

29 April 2009

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box A2499
SYDNEY SOUTH NSW 1235

By email: submissions@aemc.gov.au

Dear John

Amendments to Schedule 3.1 - Bid and Offer Validation Data

NEMMCO requests the AEMC consider making a Rule under section 91 of the *National Electricity Law*. The proposed Rule seeks to modify the data requirements of schedule 3.1 to ensure they are consistent with the information required, in practice, for market operations.

A description of the proposed Rule change, a statement of the issues concerning the existing National Electricity Rules, and how the proposed Rule addresses those issues consistent with the national electricity objective is in Attachment A. A draft of the proposed Rule is in Attachment B with commentary in Attachment C.

NEMMCO has discussed the proposed changes to schedule 3.1 with industry representatives who participate in the Dispatch and Pricing Reference Group and their comments regarding the data requirements have been incorporated in the proposal.

NEMMCO would be pleased if you could have these matters considered by the AEMC. For further details, please do not hesitate to contact John Wormald on 02 9239 9107.

Yours sincerely



Murray Chapman
Acting General Manager Market Operations

Enc. Attachment A: Request for Rule change
Attachment B: Draft of proposed Rule
Attachment C: Summary of comments on proposed changes to schedule 3.1

ATTACHMENT A

1. Statement of Issues

This section identifies the issues with the data requirements of schedule 3.1 of the National Electricity Rules (**Rules**). Additionally, NEMMCO's proposed solution to these issues is discussed.

1.1 Background

Rules Requirements

Under clause 3.13.3 of the Rules, NEMMCO must establish, maintain, update and publish the registered bid and offer data as set out in schedule 3.1 which is collected from Scheduled Generators, Semi-Scheduled Generators and Market Participants.¹ Scheduled Generators, Semi-Scheduled Generators and Market Participants must provide NEMMCO with registered bid and offer data that is relevant to their scheduled loads, scheduled network services and generating units² and advise NEMMCO of any changes to this data. There are also requirements for this standing data to be reviewed annually.³ This data is to be used for the verification and compilation of dispatch bids and offers in the trading day schedule.⁴

Registered Bid and Offer Data

Registered bid and offer data is defined in the Rules' Glossary as:

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.

The definition of registered bid and offer data can be interpreted as covering a wide range of data. The current data requirements of schedule 3.1 include information required in support of:

- registration;
- dispatch, pre-dispatch and pricing of energy and frequency control ancillary services (FCAS) markets; and
- identification of performance capabilities of the generating facility.

The majority of the required data is managed by NEMMCO procedures that have been established to meet the relevant business requirements.

¹ See clause 3.13.3(a) of the Rules. The schedule only applies to Market Participants who have classified scheduled loads or scheduled network services.

² This must be provided six weeks prior to participating in the market.

³ See clause 3.13.3(j) and schedule 3.1(c).

⁴ See schedule 3.1(a).

Review of Schedule 3.1

NEMMCO reviewed schedule 3.1 in consultation with the Dispatch Pricing Reference Group (DPRG)⁵ to ensure that the information required under schedule 3.1 is consistent with the information needed to meet NEMMCO's business processes.⁶ NEMMCO notes that schedule 3.1 has not been reviewed since the schedule was included in the National Electricity Code (which became the Rules), although market processes and procedures have continued to evolve.

Consistent with the schedule 3.1(a), the foundation of the review (also reflected in its recommendations) was that the registered bid and offer data (i.e. the data to be provided under schedule 3.1) is to be used for the validation of dispatch bids and dispatch offers. Given this, the review considered each of the data elements in schedule 3.1 with respect to:

- its business need; and
- its use and application to dispatch and pricing processes.

Broadly, the review found that schedule 3.1 does not reflect the current business requirements of the national electricity market (NEM) dispatch and pricing processes. As such, it recommended the removal of unnecessary data and the inclusion of more useful data elements.

1.2 The Issues with the Current Provisions

Aside from Rule changes accommodating Semi-Scheduled Generators, the information requirements of schedule 3.1 have not been amended since they were first introduced in 1996. Thus, the information requirements predate the detailed development of the current dispatch and pricing systems in 1998/99. The majority of schedule 3.1 data is inconsistent with the current information required for the verification and compilation of dispatch bids and dispatch offers.

Data Table Amendments

A summary of the data requirements that NEMMCO proposes to remove from schedule 3.1 is set out in Attachment C and the specific reasons for their proposed removal are included. The majority are proposed to be removed because the information is already provided through alternative procedures or implicit in the bid and offer data. NEMMCO proposes to replace the data elements with those set out in Attachment B. The proposed Rule changes seek to realign the data requirements of schedule 3.1 to ensure the obligations on NEMMCO, Scheduled Generators, Semi-Scheduled Generators and Market Participants are consistent with the current market dispatch and pricing process.

⁵ For further information on the DPRG, including membership see <http://www.nemmco.com.au/stakeholder/dprg.html>

⁶ The DPRG discussed schedule 3.1 at meetings no. 97, 98 and 99; these were held on 1 July 2008, 12 August 2008 and 23 September 2008, respectively.

FCAS Validation Data

NEMMCO also submits that schedule 3.1 should be amended to require FCAS providers to provide FCAS validation data to ensure NEMMCO receives technical limit capabilities of generating units or scheduled loads providing ancillary services. This information is necessary to measure the significance or impact that a FCAS provider can have on the market. This information is also used by NEMMCO to ensure that the actual capability of a generating unit is not unnecessarily restricted and capability based participant fees are allocated fairly and transparently.

Although the Rules do not require the provision of FCAS validation data, FCAS providers give this data to NEMMCO in the form of the FCAS trapezium values for each service. The proposed inclusion of FCAS validation data in schedule 3.1 formalises the requirement for the provision of this information. The purpose of this data is to capture the bounds of continuous capability for provision of FCAS, just as the maximum generation MW quantity relates to energy production. The parameters of the data rarely change and may be subject to audit by NEMMCO when checking compliance with the Market Ancillary Service Specification. The data is used to validate the FCAS offers such that dispatch time offers cannot exceed the limits determined by these validation trapeziums. The required parameters are:

- maximum FCAS capacity;
- minimum enablement level;
- maximum enablement level;
- maximum lower angle; and
- maximum upper angle.

NEMMCO submits that the proposed Rule would create a more appropriate schedule of technical standing data relating to the size and capability of scheduled and semi-scheduled plant which can be regularly updated independently of the registration process.

Clarification of Name

Additionally, NEMMCO submits that the term “registered bid and offer data” should be replaced with “bid and offer validation data”. This term better reflects the meaning given in schedule 3.1(a) which indicates that schedule 3.1 data is only to be used for verification and compilation (i.e. validation) of dispatch bids and offers in the trading day schedule.

Consistency of Information

Newly registered Scheduled Generators, Semi-Scheduled Generators and Market Participants must submit schedule 3.1 data regarding scheduled loads, semi-scheduled and scheduled generating units to NEMMCO at least six weeks prior to participating in the NEM.⁷ However, the Rules allow changes to existing schedule 3.1 data at any time, and these may be subject to audit at NEMMCO’s request.⁸ In practice, these changes are not made at any time because NEMMCO needs to assess and make the changes.

⁷ Refer to schedule 3.1(b) in the Rules.

⁸ Refer to schedule 3.1(d) in the Rules.

NEMMCO considers that it is important to make the notice requirements for amendments to schedule 3.1 data consistent with those for new facilities (i.e. six week's notice) rather than leave it unspecified in the Rules. Additionally, NEMMCO considers that the Rules should specify that acceptance of a change to existing schedule 3.1 data is subject to NEMMCO verifying that any proposed changes are consistent with the registered performance standards for the plant. Six weeks has been proposed to allow NEMMCO time to verify any notified changes to schedule 3.1 data are consistent with other information held by NEMMCO and allow for implementation of relevant system changes. This would also allow enough time to resolve any issues with a participant before operating to the new limit.

2. Proposed Rule

This section provides a description of the proposed Rules developed by NEMMCO, NEMMCO's right to submit the proposed Rule to the AEMC, and the power that the AEMC has under the NEL to consider this proposed Rule change.

2.1 Description of Proposed Rule

The proposed Rule seeks to remove certain data requirements from schedule 3.1 which are no longer necessary and replace them with data requirements that are consistent with market operations purposes. Additionally, the proposed Rule formalises the current arrangement whereby FCAS providers provide validation data to NEMMCO.

Currently, schedule 3.1 data must be provided at least six weeks prior to a participant commencing participation in the market. NEMMCO proposes to include a similar notice period for changes to schedule 3.1 data. NEMMCO's acceptance of a change would continue to be subject to audit but would also be subject to consistency with existing performance standards of the plant.

The proposed Rule also seeks to replace the term "registered bid and offer data" with "bid and offer validation data", both in schedule 3.1 and elsewhere in the Rules.

2.2 NEMMCO's Right to Submit this Proposal

NEMMCO is requesting that the AEMC make this proposed Rule in accordance with section 91 of the *National Electricity Law (NEL)*.

NEMMCO has the following relevant functions under the NEL:

- to operate and administer the NEM; and
- to promote the development and improve the effectiveness of the operation and administration of the NEM.

Under section 91(1) of the NEL, the AEMC may make a Rule at the request of any person, the MCE or the Reliability Panel. As such, NEMMCO may request the AEMC make a Rule.

2.3 Power of the AEMC to Make the Proposed Rule

The subject matters about which the AEMC may make Rules are set out in section 34 of the NEL and, more specifically, in Schedule 1 to the NEL.

NEMMCO considers that the proposed Rule falls within the subject matters that the AEMC may make Rules about, as it relates to the activities of persons participating in the NEM.

2.4 Consultation

NEMMCO has not formally consulted on the proposed Rule. However, NEMMCO has discussed the issues regarding schedule 3.1 with members of the DPRG, including the need to amend the schedule to include data requirements that are more useful for market operations. The members of the DPRG have agreed in principle to the proposed changes; since then, NEMMCO has developed the proposal further.

3. How the Proposed Rules Contribute to the National Electricity Objective

Before the AEMC can make a Rule change it must apply the rule making test set out in the NEL which requires it to assess whether the proposed Rule will or is likely to contribute to the national electricity objective (NEO). Section 7 of the NEL states the NEO is:

...to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to –

- (a) price, quality, reliability and security of supply of electricity; and
- (b) the reliability, safety and security of the national electricity system.

NEMMCO submits that the proposed Rule is likely to promote the NEO because it improves the administrative efficiency, consistency and clarity of the Rules, which is consistent with good regulatory practice. NEMMCO submits that the proposed Rule would achieve this by:

- eliminating the requirement for participants to provide unnecessary information by removing particular data requirements in schedule 3;
- including new data requirements that reflect operational requirements and practice;
- changing the title to better reflect this purpose of the data.

NEMMCO considers that these proposed changes would contribute to the efficient operation of the NEM. Additionally, allowing NEMMCO time to verify proposed changes to schedule 3.1 data are consistent with the registered performance standards for plant is good regulatory practice because consistency with these would promote the efficient operation and use of electricity services and is intended to maintain the reliability, safety and security of national electricity system.

4. Expected Benefits and Costs of the Proposed Rule

NEMMCO does not expect that any party would be adversely affected by the proposed Rule since it removes the obligation for Scheduled and Semi-Scheduled Generators and Market Participants to provide unnecessary information for market operations. The proposed Rule would ensure that resources are not unnecessarily spent on providing, gathering and analysing data that is not useful for operational purposes.

NEMMCO does not anticipate any undue compliance costs from the proposed notification period for changes to existing schedule 3.1 data and NEMMCO verifying that changes are consistent with performance standards.

NEMMCO does not expect FCAS providers to be affected by the proposed requirements to provide ancillary service generating unit and ancillary service load data because this information is already being provided to NEMMCO as a practical requirement of accepting offers for ancillary services.

For NEMMCO, the proposed Rule would result in costs being incurred setting up procedures that capture, maintain, update and publish the necessary data from Scheduled and Semi-Scheduled Generators and Market Participants. Additionally, there would be costs involved in developing a process for the annual review of schedule 3.1 data and amending the registration application; these costs are expected to be minimal.

GLOSSARY

Term or Abbreviation	Explanation
AEMC	Australian Energy Market Commission
DPRG	Dispatch and Pricing Reference Group
FCAS	Frequency Control Ancillary Services
MCE	Ministerial Council on Energy
NEM	National Electricity Market
NEO	The national electricity objective as stated in section 7 of the NEL.
NEL	National Electricity Law
Rules	National Electricity Rules

ATTACHMENT B – DRAFT RULE

This Draft is based on the National Electricity Rules - Version 28

It is proposed that the Rules be amended as follows:

1. In schedule 3.1, delete the table titled “Scheduled Generating Unit Data and Semi-Scheduled Generating Unit Data” and replace with the following table:

Scheduled Generating Unit Data:

Data	Units of Measurement
Power station information:	
Power station name	
Dispatchable unit identifier (DUID) for stations with a single <i>generating unit</i> or single aggregated <i>scheduled generating unit</i>	
Maximum <i>generation</i> of the station or single aggregated <i>scheduled generating unit</i>	MW (<i>generated</i>)
<i>Maximum ramp rate</i> of the station or single aggregated <i>scheduled generating unit</i>	MW/minute
Scheduled generating unit information (repeat the following items for each <i>scheduled generating unit</i> where there are two or more <i>scheduled generating units</i> in the power station):	
<i>Scheduled generating unit</i> name (or physical <i>generating unit</i> names forming an aggregated <i>scheduled generating unit</i>)	
Dispatchable unit identifier (DUID)	
Maximum <i>generation</i> of the <i>scheduled generating unit</i>	MW (<i>generated</i>)
<i>Maximum ramp rate</i> of the <i>scheduled generating unit</i>	MW/minute

2. In schedule 3.1, delete the table titled "Semi-Scheduled Generating Unit Data" and replace with the following table:

Semi-Scheduled Generating Unit Data:

Data	Units of Measurement
<i>Power station information:</i>	
Power station name	
Dispatchable unit identifier (DUID) for stations with a single <i>semi-scheduled generating unit</i> or single aggregated <i>semi-scheduled generating unit</i>	
Maximum <i>generation</i> of the station or the <i>semi-scheduled generating unit</i>	MW (<i>generated</i>)
<i>Maximum ramp rate</i> of the station or <i>semi-scheduled generating unit</i>	MW/minute
<i>Semi-scheduled generating unit information (repeat the following items for each semi-scheduled generating unit where there are more than one semi-scheduled generating units being aggregated for the purposes of dispatch):</i>	
<i>Semi-scheduled generating unit name</i>	
Dispatchable unit identifier (DUID) by which the semi-scheduled generating unit is dispatched	
Maximum <i>generation</i> of the <i>semi-scheduled generating unit</i>	MW (<i>generated</i>)
<i>Maximum ramp rate</i> of the <i>semi-scheduled generating units</i>	MW/minute

3. In schedule 3.1, delete the table titled "Scheduled Load Data" and replace with the following table:

Scheduled Load Data:

Data	Units of Measurement
Installation/station name	
Dispatchable unit identifier (DUID) for installation with a single or aggregated <i>scheduled load</i>	
Maximum <i>load</i> of the <i>scheduled load</i>	MW
<i>Scheduled load information (for each scheduled load where there are two or more scheduled loads):</i>	
<i>Scheduled load</i> name (or physical load names forming an aggregated <i>scheduled load</i>)	
Dispatchable unit identifier (DUID)	
Maximum <i>load</i> of the <i>scheduled load</i>	MW
Maximum <i>ramp rate</i> of the <i>scheduled load</i>	MW/minute

4. In schedule 3.1, delete the table titled "Scheduled Network Service Data" and replace with the following table:

Scheduled Network Service Data:

Data	Units of Measurement
Installation/link name	
Dispatchable unit identifiers (DUIDs)	
<i>Connection Point</i> identifiers for terminal nodes A and B	
Maximum <i>power transfer capability</i> to node A	MW
Maximum <i>power transfer capability</i> to node B	MW
Maximum <i>ramp rate</i> of <i>power transfer capability</i> of the installation	MW/minute

5. In schedule 3.1, delete the table titled "Dispatch Inflexibility Profile".
6. In schedule 3.1, delete the heading "Aggregation Data" and delete the two paragraphs which appear below that heading.
7. In schedule 3.1, after the table titled "Scheduled Network Service Data" insert the following table:

Ancillary Service Generating Unit and Ancillary Service Load Data:

Data	Units of Measurement
<i>Power station/Installation information:</i>	
Power station/installation name	
Dispatchable unit identifier (DUID) for stations/installations with a single ancillary service generating unit/load (or single aggregated unit/load)	
FCAS service*	
Maximum FCAS capacity*	MW
Minimum enablement level*	MW
Maximum enablement level*	MW
Maximum lower angle*	
Maximum upper angle*	
<i>Ancillary service generating unit and ancillary service load information (for each DUID where there are two or more of them in the power station/installation):</i>	
Unit/load name(/s if aggregated)	
Dispatchable unit identifier (DUID)	
FCAS service*	
Maximum FCAS capacity*	MW
Minimum enablement level*	MW
Maximum enablement level*	MW
Maximum lower angle*	
Maximum upper angle*	

*Repeat the block of data for each FCAS service offered

8. Delete the words "*registered bid and offer data*" and substitute the words "*bid and offer validation data*" in the following places:
 - (a) clauses 3.7B(c)(1), 3.8.1(b)(7), 3.8.1(b)(10), 3.8.8(d), 3.12A.1(b)(1), 3.12A.1(b)(6), 3.13.3(b), 3.13.3(h), 3.13.3(j), and 3.13.3(k)(1);
 - (b) the heading of schedule 3.1; and
 - (c) schedule 3.1(a), (c) and (d).
9. Delete schedule 3.1(d) and replace with the following:
 - (d) *A Scheduled Generator, Semi-Scheduled Generator or Market Participant must notify NEMMCO of any proposed change to its bid and offer validation data at least six weeks prior to the date of the proposed change. The proposed change may be subject to audit at NEMMCO's request and must be consistent with NEMMCO's register of performance standards for the relevant plant.*

10. Delete schedule 3.1(f).
11. In clause 3.7B(c)(1), delete the words "total registered capacity" and substitute the words "maximum *generation* of the *semi-scheduled generating unit*".
12. In clause 3.8.3A(b)(1)(ii)(A), delete the words "registered full load (MW generated)" and substitute the words "maximum *generation*".
13. In clause 3.8.3A(b)(1)(ii)(B), delete the words "registered capacity" and substitute the words "maximum *generation*".
14. Amend clause 3.8.6A(g) to delete the reference to schedule 3.1 as follows:

FA and FB are deemed to be related by the loss vs flow relationship published by NEMMCO ~~notified in accordance with schedule 3.1;~~

15. In clause 3.8.19(d), delete the words "*registered bid and offer data*" and substitute the words "*a dispatch offer or dispatch bid*".
16. Amend clause 3.13.3(a)(1) as follows:
 - a) *NEMMCO* must establish, maintain, update and *publish*:
 - (1) a list of all of the *Scheduled Generators* and *Market Participants*, ~~and a list of all applications to become a *Scheduled Generator* or *Market Participant*, and bid and offer validation data including the *Scheduled Generator* and *Market Participant* information as set out in schedule 3.1;~~

17. Amend clause S5.2.5.11(a) as follows:

For the purpose of this clause S5.2.5.11:

maximum operating level means in relation to:

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

minimum operating level means in relation to:

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

18. In Chapter 10, amend the item "*registered bid and offer data*" as follows:

~~registered-bid and offer~~ **validation data**

(The definition of this item remains unchanged)

ATTACHMENT C – Summary of Comments on Proposed Changes to Schedule 3.1

Scheduled Generating Unit Data

NEMMCO's comments regarding the proposed changes to the Scheduled Generating Unit Data table are set out below.

Current Data Item	Comment	Proposed Change
Power station information:		
node number/identifier	This is a reference label for the station used in detailed Market Management System reports and data. NEMMCO allocates a Dispatchable Unit Identifier (DUID) to scheduled and semi-scheduled facilities which may represent aggregations of physical units. A more easily understood identifier for the attached block of Schedule 3.1 data is needed.	Replace with "Power station name"
total station registered capacity MW	One of several measures of capacity to produce electricity. The data requirement for the dispatch process is maximum station generation to which the station may be dispatched. This may not be the same as the total of registered capacities or the nameplate ratings.	Replace with "Maximum generation"
total station sent out capacity at registered capacity MW	Referenced in clause S5.2.5.11 (Generator technical requirements for frequency control). Duplication in this schedule is inappropriate as sent out capacity is not relevant to validations of dispatch bid and offer data.	Delete from schedule 3.1
daily energy constraint, if applicable MWh per day	Registered Participants optionally submit this information through daily offers which can be changed more easily and quickly than an update to schedule 3.1. Longer term energy constraint information is provided through the drought report/proposed Energy Adequacy Assessment Projection Guidelines. Inclusion in schedule 3.1 is not appropriate.	Delete from schedule 3.1
Generating unit information:		
full load MW (<i>generated and sent out</i>)	This term is not consistent with the corresponding element of power station information and not well defined. It could be registered capacity or <i>rated active power</i> (derived from <i>nameplate rating</i>) of the generating unit and its corresponding <i>sent out</i> value. Further, the 'sent out' value is not relevant to dispatch offer validation.	Replace with "Maximum generation"
normal or technical minimum load MW	This information is not used in dispatch offer validation and is redundant. Minimum load as generated is indicated implicitly through negatively priced dispatch offers. Sent out value is	Delete from schedule 3.1

<i>(generated and sent out)</i>	independently nominated for the generator frequency control performance standard under clause S5.2.5.11 and is not required for dispatch bid and offer validation.	
additional emergency generation above registered capacity MW	This information is not required separately for dispatch offer validation provided that any emergency capacity is included in the proposed maximum generation data requirement above. If that change is made, then this data requirement is redundant.	Delete from schedule 3.1
normal and maximum ramp rates MW/minute	Ramp rates are treated as commercial offer variables rather than technical limits, hence 'normal' values are obsolete and not defined. This change is consistent with the National Electricity Amendment (Ramp Rates, Market Ancillary Services, and Dispatch Inflexibility) Rule 2009 No. 1.	Delete 'normal and'
response time to full load from cold standby minutes	For fast start units, this is conveyed in the dispatch inflexibility profile submitted in the daily offer. Slow start units self-commit and this information is conveyed and updated through the daily capacity offer. This information is not related or applicable to the verification of dispatch bids and offers.	Delete from schedule 3.1
aggregation data	This information requirement is not clear, although it probably relates to the two paragraphs under this heading at the foot of the existing schedule 3.1. A breakdown of schedule 3.1 data items for each of the generating units that comprise an aggregated scheduled unit is not required. Aggregation is managed by listing all units comprising an aggregated unit within the schedule 3.1 tables. Therefore this row in the tables of schedule 3.1 is redundant.	Delete from schedule 3.1
capability chart	Treated as confidential information except where it is shared with relevant Transmission Network Service Providers for purposes of power system analysis and investigation. Therefore, this information cannot be published, and it is not suitable for validation of offers.	Delete from schedule 3.1.
notice to synchronise minutes	Generators routinely provide this through their availability offers. For fast start units, the time from commitment to synchronising is implicit in the dispatch inflexibility profile and the Generator must advise if this target cannot be met. For self committing units, clause 4.9.6(a)(1) requires the Generator to advise NEMMCO at least one hour prior to synchronising and update five minutes prior to synchronising. Not applicable for validation of offers.	Delete from schedule 3.1.

minimum shutdown time minutes	Not required because this information is implicit in the dispatch inflexibility profile of fast start units and the availability offer of slow start units. Not applicable for validation of offers.	Delete from schedule 3.1.
maximum shutdowns per day	Not required because this information is implicit in the availability offer and often depends on the circumstances of previous shutdowns such as notice provided, period off-line, and period on-line before shutdown. Not applicable for validation of offers.	Delete from schedule 3.1.

Semi-Scheduled Generating Unit Data

Comments regarding the relevance of particular data elements in the Semi-Scheduled Generating Unit Data table are covered by the comments regarding the corresponding items in the Scheduled Generating Units Data table (above).

Scheduled Load Data

NEMMCO's comments regarding the proposed changes to the Scheduled Load Data table are set out below.

Data	Comment	Recommendation
node number/identifier	See comment for the Scheduled Generating Unit Data table (above).	Delete from schedule 3.1.
<i>normally on or normally off</i>	Nominated in daily bids and offers, therefore it is unnecessary to include schedule 3.1.	Delete from schedule 3.1.
<i>maximum load MW</i>		No change required
<i>daily energy constraint if applicable MWh per day</i>	See comment for the Scheduled Generating Unit Data table (above).	Delete from schedule 3.1.
<i>normal and maximum ramp rates MW/min</i>	See comment for the Scheduled Generating Unit Data table (above).	Delete 'normal and'.
aggregation data	See comment for the Scheduled Generating Unit Data table (above).	Delete from schedule 3.1.

Scheduled Network Service Data

NEMMCO's comments regarding the proposed changes to the Scheduled Network Service Data table are set out below.

Data	Comment	Recommendation
node number/identifier for <i>connection points A and B</i>	See comment for Scheduled Generating Unit Data table (above). Connection points need to be identified as references for power flow direction.	Replace with 'Installation/link name' and add separate elements to identify connection points
Registered <i>power transfer capability to node 1</i> (may be seasonal etc) MW	Maximum power transfer is the critical measure of scheduled network service capacity to transfer electricity and is required to set a validation limit for dispatch bid and offer data. Registered power transfer is not relevant to market dispatch purposes as there may be some additional power transfer capability.	Replace 'Registered' with 'Maximum' and 'node 1' with 'node A'
Registered <i>power transfer capability to node 2</i> (may be seasonal etc). MW	See above comment. Maximum values for each direction of power flow may be different.	Replace 'Registered' with 'Maximum' and 'node 1' with 'node A'
Additional transient power transfer capability in each direction MW	Becomes redundant provided that registered power transfer is replaced with maximum power transfer (above).	Delete from schedule 3.1
Normal and maximum transfer ramp rates (if applicable) MW/min	See comment for Scheduled Generating Unit Data table (above).	Delete 'normal and'.
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	Relationship is determined from detailed technical data provided by the Network Service Provider. The relationship is published by NEMMCO annually as an interconnector loss factor equation	Delete from schedule 3.1.
Aggregation data	See relevant item above	Delete from schedule 3.1.

Dispatch Inflexibility Profile

NEMMCO proposes to delete the Dispatch Inflexibility Profile table. NEMMCO's comments regarding the deletion of this table are set out below.

Data	Comment	Recommendation
Time for response from receipt of <i>dispatch</i> instruction from zero <i>load</i> , T1 (see clause 3.8.19(e)(1)) minutes	All of these items are covered specifically in the dispatch inflexibility profile submitted and published with daily bids and offers.	Delete entire table from schedule 3.1.
Time after T1 required to reach minimum loading level (see clause 3.8.19(e)(2)) minutes		
Time after T2 for which <i>plant</i> must operate at or above the minimum <i>loading level</i> (see clause 3.8.19(e)(3)) minutes		
Time required by <i>plant</i> to reduce from its minimum <i>loading level</i> to zero (see clause 3.8.19(e)(4)) minutes		
minimum <i>loading level</i> (see clauses 3.8.19(e)(2),(3),(4)) MW		

Aggregation Data

The two paragraphs under this heading are not required since details about individual generating units that comprise an aggregated scheduled generating unit are not part of bid and offer validation data.