.6.1(b)(1)(i)</p> <p>S5.2.6.1(b)(1)(ii)</p> <p>S5.2.6.1(b)(1)(iii)</p> <p>S5.2.6.1(b)(2)</p> <p>S5.2.6.1(b)(2)(i)</p> <p>S5.2.6.1(b)(2)(ii)</p> <p>S5.2.6.1(b)(2)(iii)</p> <p>S5.2.6.1(b)(2)(iv)</p> <p>S5.2.6.1(b)(3)</p> <p>S5.2.6.1(b)(4)</p>	<p>S5.2.6.1(b)(1)(i) Could add “or at the connection point”.</p> <p>S5.2.6.1(b)(1)(ii) Could add “or at the connection point”. Also, this may be broken down into a specific list for the case of a connection point.</p> <p>S5.2.6.1(b)(1)(iii) Could add “or at the connection point”. Also, this may be the transformer closest to the connection point.</p> <p>S5.2.6.1(b)(2) Could add “or at the connection point”.</p> <p>S5.2.6.1(b)(2)(i) Could add “and for a connection point, its connected status, tap position of nearest transformer to the connection point, and voltages at the connection point”.</p> <p>S5.2.6.1(b)(2)(ii) Could add “and for a connection point, its active power, reactive power at the connection point”.</p> <p>S5.2.6.1(b)(2)(iii) The wind farm should be considered as one generating unit and so only the connection point is important.</p> <p>S5.2.6.1(b)(2)(iv) Could add “and for a connection point, its active power, reactive power at the connection point”.</p> <p>S5.2.6.1(b)(3) There is no definition of auxiliary supply system in version 14 of the national Electricity Rules. It should be stated a wind farm is not an auxiliary supply system.</p> <p>S5.2.6.1(b)(4) The wording could be “for the case of a</p>
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<p>(ii) wind direction; and (iii) ambient temperature; and (6) any other quantity that NEMMCO reasonably requires to discharge its market and power system security functions as set out in Chapters 3 and 4. Minimum access standard (c) The minimum access standard is a: (1) scheduled generating unit; (2) generating system that is an aggregate approved by NEMMCO under clause 3.8.3; (3) non-scheduled generating system with a combined nameplate rating of 30 MW or more; or (4) semi-scheduled generating unit; must have remote monitoring equipment to transmit to NEMMCO's control centres in real time; (5) the active power output of the scheduled generating unit, semi-scheduled generating unit, aggregated generating system or non-scheduled generating system (as applicable); (6) if connected to a transmission system, the reactive power output of the scheduled generating unit, semi-scheduled generating unit, aggregated generating system or non-scheduled generating system (as applicable); and (7) if a wind farm type of generating system: (i) number of units operating; (ii) wind speed; and (iii) wind direction, in accordance with clause 4.11. Negotiated access standard (d) NEMMCO may advise on matters relating to negotiated access standards</p>	<p>S5.2.6.1(b) (5)</p> <p>S5.2.6.1(c) (4)</p> <p>S5.2.6.1(c) (7)</p>	<p>connection point, the reactive power of the reactive power compensation equipment”.</p> <p>S5.2.6.1(b)(5) The wording should be changed to “average wind speed, average wind direction, and average ambient temperature and”.</p> <p>S5.2.6.1(c)(4) Suggest “generating unit” be replaced with “connection point”.</p> <p>S5.2.6.1(c)(7) The wording should be changed to “number of units operating, average wind speed, and average wind direction”.</p>
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under this clause S5.2.6.1.		
8. Administrative Functions 8.2 Dispute Resolution 8.2.1 Application and guiding principles (a) This clause 8.2 applies to any dispute which may arise between two or more Registered Participants about: (1) the application or interpretation of the Rules; (2) the failure of any Registered Participants to reach agreement on a matter where the Rules require agreement or require the Registered Participants to negotiate in good faith with a view to reaching agreement; (3) [Deleted] (4) the proposed access arrangements or connection agreements of an Intending Participant or a Connection Applicant; (5) the payment of moneys under or concerning any obligation under the Rules; (6) any other matter relating to or arising out of the Rules to which a contract between two or more Registered Participants provides that the dispute resolution procedures under the Rules are to apply; (7) any other matter relating to or arising out of the Rules in respect of which two or more Registered Participants have agreed in writing that this clause 8.2 should apply; or (8) any other matter that the Rules provide may or must be dealt with under this clause 8.2, but does not apply to those disputes described in clause 8.2.1(h). (a1) For the purposes of this clause 8.2 only,		

<p>"Registered Participant" is deemed to include not just Registered Participants but also NEMMCO and Connection Applicants who are not otherwise Registered Participants, except that this will not be the case where the term "Registered Participant":</p> <p>(1) is used in clauses 8.2.2(b)(4), 8.2.2(d), 8.2.3(a), 8.2.3(b)(5) and 8.2.5(e);</p> <p>(2) first occurs in clauses 8.2.3(b), (b)(3), (b)(4) or (c); or</p> <p>(3) last occurs in clauses 8.2.4(a) or 8.2.9(c).</p> <p>(b) [Deleted]</p> <p>(c) [Deleted]</p> <p>(d) The dispute resolution regime in this clause 8.2 provides procedures to resolve disputes between parties, not sanctions for breach of the Rules. The dispute resolution processes may indicate that a breach of the Rules has occurred and the resolution or determination of the dispute may take account of the damage thereby caused to a party. Any action for breach of the Rules may only be taken by the AER acting in accordance with the National Electricity Law.</p> <p>(e) It is intended that the dispute resolution regime set out in or implemented in compliance with the Rules and described in detail in this clause 8.2 should to the extent possible:</p> <p>(1) be guided by the market objective;</p> <p>(2) be simple, quick and inexpensive;</p> <p>(3) preserve or enhance the relationship between the parties to the dispute;</p> <p>(4) take account of the skills and knowledge that are required for the</p>		
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<p>relevant procedure;</p> <p>(5) observe the rules of natural justice;</p> <p>(6) place emphasis on conflict avoidance; and</p> <p>(7) encourage resolution of disputes without formal legal representation or reliance on legal procedures.</p> <p>(f) Except as provided in the National Electricity Law and clause 8.2.1(g), where any dispute of a kind set out in clause 8.2.1(a) arises, the parties concerned must comply with the procedures set out in clauses 8.2.4 to 8.2.10 and 8.2.12 and, where the dispute is referred to a DRP, a determination of the DRP is final and binding on the parties.</p> <p>(g) Notwithstanding clause 8.2.1(f), a party may seek an urgent interlocutory injunction from a court of competent jurisdiction.</p> <p>(h) Clause 8.2 does not apply to:</p> <p>(1) a decision by NEMMCO regarding an exemption under clause 2.2.1(c);</p> <p>(2) a decision by NEMMCO under clause 2.2.2 not to approve the classification of a generating unit as a scheduled generating unit;</p> <p>(2A) a decision by NEMMCO under clause 2.2.2A not to approve the classification of a generating unit as a semi-scheduled generating unit;</p> <p>(3) a decision by NEMMCO under clause 2.2.3 not to approve the classification of a generating unit as a non-scheduled generating unit;</p> <p>(4) a decision by NEMMCO under clause 2.9.2(c);</p> <p>(5) a decision by NEMMCO to reject a notice from a Market Customer under clause 2.10.1(d);</p> <p>(6) a determination by NEMMCO under clause 3.3.8 of the maximum credit limit for a Market</p>		
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<p>Participant;</p> <p>(7) a decision by NEMMCO under clause 3.8.3 to refuse an application for aggregation;</p> <p>(8) a decision by NEMMCO under clause 3.15.11 to reject a reallocation request;</p> <p>(9) a decision by NEMMCO to issue a notice under clause 4.11.1(d);</p> <p>(10) a decision by NEMMCO under clause 7.1.4(b) to refuse to permit a Market Participant to participate in the market in respect of a connection point;</p> <p>(11) a decision by NEMMCO whether or not to deregister a Metering Provider under clause 7.4.3(a), (aa) or (b), to suspend a Metering Provider from a category of registration under clause 7.4.3(aa) or to impose agreed constraints on the continued operation of a Metering Provider;</p> <p>(12) A dispute concerning the price of a SRAS agreement or a tender conducted by NEMMCO for the acquisition of system restart ancillary services under clause 3.11.5;</p> <p>(13) a dispute of a kind referred to in clause 5.6.6; or</p> <p>(14) a transmission services access dispute to which Part K of Chapter 6A applies.</p>		
<p>10. GLOSSARY</p> <p>available capacity</p> <p>The total MW capacity available for dispatch by a scheduled generating unit, semischeduled generating unit or scheduled load (i.e. maximum plant availability) or, in relation to a specified price band,</p>		

<p>the MW capacity within that price band available for dispatch (i.e. availability at each price band).</p> <p>central dispatch The process managed by NEMMCO for the dispatch of scheduled generating units, semi-scheduled generating units, scheduled loads, scheduled network services and market ancillary services in accordance with clause 3.8.</p> <p>Directed Participant A Scheduled Generator, Semi-Scheduled Generator, Market Generator, Scheduled Network Service Provider or Market Customer the subject of a direction.</p> <p>dispatch The act of initiating or enabling all or part of the response specified in a dispatch bid, dispatch offer or market ancillary service offer in respect of a scheduled generating unit, semi-scheduled generating unit, a scheduled load, a scheduled network service, an ancillary service generating unit or an ancillary service load in accordance with clause 3.8, or a direction or operation of capacity the subject of a reserve contract as appropriate.</p> <p>dispatch cap The amount of electricity specified in a dispatch instruction as the semi-scheduled generating unit's maximum permissible generation at the target time specified in that dispatch instruction.</p>		
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<p>dispatch inflexibility profile Data which may be provided to NEMMCO by Market Participants, in accordance with clause 3.8.19, to specify dispatch inflexibilities in respect of scheduled loads, scheduled generating units or semi-scheduled generating units which are not slow start generating units.</p> <p>dispatch offer price The price submitted by a Scheduled Generator, Semi-Scheduled Generator or a Scheduled Network Service Provider for a price band and a trading interval in a dispatch offer.</p> <p>dispatched generating unit A scheduled generating unit which has received instructions from NEMMCO in accordance with a dispatch schedule.</p> <p>energy constrained semi-scheduled generating unit A semi-scheduled generating unit in respect of which the amount of electricity it is capable of supplying on a trading day is less than the amount of electricity it would supply on that trading day if it were dispatched to its full nominated availability for the whole trading day.</p> <p>generation dispatch offer A notice submitted by a Scheduled Generator to NEMMCO relating to the dispatch of a scheduled generating unit or a semi-scheduled generating unit</p>		
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<p>in accordance with clause 3.8.6.</p> <p>inflexible, inflexibility</p> <p>(a) In respect of a scheduled generating unit, scheduled load or scheduled network service for a trading interval means that the scheduled generating unit, scheduled load or scheduled network service is only able to be dispatched in the trading interval at a fixed loading level specified in accordance with clause 3.8.19 (a).</p> <p>(b) In respect of a semi-scheduled generating unit for a trading interval means that the semi-scheduled generating unit is only able to be dispatched in the trading interval at or below a maximum loading level specified in accordance with clause 3.8.19(a1).</p> <p>loading price</p> <p>The price specified for a price band and a trading interval in a dispatch offer, in accordance with clause 3.8.6, for the dispatch of a scheduled generating unit or a semi-scheduled generating unit at a level above its self-dispatch level.</p> <p>non-semi-dispatch interval</p> <p>For a semi-scheduled generating unit, a dispatch interval other than a semi-dispatch interval.</p> <p>off-loading price</p> <p>The price specified for a price band and a trading interval in a dispatch offer, in accordance with clause 3.8.6, for the off-loading of a scheduled generating unit or a semi-scheduled generating unit</p>		
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<p>below its self-dispatch level.</p> <p>PASA availability The physical plant capability of a scheduled generating unit, semi-scheduled generating unit, scheduled load or scheduled network service, including any capability that can be made available within 24 hours.</p> <p>registered bid and offer data Data submitted by Scheduled Generators, Semi-Scheduled Generators and Market Participants to NEMMCO in relation to their scheduled loads, scheduled generating units, semi-scheduled generating units and scheduled market network services in accordance with schedule 3.1.</p> <p>restriction offer An offer by a Scheduled Generator, Semi-Scheduled Generator or a Scheduled Network Service Provider to provide capacity to NEMMCO for all or part of a mandatory restriction period made in accordance with the restriction offer procedures.</p> <p>scheduled plant In respect of a Registered Participant, a scheduled generating unit, a semi-scheduled generating unit, a scheduled network service or a scheduled load classified by or in respect to that Registered Participant in accordance with Chapter 2.</p> <p>semi-dispatch interval</p>		
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<p>For a semi-scheduled generating unit, a dispatch interval for which either:</p> <p>(a) a network constraint would be violated if the semi-scheduled generating unit's generation were to exceed the dispatch cap specified in the related dispatch instruction at the target time; or</p> <p>(b) the dispatch cap specified in that dispatch instruction is less than the unconstrained intermittent generation forecast for the target time, and which is notified by NEMMCO in that dispatch instruction to be a semi-dispatch interval.</p> <p>semi-scheduled generating system A generating system comprising semi-scheduled generating units.</p> <p>semi-scheduled generating unit A generating unit so classified in accordance with Chapter 2.</p> <p>Semi-Scheduled Generator A Generator in respect of which any generating unit is classified as a semi-scheduled generating unit in accordance with Chapter 2.</p> <p>statement of opportunities A statement prepared by NEMMCO to provide information to assist Scheduled Generators, Semi-Scheduled Generators, Transmission Network Service Providers and Market Participants in making an assessment of the future need for electricity generating or demand management capacity or</p>		
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<p>augmentation of the power system.</p> <p>unconstrained intermittent generation forecast The forecast prepared by NEMMCO of a semi-scheduled generating unit's generation for the relevant time, determined:</p> <p>(a) from forecasts of the energy available for input to that generating unit's electrical power conversion process; and</p> <p>(b) on the assumption that there are no network constraints otherwise affecting the generation from that generating unit.</p>		
<p>11. Savings and Transitional Rules</p> <p>11.11 Rules consequent on making the National Electricity</p> <p>Amendment (Semi-Dispatch of Significant Intermittent Generation) Rule 2007</p> <p>11.11.1 Definitions</p> <p>In rule 11.11:</p> <p>Amending Rule means the National Electricity Amendment (Semi-Dispatch of Significant Intermittent Generation) Rule 2007.</p> <p>classified generating unit means a generating unit for which NEMMCO approved a classification under clause 2.2.2 or clause 2.2.3 before the commencement date.</p> <p>commencement date means the date on which the Amending Rule commences operation.</p> <p>existing generating unit means a classified</p>		

<p>generating unit or a generating unit for which there is a connection agreement that was executed by all parties to the connection agreement before the commencement date and that is in force at the time NEMMCO is to approve its classification.</p> <p>11.11.2 Classification of existing generating unit</p> <p>(a) NEMMCO must approve the classification of an existing generating unit as a non-scheduled generating unit if it is satisfied that:</p> <p>(1) the primary purpose for which the existing generating unit operates is local use and the aggregate sent out generation at its connection point rarely, if ever, exceeds 30 MW;</p> <p>(2) the physical and technical attributes of the existing generating unit are such that it is not practicable for it to participate in central dispatch; or</p> <p>(3) the output of the existing generating unit is intermittent.</p> <p>(b) If, by the operation of clause 11.11.2(a), NEMMCO must approve the classification of an existing generating unit as a non-scheduled generating unit, clause 2.2.3(c) applies in respect of that classification as the clause would have applied immediately before the commencement date.</p> <p>11.11.3 Registration and reclassification of classified generating unit</p> <p>(a) A Generator will not be required to apply to register in the category of Semi-Scheduled</p>	<p>11.11.2(a) (1)</p>	<p>11.11.2(a)(1) There is a limit of 30MW, why? This clause may be changed to 200WM.</p> <p>This clause forces wind farms to be classified as scheduled generating units. Why?</p>
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<p>Generator and reclassify any of its classified generating units as semi-scheduled generating units by reason of the commencement of the Amending Rule.</p>		
<p>(b) For a period of two years after the commencement date, a Generator will not be liable to pay a registration fee to NEMMCO in order to apply to be registered in the category of Semi-Scheduled Generator and reclassify any of its classified generating units as semi-scheduled generating units.</p>	<p>11.11.3(b)</p>	<p>11.11.3(b) Why two years? This period of time should be connected to the time it takes for reclassification to occur (this may be years).</p>
<p>11.11.4 Participant Fees Until NEMMCO determines a structure of Participant fees under clause 2.11 which provides for Semi-Scheduled Generators, references to Scheduled Generators in NEMMCO’s “Structure of Participant Fees under clause 2.11 of the National Electricity Rules”, dated 24 March 2006, will be taken to include Semi-Scheduled Generators.</p>	<p>11.11.4</p>	<p>11.11.4 There should be a special fee structure for wind farm operators.</p> <p>The costs of a conventional synchronous machine are not the same as those of a wind farm. These fees should be greatly reduced in comparison to synchronous machines.</p>