PARTICIPANT INPUT INTERFACE - ENERGY, MNSP AND FCAS BID FILE SUBMISSION

VERSION: 3.3

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Responsible Department: Information Management and Technology (IMT)

Notes: Clarify section 5 Bid Validation for semi-scheduled generators.

Documents made obsolete: The release of this document changes only the version of the *PARTICIPANT INPUT INTERFACE - ENERGY, MNSP AND FCAS BID FILE SUBMISSION.* No documents are made obsolete by releasing this document.

Version Release History

VERSION	DATE	BY	CHANGES
3.0			Initial release
3.2	13/02/2012	IMT	Minor changes to END OF DISPATCHABLE UNIT to modify the reason field character limit from 64 charactesr to 500 characters.
3.3	04/03/2016	IMT	Clarify section 5 Bid Validation for semi-scheduled generators.

Contents

1 Introduction

1.1 Purpose

This document details the interface to submit and maintain file-based Energy Bids, Frequency Control Ancillary Services (FCAS) Bids and MNSP Bids.

1.2 Audience

AEMO participants who submit and maintain file-based Energy Bids, Frequency Control Ancillary Services (FCAS) Bids and MNSP Bids into the NEM are intended to be the main readers of this document, especially the IT staff and the participant help desk.

1.3 Scope

This document is specific for the following bid types into the NEM:

- Energy Bids.
- Frequency Control Ancillary Services (FCAS) Bids.
- MNSP Bids.

1.3.1 What's in this guide

This document includes

- Format of the bid file.
- Validation restrictions.
- Acknowledgement file layout.
- Mapping of bid data to MMS Data Model (MMSDM) tables.
- MMSDM table relationships for submitted data

1.3.2 Related resources

The MMS Data Model exposes the submitted data for all participants, subject to time-limited confidentiality restrictions. For more details on the MMS Data Model, refer to the "MMS Data Model Report" on AEMO's website (http://www.aemo.com.au/data/market_data.html#data_model) or in the installation package for your RDBMS (available from the "EITS Publications" secured web page http://www.aemo.com.au/eits/eits.html).

For other types of bids, refer to the "EITS Publications" secured web page (http://www.aemo.com.au/eits/eits.html).

1.4 Organisation

This document is primarily a reference for implementers of applications or systems handling file-based Energy Bids, Frequency Control Ancillary Services (FCAS) Bids and MNSP Bids. The meanings of the items in a bid are generally treated as being known to the reader, or are of minor interest. Validation details are included.

After providing some background context to bidding, the bid file is described in sequence of all possible entries. The acknowledgement file format is then described, followed by details of the bid validation. The bid details are exposed in the MMS Data Model (time-delayed), so the mappings are described. For those needing an explanation of the "MNSP Convexity Validation Rule", details are included in an appendix.

1.5 Conventions

Important Note: important information is in this style.

Note: additional information is in this style.

2 Context

2.1 Energy, FCAS and MNSP bidding

This context description outlines the business data flows immediately affecting the submission of Energy Bids, Frequency Control Ancillary Services (FCAS) Bids and MNSP Bids. Bids can be submitted using the “Electricity Market Management Systems” application, or using an FTP interface to protected folders.

The graphical user interface of the “Electricity Market Management Systems” is very suitable for a person to enter the bid details.

The FTP interface is very suitable for automated inter-system communication.

This document has the FTP interface as its primary focus.

2.2 How do you bid?

2.2.1 Using the FTP interface

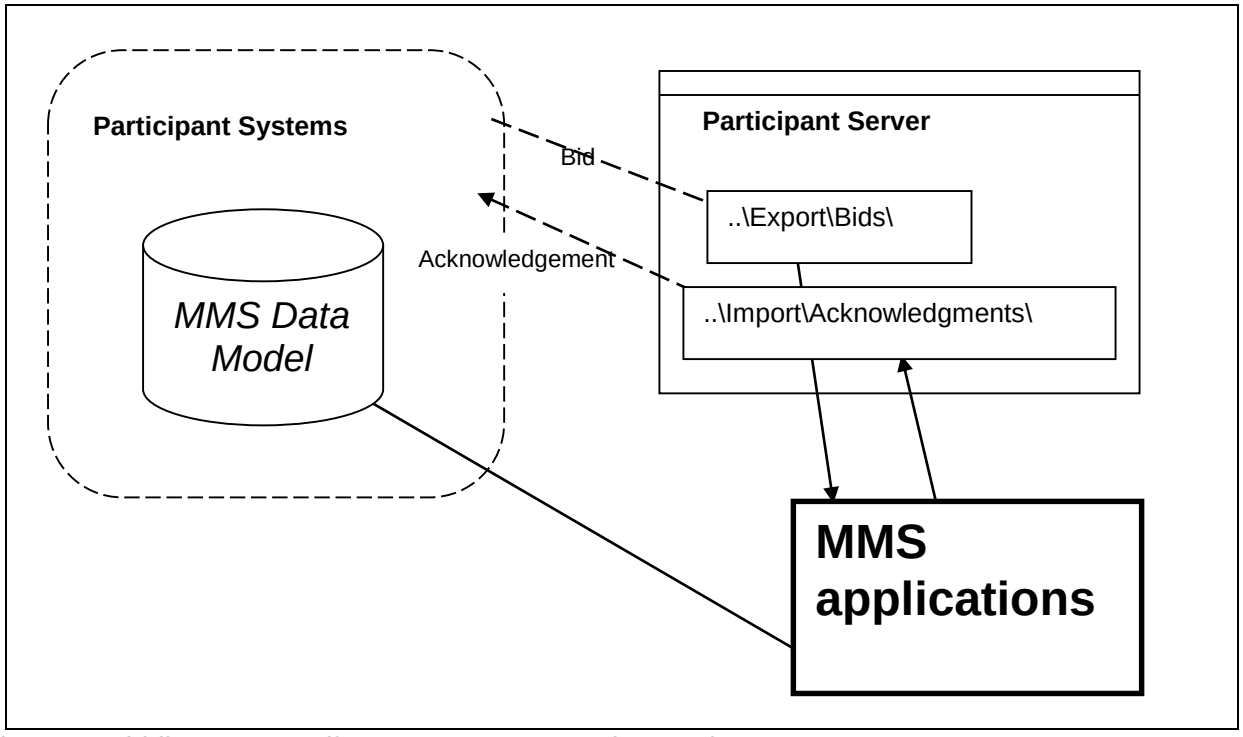

Figure 1: Bidding Context (for Energy, FCAS and MNSP)

In each of the production and pre-production EMMS environments, AEMO hosts a server (commonly called the participant server) with a set of folders for each participant (see “AEMO’s IP Addresses for Participants” in “References” on page 72). Other participants cannot access a participant’s folder set (unless specifically arranged and approved). Two of the folders in each participant’s folder set are `\Import\` and `\Export\`, where the names are from the participant’s perspective.

Each participant places bid files into their own export folder, being `[ParticipantID]\Export\Bids\` folder. The bids can be for many types. This document describes energy bids, ancillary services bids and MNSP bids. Other bid types not described here include AS Reoffers (NCAS and SRAS). All bid files must comply with the file naming convention and format appropriate to the type.

Bidders use their own software for submitting energy, FCAS and MNSP bids via FTP. An EMMS application searches the `\Export\Bids\` folder of all participants looking for bid files to process. For energy bids, ancillary services bids and MNSP bids, valid file names conform to either of the

patterns "*OFFER*.txt" or "*OFFER*.zip". To ensure file transfer is complete before AEMO processes the file, transfer the file with a ".tmp" extension and rename it with the appropriate extension after successful transfer. AEMO processes each file only once.

Bid files are in a report layout, with a fixed sequence of elements depending on the bid type (refer to "Bid file" on page 5). Validation of the file includes format checking, value comparisons internally and with previously accepted bids, plus consistency with controls in the NEM database.

An EMMS application acknowledges all bid files by writing a file to the [ParticipantID]\Import\Acknowledgments\ directory and removes the original file. Part of the file's name indicates acceptance or rejection of the bid.

Any detection of invalid data causes rejection of the whole bid file and the sending of a file acknowledging the rejection to the participant. The file acknowledging an error ends with "CPT.csv" (for corrupt) and includes error messages indicating all detected errors.

When the whole bid file is valid, the acceptance file ends in "ACK.csv".

An EMMS application extracts the data from valid files for processing into the NEM database, and subsequent communication to participants (via updates to a participant database complying with the MMS Data Model).

2.2.2 Using the graphical interface

In the "Electricity Market Management Systems" application, hover over the "Offers & Submissions" menu item, then the "Energy & FCAS Offers" to see the options regarding Energy and FCAS bidding. MNSP bids are supported only via the FTP interface.

2.3 Who can use FTP interface for bidding?

Access to the participant server requires credentials (see "FTP interface requirements" below). Partly to prevent the wide-spread sharing of the key credentials usually means an application handles the FTP interface, such as the AEMO-supplied "Participant Data Replication Batcher" (see "References" on page 72). Access to local folders can then be granted as appropriate.

2.4 FTP interface requirements

Credentials are the "file servers user name" and password maintained by the participant's IT security contacts with AEMO. The credentials allow full access to the participant folders and public folders on the participant server.

3 Bid file

This section details the interface provided to NEM participants to submit and maintain frequency control ancillary services (FCAS) bids, energy bids and MNSP bids using FTP to submit files. The files must be submitted to AEMO via MarketNet to the participant server. The interface defines the elements related to a bid submission by a NEM participant at any time for any current or future day trading day.

The interface detailed in this section does not support the submission of network control ancillary services (NCAS) re-offers or system restart ancillary services (SRAS) re-offers.

Bid files are text files in a report layout. The sequence of elements is fixed, as are the headings. The end of each line can be either the two-character Windows standard of CRLF or the one character *nix standard of CR.

The participant creates the bids, either using a text editor or a system to create the files. Please note that the terminology of the Rules of ‘offers’ and ‘bids’ are used interchangeably in this section.

The following sections in this document address the format of the file, specifically addressing the layout of the bid data.

3.1 File name

The file name identifies the participant, the date and time of submission, and a version. The characteristic identifying the file as a bid file is that the name contains the string “OFFER” somewhere in the name (that is, matches the windows search string “*OFFER*.txt” or “*OFFER*.zip”). An acceptable filename must be no greater than 40 characters in total length.

For example, considering the file name “PARTICIPANT_OFFER_20000918_001.txt” and the extended version “PARTICIPANT_OFFERFCAS_20000918_001.txt”, the components of the name are as follows:

- “PARTICIPANT” is the assigned Identifier for the Participant submitting the bid file.
- “OFFER” is the fixed part of the file name identifying this as a bid, and may have additional characters before or after this fixed part.
- “20000918” is a date that is a reference for participants to relate to the settlement or offer date/time of the bid contained in the file. The date can be in the form YYYYMMDD or YYYYMMDDhhmmss (being the 4 digit year, 2 digit month, 2 digit day, 2 digit hour in 24-hour count, 2 digit minute and 2 digit second). There is no validation of file contents with this date.
- “001” is the version of the bid (expanded to exactly 3 digits), and is validated with data within the file.

3.1.1 .ZIP file format

The .ZIP file name is exactly the same as the bid file contained within, except the extension changes to ".zip" (for example, "PARTICIPANT_OFFER_20010908_001.txt" becomes "PARTICIPANT_OFFER_20010908_001.zip").

An EMMS application processes the first file in the .ZIP archive only, ignoring any others. This means the intention is for the .ZIP archive to contain one file only.

3.2 Layout

The bid file starts with a heading followed by compulsory items needed to clearly identify the source, date, time and version of the submission.

The bid file allows for multiple bids. Each bid is for a particular service type and trading date. Each combination of service type and trading date can only occur once in a bid file. This means a file can contain bids for several days for a unit or service, and a file can contain a mixture of units and

services for a given day. A bid file can contain a mix of units bidding for mandatory restrictions capacity and those without bids for mandatory restrictions capacity. For more details on mandatory restrictions, see “Operating Procedure: Mandatory Restriction Offers” in “References” on page 72.

The bid file ends with a marker heading clearly identifying the completion of all bids.

The bid processor ignores all lines beginning with a hyphen (-) and blank lines. These lines are only useful to improve readability for humans.

3.2.1 START OF BID FILE

The following items are compulsory:

- First line is a blank line or a line beginning with a hyphen (-).
- “START OF BID FILE” – being the heading marking the start of the file.
- “To:” – must be NEMMCO.
- “From:” – the assigned identifier for the participant submitting the bid file.
- “Issued On:” – date and time in the format of DD/MM/YYYY hh:mm.
- “Version No:” – number of 1 to 3 digits - matching the version in the file name.
- “Authorised by:” – name of authorising person.

For example:

```
------------------------------------------------------------------------------------------
START OF BID FILE
------------------------------------------------------------------------------------------
To:             NEMMCO

From:           PARTICIPANTID

Issued On:      18/09/2000 00:13

Version No:     1

Authorised by: AUTH_USER
```

The participant identifier is in three places, being in the file contents, the file name and the file path. All three of these must agree for the file to be acceptable.

3.2.2 START OF BID

The bid starts with a heading followed by the compulsory items of service type and trading date. Each combination of service type and trading date can only occur once in a bid file.

The bid part of the bid file allows for multiple units. The format of the block of data for each unit depends on the service type of the bid. Presently the interface supports different layouts for energy, MNSP and FCAS. Each of the FCAS types has the same layout as the other FCAS types.

The Service Types with corresponding layout are:

Service Type	Bid Layout
ENERGY	ENERGY
MNSP	MNSP
RAISE6SEC	FCAS
RAISE60SEC	FCAS
RAISE5MIN	FCAS

Service Type	Bid Layout
RAISEREG	FCAS
LOWER6SEC	FCAS
LOWER60SEC	FCAS
LOWER5MIN	FCAS
LOWERREG	FCAS

Table 1. Bid service types and layouts.

The following table identifies the parts of the “DISPATCHABLE UNIT” section of the bid file required or optional for each bid layout.

	Daily Energy Constraint	MR Offer Scaling	Fast Start Profile	Unit Limits	Price Bands	Band Availability	Reason
ENERGY	Reqd	Opt	Reqd	Reqd	Reqd	Reqd	Reqd
MNSP		Opt		Reqd	Reqd	Reqd	Reqd
FCAS				Reqd	Reqd	Reqd	Reqd

Table 2. Dispatchable unit bid file section requirements for each layout.

The bid ends with a marker heading clearly identifying the completion of this bid. Following the end of a bid can only be another bid or the end of the bid file marker.

An example of the start of the bid follows:

```
------------------------------------------------------------------------------------------
START OF BID
------------------------------------------------------------------------------------------

Service Type: ENERGY

Trading Date: 18/09/2000
```

3.2.3 START OF DISPATCHABLE UNIT

The unit part starts with a heading followed by the compulsory item to identify the dispatchable unit (for energy and FCAS bids) or the MNSP link (for MNSP bids) to which this section applies.

The unit part of the bid contains blocks of data for unit limits, price bands and band availability. The unit ends with a reason followed by a marker heading clearly identifying the completion of this unit. Following the end of a unit can only be another unit or the end of the bid marker.

An example of the start of dispatchable unit is:

```
------------------------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

Dispatchable Unit Id:      UNIT1
```

3.2.4 Daily Energy Constraint

The daily energy constraint is only relevant to the service type "ENERGY".

The "Daily Energy Constraint:" must be included (even if the entry is left blank) after the dispatchable unit identifier. The "Daily Energy Constraint" value represents the amount of energy

available from this unit in the trading day (so cannot be negative) and is expressed in units MWh/day. A blank value is equivalent to zero.

3.2.5 MR Offer

The mandatory restrictions (MR) offer (comprising the "MR Offer Price Scaling Factor:" line and “MR Capacity” for each trading interval) is only relevant to service types "ENERGY" and "MNSP". For the service type "ENERGY", the unit must be a generator. Loads cannot bid for mandatory restrictions capacity.

Submitting mandatory restriction offers is optional. Even if the total mandatory restriction capacity offered is insufficient to meet the mandatory restriction schedule, neither the Rules nor the “Operating Procedure: Mandatory Restriction Offers” gives AEMO the power to direct a participant to make an MR offer or to make further MR offers.

If the "MR Offer Price Scaling Factor:" line is present, the value following the colon (:) must be blank or a number not less than zero, with up to four (4) decimal places. The value cannot change after the “Mandatory Restrictions Offer Cutoff” time. If the value is not blank, then all periods in “UNIT LIMITS” must have a non-negative value for “MR Capacity”. If the value following the colon is blank, so must all “MR Capacity” entries in “UNIT LIMITS” be blank.

The initial MR offer for an MR event declared in the relevant region for a particular trading day must be made before the defined “MR Offer Cut-Off” time for that MR event, otherwise that MR offer is rejected. An MR offer for a trading day only applies for that day.

“MR Capacity” rebids for an MR event are subject to the following validation rules:

- The initial MR offer for an MR event is valid.
- You can rebid a change to your “MR Offer Price Scaling Factor” before the “MR Offer Cut-Off” time; afterwards, the factor must be the same as the last valid bid.
- Before the creation of the initial “MR Offer Acceptance Schedule” for an MR event, you can rebid the “MR Capacity” to any level subject to the “MR Capacity” validation rules (see “UNIT LIMITS”).
- After the creation of the initial “MR Offer Acceptance Schedule” for an MR event, you can rebid the “MR Capacity” only to a level greater than or equal to the initially accepted “MR Capacity” for the unit in each trading interval for that MR event (and still subject to the “MR Capacity” validation rules).

3.2.6 FAST START PROFILE

The daily energy constraint is only relevant to the Service Type "ENERGY".

The fast start profile block starts and ends with a marker heading. Each item is compulsory. The lines in the fast start profile block are (with units, where appropriate):

- “START OF FAST START PROFILE” - marker for start of fast start profile block.
- “Fast Start Min Load:” (MW).
- “FS Time at Zero (T1):” (minutes).
- “FS Time to Min Load (T2):” (minutes).
- “FS Time at Min Load (T3):” (minutes).
- “FS Time to Zero (T4):” (minutes).
- “END OF FAST START PROFILE” – marker for end of fast start profile block.

An example of the daily energy constraint and fast start profile block, including the optional MR scaling line, is:

```
Daily Energy Constraint: 200

MR Offer Price Scaling Factor: 1.2345
------------------------------------------------------------------------------------------
START OF FAST START PROFILE
------------------------------------------------------------------------------------------

Fast Start Min Load:
FS Time at Zero (T1):
FS Time to Min Load (T2):
FS Time at Min Load (T3):
FS Time to Zero (T4):

------------------------------------------------------------------------------------------
END OF FAST START PROFILE
------------------------------------------------------------------------------------------
```

3.2.7 UNIT LIMITS for all bid layouts

The column headings in the “UNIT LIMITS” block of data depend on the service type of the bid. The unit limit headings for “ENERGY”, “MNSP” and the “FCAS” types are different.

The column headings must be separated by at least one space. The value for each field begins at the first character of a heading and ends just before the first character of next heading (or the end of line). Using the heading as a size limit allows for empty fields. This means the values can run into one another and still be recognised by an EMMS application although human readability is compromised. Values in each column do not have to align with the start or end of the column. An EMMS application separates the columns based on the first character of each heading, reads the value in the column, trims leading and trailing spaces, then converts the value to a number (integer or float, as appropriate). If the column has no value, it is treated as null.

Where there are trading periods, all 48 must exist and be consecutive.

3.2.8 UNIT LIMITS for energy bid layout

The “UNITS LIMITS” section for energy applies to the service type "ENERGY".

The unit limits starts and ends with a marker heading and contains the 48 periods of data in columns. The headings for the columns for unit limits in energy bids are (with units, where relevant):

- “Trading Interval” – must be consecutive from 01 to 48.
- “Max Availability Loading” (MW).
- “ROC-UP” (MW/min).
- “ROC-DOWN” (MW/min).
- “Fixed” (MW): optional; if exists, not greater than Max Availability Loading.
- “PASA Availability” (MW): required; not less than Max Availability Loading.
- “MR Capacity” (MW): integer not less than zero if MR scaling factor exists, otherwise must be blank.

If the “MR Capacity” is not blank, then all of the following apply:

- Scaling factor must exist (see the “MR Offer Price Scaling Factor” line).
- “MR Capacity” is not greater than “Max Availability Loading”.
- “MR Capacity” is not greater than 30 times “ROC-DOWN”.

If the “MR Capacity” is an integer greater than zero, then:

- “Fixed” must be zero or blank

A truncated (and unrealistic) example of the unit limits for energy is:

```
-------------------------------------------------------------------------------------------
START OF UNIT LIMITS
-------------------------------------------------------------------------------------------

Trading   Max Availability  ROC-UP  ROC-DOWN  Fixed PASA Availability MR Capacity
Interval  Loading
--------  ----------------  ------  --------  ----- ----------------- -----------
01        20                3       3                 400                          20
02        80                6       6                 400                          80
03        190               3       3                 400                         100
04        280               3       3                 400                         100
05        370               3       3                 420                         100
06        420               3       3                 420                         100
…
…
43        0                 3       3                 400                           0
44        0                 3       3                 400                           0
45      100                 3       3             100 400                           0
46      100                 3       3             100 400                           0
47        0                 3       3                 400                           0
48        0                 3       3                 400                           0

-------------------------------------------------------------------------------------------
END OF UNIT LIMITS
-------------------------------------------------------------------------------------------
```

3.2.9 UNIT LIMITS for MNSP

The unit limits for MNSP starts and ends with a marker heading and contains the 48 periods of data in columns. The headings for the columns for unit limits in MNSP bids are (with units, where relevant):

- “Trading Interval” – must be consecutive from 01 to 48.
- “Max Availability Loading” (MW).
- “ROC-UP” (MW/min).
- “Fixed” (MW); optional; if exists, not greater than “Max Availability Loading”.
- “PASA Availability” (MW); required; not less than “Max Availability Loading”.
- “MR Capacity” (MW); integer not less than zero if MR scaling factor exists, otherwise must be blank.

If the “MR Capacity” is not blank, then all of the following apply:

- Scaling factor must exist (see the “MR Offer Price Scaling Factor:” line).
- “MR Capacity” is not greater than “Max Availability Loading”.
- “MR Capacity” is not greater than 30 times “ROC-UP”.
- “Fixed” must be zero or blank.

All values are integers. A truncated (and unrealistic) example of unit limits for an MNSP link is:

```
------------------------------------------------------------------------------------------
START OF UNIT LIMITS
------------------------------------------------------------------------------------------

Trading   Max Availability  ROC-UP  Fixed  PASA Availability MR Capacity
Interval  Loading
--------  ----------------  ------  -----  ----------------- -----------
01        20                3              100                          20
02        80                6              100                          80
03        190               3              200                         100
04        280               3              400                         100
05        370               3              400                         100
06        420               3       100    420                           0
…
…
43        0                 3              400                           0
44        0                 3              400                           0
45        0                 3              400                           0
46        0                 3              400                           0
47        0                 3              400                           0
48        0                 3              400                           0

------------------------------------------------------------------------------------------
END OF UNIT LIMITS
------------------------------------------------------------------------------------------
```

3.2.10 UNIT LIMITS for Frequency Control Ancillary Services

The unit limits block for FCAS starts and ends with a marker heading and contains the 48 periods of data in columns. The headings for the columns for unit limits in FCAS bids are (with units, where relevant):

- “Trading Interval”
- “Max Availability Loading” (MW)
- “Enablement Min” (MW)
- “Low Break Pt” (MW)
- “Enablement Max” (MW)
- “High Break Pt” (MW)

All values are integers. A truncated example of the unit limits for ancillary services is:

```
------------------------------------------------------------------------------------------
START OF UNIT LIMITS
------------------------------------------------------------------------------------------

Trading   Max Availability  Enablement  Low       Enablement  High
Interval  Loading           Min         Break Pt  Max         Break Pt
--------  ----------------  ----------  --------  ----------  --------
01        20                40           180         380          270
02        80                20           160         360          300
03        190               40           180         380          270
04        280               40           180         380          270
05        370               40           180         380          270
06        420               40           180         380          270
…
…
43        0                 40           180         380          270
44        0                 40           180         380          270
45        0                 40           180         380          270
46        0                 40           180         380          270
47        0                 40           180         380          270
48        0                 40           180         380          270

------------------------------------------------------------------------------------------
END OF UNIT LIMITS
------------------------------------------------------------------------------------------
```

3.2.11 PRICE BANDS

The “PRICE BANDS” block starts with a marker heading and contains the 10 price bands across the page in columns with a single entry each. Since each band requires an entry, the parsing of the ten columns uses a simple space-delimited technique, so reading the prices independently of the column headings.

An example of the “PRICE BANDS” block is:

```
------------------------------------------------------------------------------------------
START OF PRICE BANDS
------------------------------------------------------------------------------------------

Price Band         PB1        PB2        PB3        PB4        PB5        PB6        PB7
PB8       PB9       PB10
Price($/MWh)   -230.20      -1.23      14.28      18.29      25.22      79.69      82.13
122.46    662.19     4218.22

------------------------------------------------------------------------------------------
END OF PRICE BANDS
```

3.2.12 BAND AVAILABILITY

The “BAND AVAILABILITY” block starts and ends with a marker heading and contains the 48 periods of data in columns. The headings for the columns for band availability are the “Trading Interval” and the 10 price bands (“PB1” to “PB10”). Since each band requires an entry, the parsing of the ten columns uses a simple space-delimited technique, so reading the prices independently of the column headings.

A truncated example of the band availability for energy, with lines wrapped to show on page, is:

```
-------------------------------------------------------------------------------------------
START OF BAND AVAILABILITY
-------------------------------------------------------------------------------------------

Trading
Interval          PB1       PB2       PB3       PB4       PB5       PB6       PB7
PB8       PB9      PB10
01                180       120        50        50        90         0        30
0       10        10
02                180       120        50        70        60         0        30
0        10        10
03                180       120        70        70        30         0        30
0        10        10
04                180       120        70        70        30         0        30
0        10        10
…
…
44                180       120        70        70        30         0        30
0        10        10
45                180       120        70       70        30         0        30
0        10        10
46                180       120        70        50        60         0        30
0        10        10
47                180       120        50        50        90         0       30
0        10        10
48                180       120        50        50        90         0        30
0        10        10

-------------------------------------------------------------------------------------------
END OF BAND AVAILABILITY
-------------------------------------------------------------------------------------------
```

3.2.13 END OF DISPATCHABLE UNIT

The “END OF DISPATCHABLE UNIT” block has the reason and the marker for the end. The reason item is compulsory even if it is left blank. The reason must be less than 500 characters. The reason can extend over several lines, as long as it is within the 500-character limit.

The only possible item to follow an end of unit block is the start of another unit or an end of bid marker.

An example of the “END OF DISPATCHABLE UNIT” block is:

```
Reason: Urgent spanner work

-------------------------------------------------------------------------------------------
-------------------
END OF DISPATCHABLE UNIT
-------------------------------------------------------------------------------------------
-------------------
```

3.2.14 END OF BID

The “END OF BID” marker can only be followed by the start of another bid or the end of the bid file marker.

The “END OF BID” marker is a line with:

- "END OF BID"

An example of the end of bid marker is:

```
------------------------------------------------------------------------------------------
END OF BID
------------------------------------------------------------------------------------------
```

3.2.15 END OF BID FILE

The "END OF BID FILE" marker cannot be followed by anything.

The end of bid file marker is a line with:

- "END OF BID FILE"

An example of the "END OF BID FILE" marker is:

```
------------------------------------------------------------------------------------------
------------------
END OF BID FILE
------------------------------------------------------------------------------------------
------------------
```

3.3 File Submission and Processing

Bid files must be submitted to the `Export\Bids` directory from each participant's area on the AEMO participant file server.

A bid file can be submitted as a normal text file or a zipped file.

A file can be submitted only once (identity by file name); a re-submission of a file with the same name returns corrupt. For a file containing an MNSP bid, an EMMS application records the name in the **FileName** column of ***MNSP_FileTrk*** table. For a file containing an energy bid, an EMMS application records the name in the **FileName** column of ***OfferFileTrk*** table. For a file containing an FCAS bid, an EMMS application records the name in the **FileName** column of ***BidOfferFileTrk*** table.

An EMMS application ignores files of length zero, so allowing for file transfer into the directory to complete before attempting to process the file.

3.3.1 Zipped Bid Files

Zipped bid files conform to the following rules:

- The zipped file name follows the same naming rules as specified for the text file except the file extension must be ".zip" instead of ".txt" (for example, PARTICIPANT_OFFER_20000918_001.zip).
- Only the first file in the zip archive is processed.

3.3.2 Processing Order for Multiple Files

If more than one file is present in a participant's `\Export\Bids\` directory, an EMMS application processes files in ascending order determined by the modified date on the files.

3.4 Energy and FCAS bid example

The following bid file example is valid, even though it has no mention of Mandatory Restriction (MR) items. It is not compulsory for participants to bid for MR capacity.

```
-------------------------------------------------------------------------------------------
START OF BID FILE
-------------------------------------------------------------------------------------------
To:             NEMMCO

From:           PARTICIPANT

Issued On:      18/09/2000 00:13

Version No:     1

Authorised by: AUTH_USER

-------------------------------------------------------------------------------------------
START OF BID
-------------------------------------------------------------------------------------------

Service Type: ENERGY

Trading Date: 18/09/2000

-------------------------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
-------------------------------------------------------------------------------------------

Dispatchable Unit Id:       UNIT1

Daily Energy Constraint:

-------------------------------------------------------------------------------------------
START OF FAST START PROFILE
-------------------------------------------------------------------------------------------

Fast Start Min Load:
FS Time at Zero (T1):
FS Time to Min Load (T2):
FS Time at Min Load (T3):
FS Time to Zero (T4):

-------------------------------------------------------------------------------------------
END OF FAST START PROFILE
-------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------
START OF UNIT LIMITS
-------------------------------------------------------------------------------------------

Trading   Max Availability  ROC-UP  ROC-DOWN  Fixed  Pasa Availability
Interval  Loading
--------  ----------------  ------  --------  -----  -----------------
01        20                3       3                420
02        80                6       6                420
03        190               3       3                420
04        280               3       3                420
05        370               3       3                420
```

06	420	3	3	420
07	420	3	3	420
08	420	3	3	420
09	420	3	3	420
10	420	3	3	420
11	420	3	3	420
12	420	3	3	420
13	420	3	3	420
14	420	3	3	420
15	420	3	3	420
16	420	3	3	420
17	420	3	3	420
18	420	3	3	420
19	420	3	3	420
20	420	3	3	420
21	420	3	3	420
22	420	3	3	420
23	420	3	3	420
24	420	3	3	420
25	420	3	3	420
26	420	3	3	420
27	420	3	3	420
28	420	3	3	420
29	420	3	3	420
30	420	3	3	420
31	420	3	3	420
32	360	3	3	420
33	280	3	3	420
34	280	3	3	420
35	190	3	3	420
36	100	3	3	420
37	50	3	3	420
38	0	3	3	420
39	0	3	3	420
40	0	3	3	420
41	0	3	3	420
42	0	3	3	420
43	0	3	3	420
44	0	3	3	420
45	0	3	3	420
46	0	3	3	420
47	0	3	3	420
48	0	3	3	420

END OF UNIT LIMITS

START OF PRICE BANDS

Price Band PB1 PB2 PB3 PB4 PB5 PB6 PB7
PB8 PB9 PB10

```
Price($/MWh)  -230.20     -1.23     14.28     18.29     25.22     79.69     82.13
122.46   662.19   4218.22

-------------------------------------------------------------------------------------
END OF PRICE BANDS
-------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------
START OF BAND AVAILABILITY
-------------------------------------------------------------------------------------

Trading
Interval          PB1       PB2       PB3       PB4       PB5       PB6       PB7
PB8       PB9       PB10
01                180       120        50        50        90         0        30
0         10         10
02                180       120        50        70        60         0        30
0         10         10
03                180       120        70        70        30         0        30
0         10         10
04                180       120        70        70        30         0        30
0         10         10
05                180       120        70        70        30         0        30
0         10         10
06                180       120       120        90         0         0        30
0         10         10
07                180       120       120        90         0         0        30
0         10         10
08                180       120       120        90         0         0        30
0         10         10
09                180       120       120        90         0         0        30
0         10         10
10                180       120       120        90         0         0        30
0         10         10
11                180       120       120        90         0         0        30
0         10         10
12                180       120       120        90         0         0        30
0         10         10
13                180       120       120        90         0         0        30
0         10         10
14                180       120       120        90         0         0        30
0         10         10
15                180       120       120        90         0         0        30
0         10         10
16                180       120       120        90         0         0        30
0         10         10
17                180       120       120        90         0         0        30
0         10         10
18                180       120       120        90         0         0        30
0         10         10
19                180       120       120        90         0         0        30
0         10         10
20                180       120       120        90         0         0        30
0         10         10
```

```
21                  180         120         120         90          0           0           30
0           10          10
22                  180         120         120         90          0           0           30
0           10          10
23                  180         120         120         90          0           0           30
0           10          10
24                  180         120         120         90          0           0           30
0           10          10
25                  180         120         120         90          0           0           30
0           10          10
26                  180         120         120         90          0           0           30
0           10          10
27                  180         120         120         90          0           0           30
0           10          10
28                  180         120         120         90          0           0           30
0           10          10
29                  180         120         120         90          0           0           30
0           10          10
30                  180         120         120         90          0           0           30
0           10          10
31                  180         120         120         90          0           0           30
0           10          10
32                  180         120         120         90          0           0           30
0           10          10
33                  180         120         120         90          0           0           30
0           10          10
34                  180         120         120         90          0           0           30
0           10          10
35                  180         120         120         90          0           0           30
0           10          10
36                  180         120         120         90          0           0           30
0           10          10
37                  180         120         120         90          0           0           30
0           10          10
38                  180         120         120         90          0           0           30
0           10          10
39                  180         120         120         90          0           0           30
0           10          10
40                  180         120         120         90          0           0           30
0           10          10
41                  180         120         120         90          0           0           30
0           10          10
42                  180         120         120         90          0           0           30
0           10          10
43                  180         120          70         70          30          0           30
0           10          10
44                  180         120          70         70          30          0           30
0           10          10
45                  180         120          70         70          30          0           30
0           10          10
46                  180         120          70         50          60          0           30
0           10          10
47                  180         120          50         50          90          0           30
0           10          10
```

```
48                180        120         50         50         90          0         30
0         10         10

------------------------------------------------------------------------------------------
END OF BAND AVAILABILITY
------------------------------------------------------------------------------------------

Reason: Urgent spanner work

------------------------------------------------------------------------------------------
END OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

Dispatchable Unit Id:      UNIT2

Daily Energy Constraint:

------------------------------------------------------------------------------------------
START OF FAST START PROFILE
------------------------------------------------------------------------------------------

Fast Start Min Load:
FS Time at Zero (T1):
FS Time to Min Load (T2):
FS Time at Min Load (T3):
FS Time to Zero (T4):

------------------------------------------------------------------------------------------
END OF FAST START PROFILE
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF UNIT LIMITS
------------------------------------------------------------------------------------------

Trading   Max Availability  ROC-UP  ROC-DOWN  Fixed  Pasa Availability
Interval  Loading
--------  ----------------  ------  --------  -----  -----------------
01        20                3       3                420
02        80                6       6                420
03        190               3       3                420
04        280               3       3                420
05        370               3       3                420
06        420               3       3                420
07        420               3       3                420
08        420               3       3                420
09        420               3       3                420
10        420               3       3                420
11        420               3       3                420
12        420               3       3                420
13        420               3       3                420
```

```
14        420                 3       3                 420
15        420                 3       3                 420
16        420                 3       3                 420
17        420                 3       3                 420
18        420                 3       3                 420
19        420                 3       3                 420
20        420                 3       3                 420
21        420                 3       3                 420
22        420                 3       3                 420
23        420                 3       3                 420
24        420                 3       3                 420
25        420                 3       3                 420
26        420                 3       3                 420
27        420                 3       3                 420
28        420                 3       3                 420
29        420                 3       3                 420
30        420                 3       3                 420
31        420                 3       3                 420
32        360                 3       3                 420
33        280                 3       3                 420
34        280                 3       3                 420
35        190                 3       3                 420
36        100                 3       3                 420
37        50                  3       3                 420
38        0                   3       3                 420
39        0                   3       3                 420
40        0                   3       3                 420
41        0                   3       3                 420
42        0                   3       3                 420
43        0                   3       3                 420
44        0                   3       3                 420
45        0                   3       3                 420
46        0                   3       3                 420
47        0                   3       3                 420
48        0                   3       3                 420

------------------------------------------------------------------------------------------
END OF UNIT LIMITS
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF PRICE BANDS
------------------------------------------------------------------------------------------

Price Band         PB1        PB2        PB3        PB4        PB5        PB6        PB7
PB8        PB9       PB10
Price($/MWh)  -230.20     -1.23     14.28     18.29     25.22     79.69     82.13
122.46   662.19   4218.22

------------------------------------------------------------------------------------------
END OF PRICE BANDS
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF BAND AVAILABILITY
```

Trading Interval	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10
01	180	120	50	50	90	0	30	0	10	10
02	180	120	50	70	60	0	30	0	10	10
03	180	120	70	70	30	0	30	0	10	10
04	180	120	70	70	30	0	30	0	10	10
05	180	120	70	70	30	0	30	0	10	10
06	180	120	120	90	0	0	30	0	10	10
07	180	120	120	90	0	0	30	0	10	10
08	180	120	120	90	0	0	30	0	10	10
09	180	120	120	90	0	0	30	0	10	10
10	180	120	120	90	0	0	30	0	10	10
11	180	120	120	90	0	0	30	0	10	10
12	180	120	120	90	0	0	30	0	10	10
13	180	120	120	90	0	0	30	0	10	10
14	180	120	120	90	0	0	30	0	10	10
15	180	120	120	90	0	0	30	0	10	10
16	180	120	120	90	0	0	30	0	10	10
17	180	120	120	90	0	0	30	0	10	10
18	180	120	120	90	0	0	30	0	10	10
19	180	120	120	90	0	0	30	0	10	10
20	180	120	120	90	0	0	30	0	10	10
21	180	120	120	90	0	0	30	0	10	10
22	180	120	120	90	0	0	30	0	10	10
23	180	120	120	90	0	0	30	0	10	10
24	180	120	120	90	0	0	30	0	10	10
25	180	120	120	90	0	0	30	0	10	10

```
26                  180         120         120         90          0           0           30
0           10          10
27                  180         120         120         90          0           0           30
0           10          10
28                  180         120         120         90          0           0           30
0           10          10
29                  180         120         120         90          0           0           30
0           10          10
30                  180         120         120         90          0           0           30
0           10          10
31                  180         120         120         90          0           0           30
0           10          10
32                  180         120         120         90          0           0           30
0           10          10
33                  180         120         120         90          0           0           30
0           10          10
34                  180         120         120         90          0           0           30
0           10          10
35                  180         120         120         90          0           0           30
0           10          10
36                  180         120         120         90          0           0           30
0           10          10
37                  180         120         120         90          0           0           30
0           10          10
38                  180         120         120         90          0           0           30
0           10          10
39                  180         120         120         90          0           0           30
0           10          10
40                  180         120         120         90          0           0           30
0           10          10
41                  180         120         120         90          0           0           30
0           10          10
42                  180         120         120         90          0           0           30
0           10          10
43                  180         120          70         70          30          0           30
0           10          10
44                  180         120          70         70          30          0           30
0           10          10
45                  180         120          70         70          30          0           30
0           10          10
46                  180         120          70         50          60          0           30
0           10          10
47                  180         120          50         50          90          0           30
0           10          10
48                  180         120          50         50          90          0           30
0           10          10

------------------------------------------------------------------------------------------
END OF BAND AVAILABILITY
------------------------------------------------------------------------------------------

Reason: Urgent spanner work

------------------------------------------------------------------------------------------
END OF DISPATCHABLE UNIT
```

```
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
END OF BID
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF BID
------------------------------------------------------------------------------------------

Service Type: RAISE6SEC

Trading Date: 19/09/2000

------------------------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

Dispatchable Unit Id:      UNIT1

------------------------------------------------------------------------------------------
START OF UNIT LIMITS
------------------------------------------------------------------------------------------
```

Trading Interval	Max Availability Loading	Enablement Min	Low Break Pt	Enablement Max	High Break Pt
01	20	40	180	380	270
02	80	20	160	360	300
03	190	40	180	380	270
04	280	40	180	380	270
05	370	40	180	380	270
06	420	40	180	380	270
07	420	40	180	380	270
08	420	40	180	380	270
09	420	40	180	380	270
10	420	40	180	380	270
11	420	40	180	380	270
12	420	40	180	380	270
13	420	40	180	380	270
14	420	40	180	380	270
15	420	40	180	380	270
16	420	40	180	380	270
17	420	40	180	380	270
18	420	40	180	380	270
19	420	40	180	380	270
20	420	40	180	380	270
21	420	40	180	380	270
22	420	40	180	380	270
23	420	40	180	380	270
24	420	40	180	380	270
25	420	40	180	380	270
26	420	40	180	380	270
27	420	40	180	380	270
28	420	40	180	380	270

```
29          420                 40              180             380             270
30          420                 40              180             380             270
31          420                 40              180             380             270
32          360                 40              180             380             270
33          280                 40              180             380             270
34          280                 40              180             380             270
35          190                 40              180             380             270
36          100                 40              180             380             270
37          50                  40              180             380             270
38          0                   40              180             380             270
39          0                   40              180             380             270
40          0                   40              180             380             270
41          0                   40              180             380             270
42          0                   40              180             380             270
43          0                   40              180             380             270
44          0                   40              180             380             270
45          0                   40              180             380             270
46          0                   40              180             380             270
47          0                   40              180             380             270
48          0                   40              180             380             270

------------------------------------------------------------------------------------------------
END OF UNIT LIMITS
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
START OF PRICE BANDS
------------------------------------------------------------------------------------------------

Price Band          PB1         PB2         PB3         PB4         PB5         PB6         PB7
PB8         PB9         PB10
Price($/MWh)   -230.20      -1.23      14.28      18.29      25.22      79.69      82.13
122.46    662.19    4218.22

------------------------------------------------------------------------------------------------
END OF PRICE BANDS
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
START OF BAND AVAILABILITY
------------------------------------------------------------------------------------------------

Trading
Interval            PB1         PB2         PB3         PB4         PB5         PB6         PB7
PB8         PB9         PB10
01                  180         120          50          50          90           0          30
0          10          10
02                  180         120          50          70          60           0          30
0          10          10
03                  180         120          70          70          30           0          30
0          10          10
04                  180         120          70          70          30           0          30
0          10          10
05                  180         120          70          70          30           0          30
0          10          10
```

```
06                  180         120         120         90          0           0           30
0           10          10
07                  180         120         120         90          0           0           30
0           10          10
08                  180         120         120         90          0           0           30
0           10          10
09                  180         120         120         90          0           0           30
0           10          10
10                  180         120         120         90          0           0           30
0           10          10
11                  180         120         120         90          0           0           30
0           10          10
12                  180         120         120         90          0           0           30
0           10          10
13                  180         120         120         90          0           0           30
0           10          10
14                  180         120         120         90          0           0           30
0           10          10
15                  180         120         120         90          0           0           30
0           10          10
16                  180         120         120         90          0           0           30
0           10          10
17                  180         120         120         90          0           0           30
0           10          10
18                  180         120         120         90          0           0           30
0           10          10
19                  180         120         120         90          0           0           30
0           10          10
20                  180         120         120         90          0           0           30
0           10          10
21                  180         120         120         90          0           0           30
0           10          10
22                  180         120         120         90          0           0           30
0           10          10
23                  180         120         120         90          0           0           30
0           10          10
24                  180         120         120         90          0           0           30
0           10          10
25                  180         120         120         90          0           0           30
0           10          10
26                  180         120         120         90          0           0           30
0           10          10
27                  180         120         120         90          0           0           30
0           10          10
28                  180         120         120         90          0           0           30
0           10          10
29                  180         120         120         90          0           0           30
0           10          10
30                  180         120         120         90          0           0           30
0           10          10
31                  180         120         120         90          0           0           30
0           10          10
32                  180         120         120         90          0           0           30
0           10          10
```

```
33                180         120         120         90          0          0          30
0         10          10
34                180         120         120         90          0          0          30
0         10          10
35                180         120         120         90          0          0          30
0         10          10
36                180         120         120         90          0          0          30
0         10          10
37                180         120         120         90          0          0          30
0         10          10
38                180         120         120         90          0          0          30
0         10          10
39                180         120         120         90          0          0          30
0         10          10
40                180         120         120         90          0          0          30
0         10          10
41                180         120         120         90          0          0          30
0         10          10
42                180         120         120         90          0          0          30
0         10          10
43                180         120          70         70         30          0          30
0         10          10
44                180         120          70         70         30          0          30
0         10          10
45                180         120          70         70         30          0          30
0         10          10
46                180         120          70         50         60          0          30
0         10          10
47                180         120          50         50         90          0          30
0         10          10
48                180         120          50         50         90          0          30
0         10          10

------------------------------------------------------------------------------------------
END OF BAND AVAILABILITY
------------------------------------------------------------------------------------------

Reason: Urgent spanner work

------------------------------------------------------------------------------------------
END OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

Dispatchable Unit Id:      UNIT2

------------------------------------------------------------------------------------------
START OF UNIT LIMITS
------------------------------------------------------------------------------------------

Trading   Max Availability  Enablement  Low        Enablement  High
Interval  Loading           Min         Break Pt   Max         Break Pt
```

01	20	40	180	380	270
02	80	20	160	360	300
03	190	40	180	380	270
04	280	40	180	380	270
05	370	40	180	380	270
06	420	40	180	380	270
07	420	40	180	380	270
08	420	40	180	380	270
09	420	40	180	380	270
10	420	40	180	380	270
11	420	40	180	380	270
12	420	40	180	380	270
13	420	40	180	380	270
14	420	40	180	380	270
15	420	40	180	380	270
16	420	40	180	380	270
17	420	40	180	380	270
18	420	40	180	380	270
19	420	40	180	380	270
20	420	40	180	380	270
21	420	40	180	380	270
22	420	40	180	380	270
23	420	40	180	380	270
24	420	40	180	380	270
25	420	40	180	380	270
26	420	40	180	380	270
27	420	40	180	380	270
28	420	40	180	380	270
29	420	40	180	380	270
30	420	40	180	380	270
31	420	40	180	380	270
32	360	40	180	380	270
33	280	40	180	380	270
34	280	40	180	380	270
35	190	40	180	380	270
36	100	40	180	380	270
37	50	40	180	380	270
38	0	40	180	380	270
39	0	40	180	380	270
40	0	40	180	380	270
41	0	40	180	380	270
42	0	40	180	380	270
43	0	40	180	380	270
44	0	40	180	380	270
45	0	40	180	380	270
46	0	40	180	380	270
47	0	40	180	380	270
48	0	40	180	380	270

END OF UNIT LIMITS

```
START OF PRICE BANDS
----------------------------------------------------------------------------------------

Price Band         PB1        PB2        PB3        PB4        PB5        PB6        PB7
PB8        PB9       PB10
Price($/MWh)   -230.20      -1.23      14.28      18.29      25.22      79.69      82.13
122.46    662.19    4218.22

----------------------------------------------------------------------------------------
END OF PRICE BANDS
----------------------------------------------------------------------------------------

----------------------------------------------------------------------------------------
START OF BAND AVAILABILITY
----------------------------------------------------------------------------------------

Trading
Interval           PB1        PB2        PB3        PB4        PB5        PB6        PB7
PB8        PB9       PB10
01                 180        120         50         50         90          0         30
0         10         10
02                 180        120         50         70         60          0         30
0         10         10
03                 180        120         70         70         30          0         30
0         10         10
04                 180        120         70         70         30          0         30
0         10         10
05                 180        120         70         70         30          0         30
0         10         10
06                 180        120        120         90          0          0         30
0         10         10
07                 180        120        120         90          0          0         30
0         10         10
08                 180        120        120         90          0          0         30
0         10         10
09                 180        120        120         90          0          0         30
0         10         10
10                 180        120        120         90          0          0         30
0         10         10
11                 180        120        120         90          0          0         30
0         10         10
12                 180        120        120         90          0          0         30
0         10         10
13                 180        120        120         90          0          0         30
0         10         10
14                 180        120        120         90          0          0         30
0         10         10
15                 180        120        120         90          0          0         30
0         10         10
16                 180        120        120         90          0          0         30
0         10         10
17                 180        120        120         90          0          0         30
0         10         10
18                 180        120        120         90          0          0         30
0         10         10
```

```
19                  180         120         120         90          0           0           30
0           10          10
20                  180         120         120         90          0           0           30
0           10          10
21                  180         120         120         90          0           0           30
0           10          10
22                  180         120         120         90          0           0           30
0           10          10
23                  180         120         120         90          0           0           30
0           10          10
24                  180         120         120         90          0           0           30
0           10          10
25                  180         120         120         90          0           0           30
0           10          10
26                  180         120         120         90          0           0           30
0           10          10
27                  180         120         120         90          0           0           30
0           10          10
28                  180         120         120         90          0           0           30
0           10          10
29                  180         120         120         90          0           0           30
0           10          10
30                  180         120         120         90          0           0           30
0           10          10
31                  180         120         120         90          0           0           30
0           10          10
32                  180         120         120         90          0           0           30
0           10          10
33                  180         120         120         90          0           0           30
0           10          10
34                  180         120         120         90          0           0           30
0           10          10
35                  180         120         120         90          0           0           30
0           10          10
36                  180         120         120         90          0           0           30
0           10          10
37                  180         120         120         90          0           0           30
0           10          10
38                  180         120         120         90          0           0           30
0           10          10
39                  180         120         120         90          0           0           30
0           10          10
40                  180         120         120         90          0           0           30
0           10          10
41                  180         120         120         90          0           0           30
0           10          10
42                  180         120         120         90          0           0           30
0           10          10
43                  180         120          70         70          30          0           30
0           10          10
44                  180         120          70         70          30          0           30
0           10          10
45                  180         120          70         70          30          0           30
0           10          10
```

```
46                180         120         70          50          60          0          30
0         10          10
47                180         120         50          50          90          0          30
0         10          10
48                180         120         50          50          90          0          30
0         10          10

------------------------------------------------------------------------------------------
END OF BAND AVAILABILITY
------------------------------------------------------------------------------------------

Reason: Urgent spanner work

------------------------------------------------------------------------------------------
END OF DISPATCHABLE UNIT
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
END OF BID
------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------
END OF BID FILE
------------------------------------------------------------------------------------------
```

3.5 MNSP Bid Example

```
--------------------------------------------------------------------------
START OF BID FILE
--------------------------------------------------------------------------
To:             NEMMCO

From:           DIRLINKP

Issued on:      13/02/2001 15:55

Version No:     003

Authorised by: RGILLETT

--------------------------------------------------------------------------
START OF BID
--------------------------------------------------------------------------

Service Type: MNSP

Trading Date: 20/09/2001

--------------------------------------------------------------------------
START OF DISPATCHABLE UNIT
--------------------------------------------------------------------------

Dispatchable Unit Id:     DLNKQLD
```

```
--------------------------------------------------------------------------------
START OF UNIT LIMITS
--------------------------------------------------------------------------------

Trading   Max Availability  ROC-UP  ROC-DOWN  Fixed
Interval Loading
--------  ----------------  ------  --------  -----
```

Trading Interval	Max Availability Loading	ROC-UP	Fixed	PASA Availability	MR Capacity
01	20	3		100	20
02	80	6		100	80
03	190	3		200	100
04	280	3		400	100
05	370	3		400	100
06	420	3	100	420	0
07	420	3	100	420	0
08	420	3	100	420	0
09	420	3	100	420	0
10	350	3	80	400	0
11	200	3	40	400	0
12	100	3		400	0
12	0	3		400	0
14	0	3		400	0
16	0	3		400	0
17	0	3		400	0
18	0	3		400	0
19	0	3		400	0
20	0	3		400	0
21	0	3		400	0
22	0	3		400	0
23	0	3		400	0
24	0	3		400	0
25	0	3		400	0
26	0	3		400	0
27	0	3		400	0
28	0	3		400	0
29	0	3		400	0
30	0	3		400	0
31	0	3		400	0
32	0	3		400	0
33	0	3		400	0
34	0	3		400	0
35	0	3		400	0
36	0	3		400	0
37	0	3		400	0
38	0	3		400	0
39	0	3		400	0
40	0	3		400	0
41	0	3		400	0
42	0	3		400	0
43	0	3		400	0
43	0	3		400	0
43	0	3		400	0
44	0	3		400	0

```
45          0                   3               400                         0
46          0                   3               400                         0
47          0                   3               400                         0
48          0                   3               400                         0

------------------------------------------------------------------------------
END OF UNIT LIMITS
------------------------------------------------------------------------------

------------------------------------------------------------------------------
START OF PRICE BANDS
------------------------------------------------------------------------------

Price Band          PB1         PB2         PB3         PB4         PB5         PB6         PB7
PB8         PB9         PB10
Price($/MWh)    -100.00     111.11     112.22     113.00     124.00     125.00     141.00
151.11     531.00    3200.00

------------------------------------------------------------------------------
END OF PRICE BANDS
------------------------------------------------------------------------------

------------------------------------------------------------------------------
START OF BAND AVAILABILITY
------------------------------------------------------------------------------

Trading
Interval            PB1         PB2         PB3         PB4         PB5         PB6         PB7
PB8         PB9         PB10
01                0022        0002        0023        0024        0025        0026        0027
0028        0019        0004
02                0020        0020        0020        0020        0020        0020        0020
0020        0020        0020
03                0025        0025        0025        0025        0025        0025        0025
0025        0025        0025
04                0000        0020        0000        0020        0020        0020        0027
0000        0000        0093
05                0000        0010        0000        0020        0020        0020        0000
0000        0000        0130
06                0000        0010        0020        0020        0020        0020        0000
0000        0000        0110
07                0000        0010        0020        0000        0000        0020        0000
0030        0000        0120
08                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
09                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
10                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
11                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
12                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
13                0000        0010        0010        0000        0000        0020        0000
0000        0000        0160
```

```
14              0000    0010    0010    0000    0000    0020    0000
0000    0000    0160
15              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
16              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
17              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
18              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
19              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
20              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
21              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
22              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
23              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
24              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
25              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
26              0000    0010    0020    0000    0000    0000    0010
0000    0000    0160
27              0000    0010    0030    0000    0000    0000    0000
0000    0000    0160
28              0000    0010    0020    0000    0000    0010    0010
0000    0000    0150
29              0000    0010    0020    0025    0025    0025    0025
0000    0000    0070
30              0000    0010    0020    0020    0020    0020    0020
0000    0000    0090
31              0000    0010    0027    0020    0020    0020    0030
0000    0000    0073
32              0000    0010    0027    0020    0020    0020    0030
0000    0000    0073
33              0000    0010    0000    0020    0027    0027    0020
0000    0000    0096
34              0000    0010    0000    0020    0027    0027    0020
0000    0000    0096
35              0000    0020    0000    0020    0020    0027    0020
0000    0000    0093
36              0000    0020    0000    0020    0020    0027    0020
0000    0000    0093
37              0011    0012    0013    0014    0015    0016    0017
0018    0019    0065
38              0000    0000    0020    0030    0000    0000    0000
0000    0000    0150
39              0011    0012    0013    0014    0015    0016    0017
0018    0019    0065
40              0012    0000    0020    0030    0000    0000    0000
0000    0000    0138
```

```
41              0011      0012      0013      0014      0015      0016      0017
0018      0019      0065
42              0000      0000      0020      0030      0000      0000      0000
0000      0000      0150
43              0011      0012      0013      0014      0015      0016      0017
0018      0019      0065
44              0000      0000      0020      0030      0000      0000      0000
0000      0000      0150
45              0011      0012      0013      0014      0015      0016      0017
0018      0019      0065
46              0022      0002      0023      0024      0025      0026      0027
0028      0019      0004
47              0020      0020      0020      0020      0020      0020      0020
0020      0020      0020
48              0025      0025      0025      0025      0025      0025      0025
0025      0025      0025

------------------------------------------------------------------------------
END OF BAND AVAILABILITY
------------------------------------------------------------------------------

Reason: Market conditions

------------------------------------------------------------------------------
END OF DISPATCHABLE UNIT
------------------------------------------------------------------------------

------------------------------------------------------------------------------
END OF BID
------------------------------------------------------------------------------

------------------------------------------------------------------------------
END OF BID FILE
```

4 Acknowledgement

4.1 Description

The acknowledgement file is a standard .CSV file with the headings on the "I" records and relevant data on the "D" records (see “AEMO CSV Data Format Standard” in “References” on page 72). The acknowledgement does not include the submission data.

The acknowledgement file's name indicates whether the input file was corrupt or accepted. For example: for the acknowledgement file “PARTICIPANT_OFFERDE_20000918_001_ACK.CSV”, the “PARTICIPANT_OFFERDE_20000918_001” is from the original bid file name and the “ACK” is for accepted. If the acknowledgement file has errors, “CPT” replaces “ACK”, indicating the original file is corrupted.

For a file containing multiple bids, an EMMS application suppresses the errors for subsequent units after a bid has errors.

4.2 Location

An EMMS application puts the acknowledgement file into “[ParticipantID]\Import\Acknowledgments\” folder.

The acknowledgement file always goes to the participant's directory corresponding to the submission directory, regardless of the participant in the file name and the participant identified within the file. This ensures only the submitting participant sees the acknowledgement even if another participant is identified in the file's name and contents.

4.3 Frequency

An EMMS application produces one acknowledgement file for every bid file processed.

4.4 Contents

The acknowledgement file is formatted into comma-separated variables, usually referred to as CSV format. The acknowledgement file contains two types of records, being informational records (“I” type) and data records (“D” type). For more details on the CSV format, see “AEMO CSV Data Format Standard” in “References” on page 72.

4.4.1 Accepted acknowledgement

The <report type> is "BIDFILE_ACK".

The <report sub-type> can be "FILE_STATUS" and "ERROR".

The "FILE_STATUS" report sub-type is currently report version 1 and has the following column headers:

- “FILENAME”, being heading for the input file name as submitted with suffix (.txt or .zip).
- “OFFERDATETIME”, being heading for the system date and time an EMMS application processed the bid file.
- “STATUS”, being heading for the load status ("VALID" or "CORRUPT") as determined by an EMMS application.

An example of the information record for the "FILE_STATUS" report sub-type is:

```
I,BIDFILE_ACK,FILE_STATUS,1,FILENAME,OFFERDATETIME,STATUS
```

4.4.2 Corrupted acknowledgement

The "ERROR" report sub-type is currently report version 1 and has the following column headers:

- “ERROR_TYPE”, being heading for providing scope of the error message, being global for the file, limited to the unit or even to a particular period.
- “ERROR_MESSAGE”, being heading for descriptive text and relevant values.
- “LINE_NO”, being heading for the line number of the bid file where the error occurs.
- “FILE_SECTION”, being heading for a name identifying the part of the bid file where the error occurs.
- “SERVICE_TYPE”, being heading for the service type in the bid ("Service Type" in “START OF BID”).
- “TRADING_DATE”, being heading for the effective date of the bid ("Trading Date" in “START OF BID”).
- “UNIT_ID”, being heading for the unit or link identifier ("Dispatchable Unit Id" in “START OF DISPATCHABLE UNIT”).
- “TRADING_INTERVAL”, being heading for the half-hour period number of the trading day ("Trading Interval" in “START OF UNIT LIMITS”)

An example of the information record for the "ERROR" report sub-type is:

```
I,BIDFILE_ACK,ERROR,1,ERROR_TYPE,ERROR_MESSAGE,LINE_NO,FILE_SECTION,SERVICE_TYPE,TRADING_
DATE,UNIT_ID,TRADING_INTERVAL
```

4.5 D - Data Records

A list of possible data records is in “Acknowledgement Data Records” on page 37.

4.6 Examples of acknowledgement files

An example of a positive acknowledgement is:

```
I,BIDFILE_ACK,FILE_STATUS,1,FILENAME,OFFERDATETIME,STATUS
D,BIDFILE_ACK,FILE_STATUS,1,PARTICIPANT_OFFER_20000918102308_001.txt,"2000/09/28
13:34:00",VALID
```

An example of a negative acknowledgement is:

```
I,BIDFILE_ACK,FILE_STATUS,1,FILENAME,OFFERDATETIME,STATUS
D,BIDFILE_ACK,FILE_STATUS,1,PARTICIPANT_OFFER_20000918102308_001.txt,"2000/09/28
13:42:41",CORRUPT
I,BIDFILE_ACK,ERROR,1,ERROR_TYPE,ERROR_MESSAGE,LINE_NO,FILE_SECTION,SERVICE_TYPE,TRADING_
DATE,UNIT_ID,TRADING_INTERVAL
D,BIDFILE_ACK,ERROR,1,GLOBAL_ERROR,"ORA-00001: unique constraint (NEMMCO.OFFERFILETRK_PK)
violated",,DATA_WRITE,,,,
D,BIDFILE_ACK,ERROR,1,GLOBAL_ERROR,"Participant PART1 cannot submit a bid for Participant
PART2",5,BIDFILE_HEADER,,,,
D,BIDFILE_ACK,ERROR,1,BID_ERROR,"ENEGY is not a recognised service
type",112,BID_HEADER,ENEGY,,,
D,BIDFILE_ACK,ERROR,1,UNIT_ERROR,"Unit UNIT1 not a valid dispatchable
unit",123,UNIT_HEADER,ENERGY,"2000/09/28 00:00:00",UNIT1,
D,BIDFILE_ACK,ERROR,1,PERIOD_ERROR,"Sum of band availability 386 must match or exceed
maximum capacity of 420",789,BAND_AVAILABILITY,RAISE6SEC,"2000/09/19 00:00:00",UNIT2,36
```

In this file, there are 5 types of errors. The first error indicates an overall success or failure on the file and always exists in the acknowledgement. The next error indicates problems with the bid loading process at the AEMO end. The last three errors indicate problems with bids, units or periods.

4.7 Acknowledgement Data Records

The following are the acknowledgement file messages.

```
LogError('Length of file name must not exceed 40 characters', 'FILENAME',
erGlobal, nil, nil, nil);

LogError('Band Price ' + IntToStr(BandCount) +
  ' value ' + FormatFloat('0.00', ABidUnit.GetItemByName('PriceBand' +
IntToStr(BandCount))) + ' differs from last offer value ' +
  FormatFloat('0.00', BidPriceQuery.Field('PriceBand' +
IntToStr(BandCount))), 'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('An initial bid must exist for a unit prior to rebidding', 'PRICE
BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Bid for ' + FormatDateTime('dd/mm/yyyy',
ABidService.SettlementDate) +
         ' cannot be processed after ' + FormatDateTime('dd/mm/yyyy
hh:nn', PeriodEnd), 'BID_HEADER', erBid, ABidService, nil, nil);

LogError('Internal error.  Unknown validation rule: ' + ServiceTypeStr +
'.  Assuming "AS" for further validation purposes.',
         'BID_HEADER', erBid, ABidService, nil, nil);

LogError('Failed loading bid type details.  ' + E.Message, 'BID_HEADER',
erBid, ABidService, nil, nil);

LogError('Unit ' + ABidUnit.DUID + ' is not registered to bid for type ' +
ABidService.BidType,
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Unit ' + AStaticUnit.DUID + ' is not registered as a recgonised
dispatchable type',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Failed loading bid DUID details.  ' + E.Message, 'UNIT_HEADER',
erUnit, ABidService, ABidUnit, nil);

LogError('Failed retrieving VOLL and MPF values.  ' + E.Message,
'BID_HEADER',
         erBid, ABidService, nil, nil);

LogError('Invalid external version number or invalid file name format',
         'BIDFILE_FILENAME', erGlobal, nil, nil, nil);

LogError('Invalid external offer date or invalid file name format',
         'BIDFILE_FILENAME', erGlobal, nil, nil, nil);

LogError(Format(ERRORMSG_PARTICIPANT_MISMATCH, [FDirParticipantID,
FFileParticipantID]),
         'BIDFILE_FILENAME', erGlobal, nil, nil, nil);

LogError('START OF BID FILE section identifier not found where expected.
File load aborted.',
         'START OF BID FILE', erGlobal, nil, nil, nil);

LogError('Bid file ' + ExtractFileName(FFileName) + ' has already been
submitted',
```

```
         'FILENAME', erGlobal, nil, nil, nil);

LogError('END OF BID FILE setion identifier not found where expected',
'END OF BID FILE',
         erGlobal, nil, nil, nil);

LogError('START OF BID section identifier not found where expected',
'START OF BID',
         erGlobal, nil, nil, nil);

LogError('Invalid field identifier for Service Type',
         'BID_HEADER', erBid, nil, nil, nil);

LogError('Invalid field identifier for Trading Date',
         'BID_HEADER', erBid, nil, nil, nil);

LogError('Failed converting Trading Date field value.  ' + E.Message,
         'BID_HEADER', erBid, nil, nil, nil);

LogError('MNSP bids cannot contain bid type ' + BidType,
         'BID_HEADER', erBid, ABidService, nil, nil);

LogError('Service type ' + BidType + ' for trading date ' +
FormatDateTime('dd/mm/yyyy', TradingDate) +
         ' already exists in this file',
         'BID_HEADER', erBid, ABidService, nil, nil);

LogError('END OF BID section identifier not found where expected',
         'END OF BID', erBid, ABidService, nil, nil);

LogError('START OF DISPATCHABLE UNIT or END OF BID section identifier not
found where expected',
         'END OF BID', erBid, ABidService, nil, nil);

LogError('Failed committing bid data to database.  ' + E.Message,
         'DATA_WRITE', erGlobal, nil, nil, nil);

LogError('Internal error loading bid file.  ' + E.Message, 'FILE_LOAD',
erGlobal, nil, nil, nil);

LogError('Incorrect or missing field identifer in bid file header.
Expected ' + HEADER_DATA[Index] + ' but found ' + SeparateLine(FFileLine,
FIELD_DELIMITER)[0],
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError(Format('Participant %s cannot submit a file for %s';,
[FDirParticipantID, FBidFile.ParticipantID]),
                'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Issued On value does not match external offer date/time.',
'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Issued On value ' + SeparateLine(FFileLine, FIELD_DELIMITER)[1]
+ ' invalid.',
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);
```

```
LogError('Version No. must be less than 1000.',
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Version No. must be greater than 0.',
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Version No. does not match external version number.',
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Version No. ' + SeparateLine(FFileLine, FIELD_DELIMITER)[1] + '
invalid.',
         'BIDFILE_HEADER', erGlobal, nil, nil, nil);

LogError('Invalid field identifier for Dispatchable Unit ID',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('A bid for this unit has is already present in the file for this
service type and trading date',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Dispatchable Unit ' + UnitID + ' invalid or not active.',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError(FFileParticipantID + ' cannot submit bid for ' +
AStaticUnit.Station.Participant.ParticipantID + ' unit ' + UnitID,
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Invalid field identifier for Daily Energy Constraint',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Daily energy constraint figure cannot be negative.',
         'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Rebid reason not submitted',
         'BID_REASON', erUnit, ABidService, ABidUnit, nil)

LogError('Reason required for inflexibility.',
         'BID_REASON', erUnit, ABidService, ABidUnit, nil);

LogError('END OF DISPATCHABLE UNIT section identifier not found where
expected',
         'END OF DISPATCHABLE UNIT', erUnit, ABidService, ABidUnit, nil);

LogError('START OF FAST START PROFILE section identifier not found where
expected',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Incorrect fast start information for dispatchable unit.
Expected "' +
         UNIT_FASTSTART_ID[Index] + '" but found "' +
SeparateLine(FFileLine, FIELD_DELIMITER)[0] +'"',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Fast start details must be non-blank for fast start units',
```

```
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Value for fast start min. load parameter is not an integer',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Value for T' + IntToStr(Index) + ' parameter is not an integer',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Fast start details must be blank or zero for slow start units',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Fast start min. load must not be negative',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil)

LogError('Value for T' + IntToStr(Index) + ' parameter must not be
negative',
        'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError(UNIT_FASTSTART_ID[1] + ' + ' + UNIT_FASTSTART_ID[2] + ' Must not
exceed 30',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError(UNIT_FASTSTART_ID[1] + ' + ' + UNIT_FASTSTART_ID[2] + ' + ' +
         UNIT_FASTSTART_ID[3] + ' + ' + UNIT_FASTSTART_ID[4] + ' Must be
less than 60',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('Fast Minimum Load cannot exceed registered maximum capacity of
unit.',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('END OF FAST START PROFILE section identifier not found where
expected',
         'FAST START PROFILE', erUnit, ABidService, ABidUnit, nil);

LogError('START OF UNIT LIMITS section identifier not found where
expected',
         'UNIT LIMITS', erUnit, ABidService, ABidUnit, nil);

LogError('Could not find column header ' +
ENERGY_UNITLIMITS_COLHEADERS[Index],
         'UNIT LIMITS', erUnit, ABidService, ABidUnit, nil);

LogError('Failed converting trading interval field value.  ' + E.Message,
         'UNIT LIMITS', erUnit, ABidService, ABidUnit, nil);

LogError('Trading interval must exceed zero',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('The first trading interval in the section must be period 1',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Trading intervals must appear in consecutive order',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);
```

```
LogError('Internal error. Cannot find bid unit object for this trading
interval',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Trading interval cannot exceed ' +
IntToStr(PERIODSPERDAY[ctPredispatch]),
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for Max. Availability',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for ROC-Up or ROC-Down',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Maximum availability of ' + IntToStr(ABidUnitPeriod.MaxAvail) +
         ' exceeds maximum capacity of ' +
FloatToStr(AStaticUnit.MaxCapacity),
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('ROC-Up and ROC-Down cannot be negative',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Max Availability Loading cannot be negative',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Inflexibility values cannot be negative.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Inflexibility values cannot exceed maximum capacity for the
dispatchable unit',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Error reading line.  ' + E.Message,
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, nil);

LogError('The last trading interval in the section must be period 48',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('END OF UNIT LIMITS section identifier not found where expected',
         'UNIT LIMITS', erUnit, ABidService, ABidUnit, nil);

LogError('Invalid integer value for Enablement Min.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for Low Break Pt.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for Enablement Max.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for High Break Pt.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Enablement Min. must be less than or equal to Enablement Max.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);
```

```
LogError('Low Break Pt. must be greater than or equal to Enablement Min.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('High Break Pt. must be less than or equal to Enablement Max.',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Enablement Min. of ' + IntToStr(ABidUnitPeriod.EnablementMin) +
         ' must exceed or match Min. Enablement Level of ' +
FloatToStr(ABidUnit.MinEnablementLevel),
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Enablement Max. of ' + IntToStr(ABidUnitPeriod.EnablementMax) +
         ' exceeds Max. Enablement Level of ' +
FloatToStr(ABidUnit.MaxEnablementLevel),
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Low break point & Min. Enablement figures exceed the Maximum
Lower Angle',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('High break point & Max. Enablement figures exceed the Maximum
Upper Angle',
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod)

LogError('START OF PRICE BANDS section identifier not found where
expected',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Maximum number of price band columns allowed is exceeded or some
columns are blank.',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Invalid data in price band ' + IntToStr(PriceBandCount),
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Price band value in band ' + IntToStr(PriceBandCount) + ' is
lesser or equal to the previous amount',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Price band value in band ' + IntToStr(PriceBandCount) + ' is
less than zero',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Price band value in band ' + IntToStr(PriceBandCount) + ' is not
to the nearest whole cent.',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Loss Adjusted Price band value must not exceed Maximum price (' +
FormatFloat('0.00', ABidService.MaxEnergyPrice),
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Loss Adjusted Price band value must equal or exceed minimum price ('
+ FormatFloat('0.00', ABidService.MinEnergyPrice),
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);
```

```
LogError('Price band value must be less than or equal to VOLL (' +
FormatFloat('0.00', ABidService.VOLL) +')',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Price band value must be greater than or equal to Market Price
Floor (' + FormatFloat('0.00', ABidService.MarketPriceFloor) + ')',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Price band value must be greater than ' + FormatFloat('0.00',
NEGATIVEPRICELIMIT),
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Rate of Change Up or Down beyond respective registered bounds of ' +
         IntToStr(AStaticUnit.MaxRateOfChangeUp) + ' and ' +
         IntToStr(AStaticUnit.MaxRateOfChangeDown),
         'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Band prices cannot be changed for a rebid.',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('General error reading price band values.  ' + E.Message,
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('Maximum number of price band data values allowed is exceeded or
some columns are blank.',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('END OF PRICE BANDS section identifier not found where expected',
         'PRICE BANDS', erUnit, ABidService, ABidUnit, nil);

LogError('START OF BAND AVAILABILITY section identifier not found where
expected',
         'BAND AVAILABILITY', erUnit, ABidService, ABidUnit, nil);

LogError('Maximum number of price band data values allowed is exceeded or
some columns are blank.',
         'BAND AVAILABILITY', erUnit, ABidService, ABidUnit, nil);

LogError('Invalid integer value in line',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Trading interval must exceed zero',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('The first trading interval in the section must be period 1',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Trading intervals must appear in consecutive order',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);
```

```
LogError('Invalid trading interval identifier ' + IntToStr(PeriodID),
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Trading interval cannot exceed ' +
IntToStr(PERIODSPERDAY[ctPredispatch]),
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Band availability figures cannot be negative.',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Band ' + IntToStr(BandAvailCount) + ' availability exceeds the
maximum capacity of the unit ' + FloatToStr(ABidUnit.MaxCapacity) +
         ' for this service.', 'BAND AVAILABILITY', erPeriod, ABidService,
ABidUnit, ABidUnitPeriod);

LogError('Incorrect number of band availability figures submitted or some
columns are blank.',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('Invalid data in price band ' + IntToStr (BandAvailCount - 1),
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('The sum of the band availability values must be equal to or
greater than the Maximum Capacity for the dispatchable unit.',
         'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit,
ABidUnitPeriod);

LogError('END OF BAND AVAILABILITY section identifier not found where
expected',
         'BAND AVAILABILITY', erUnit, ABidService, ABidUnit, nil);
LogError('Daily energy constraint figure must be either null or cardinal below 999999.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Failed to find MR Offer Scaling Factor when an Accepted MR Offer exists.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR_Factor value is not a valid 4 decimal place floating point number. ' +
SeparateLine(FFileLine, FIELD_DELIMITER)[1] + ' invalid.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR Offers are only applicable for ENERGY and MNSP Service Types.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR Offer Scaling Factor cannot be greater than 4 decimal places.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR Offer Scaling Factor cannot be less than 0.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR Offer Scaling Factor found for non-generation unit',
```

```
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil)

LogError('Initial MR Offer is past the MR Offer Cut-off time.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('MR Factor cannot be changed past the MR Offer Cut-off time.',
  'UNIT_HEADER', erUnit, ABidService, ABidUnit, nil);

LogError('Failed to find expected MR Capacity',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod)

LogError('Found offered MR Capacity with no MR Scaling Factor',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Invalid integer value for MR Capacity',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('Maximum availability of ' + IntToStr(ABidUnitPeriod.MaxAvail) + 'cannot exceed
' + FloatToStr(999999),
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity found for non-generation unit',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be withdrawn or reduced after initial MR Acceptance',
  'BAND AVAILABILITY', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity must be offered for all periods when a MR Factor is submitted',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be less than 0',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be greater than MaxAvail',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be greater than 999999',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be greater than 30 x ROC-DOWN',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be Offered for Fixed Load periods',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);

LogError('MR Capacity cannot be greater than 30 x ROC-UP',
  'UNIT LIMITS', erPeriod, ABidService, ABidUnit, ABidUnitPeriod);
```

5 Bid Validation

5.1 Validation of bid file and general bid checks

A bid file can have one or more bids. The bid file cannot have more than one bid for a unit or link for the same bid type and trading day.

If no bid has been input for a day, the latest bid applies (that is, for previous day or earlier).

Each bid is subject to validation according to general checks plus checks specific to the type of bid. A rebid is subject to additional requirements to the general checks.

In the descriptions of bid file validation, the following terms apply to the specific items in the bid file:

- "BandPrice1" is the value under "BP1" in "PRICE BANDS", and similarly up to "BandPrice10"; collectively called band prices.
- "Band Availability" is any entry under "BP1" to "BP10" for all 48 periods in "BAND AVAILABILITY".
- "Maximum Availability" is under the "Max Availability Loading" heading in "START OF UNIT LIMITS".
- "Reason" is the text after "Reason:" just before "END OF DISPATCHABLE UNIT".
- "Market Price Floor" ($MPF) is defined in the Rules (section 3.9.6).
- "Market Price Cap" (MPC) is defined in the Rules (section 3.9.4). In the MMS Data Model, MPC is stored in **VoLL** column in ***Market_Price_Thresholds*** table.
- "Maximum capacity" is different for each bid type, so is described in the validation for each particular bid type.
- A fixed loading occurs when "Fixed" in "START OF UNIT LIMITS" for any trading interval is not blank.

5.1.1 General Validation

The general validation on each bid and the bid file includes:

1. Participant identification must be consistent.
    - The participant ID contained in the bid file name matches the participant name in the path of the folder in which it is submitted (`[participantID]\Export\Bids\`).
    - The participant ID contained in the bid file name must agree with the Participant ID contained in the bid file contents ("From" in "START OF BID FILE").
2. Registration must be valid.
    - For each energy and FCAS bid, the submitting participant must be the same as the owning participant and an EMMS application checks the registration of the unit for the relevant market.
    - For each MNSP bid, the registration for the participant and the interconnector must be valid.
3. Comparision of the version numbers, being the external (in the file name) and internal ("Version No" in "START OF BID FILE"), and reject if they are not numeric or they differ numerically.
4. Bid effective date ("Trading Date" in "START OF BID") must be for current or future date (that is, cannot bid for yesterday).
5. Band prices must be non-blank.
6. Band prices must be in whole cents (that is, maximum of 2 decimal places).
7. Band prices must be strictly monotonically increasing (that is, "BandPrice1" < "BandPrice2" < "BandPrice3" …).
8. Each "Band Availability" must be non-blank.
9. Each "Band Availability" ≥ 0.

10. “Maximum Availability” cannot be blank.
11. “Maximum Availability” ≥ 0.
12. File names must be less than or equal to 40 characters.
13. Trading intervals start at 1 and appear in a consecutive order.
14. All trading intervals must be present, including at the end of the day so ending at 48.
15. Reason must fit into space in database, so must be less than 65 characters (since the target database field is 64 characters long). The reason can be blank, except when a fixed loading exists in a bid or the bid is a rebid.

Note: For semi-scheduled generators the “Maximum Availability” is not used and the “Unconstrained Intermittent Generation Forecast (UIGF)” is used instead (refer to the *Guide to Intermittent Generation* document on the AEMO website for more information).

5.1.2 Rebid Validation

A bid submitted after the bid cut-off time (currently 12:30 PM on the day before trading day of the bid) is called a rebid. Rebids are subject to the following restrictions:

- The prices of all bands must be the same as those for the latest validly acknowledged bid (that is, the value under “PB1” to “PB10” in “PRICE BANDS” is the same as in last accepted bid).
- A rebid must have a non-blank reason.

5.2 Energy bid validation

This validation is in addition to the validation for all bids (as described in “Validation of bid file and general bid checks” on page 47).

In the following description of bid file validation for an energy bid, the following terms have the specified meanings and interpretation (in addition to the general terms):

- “Maximum Capacity” of the unit is the registered maximum capacity as recorded by AEMO (see **MaxCapacity** column in ***DUDetail*** table with the highest **VersionNo** for the latest **EffectiveDate** on or prior to the bid effective date).
- “Maximum Availability” is under the “Max Availability Loading” heading in “START OF UNIT LIMITS”.
- “Band Availability” is any entry under “BP1” to “BP10” for all 48 periods in “BAND AVAILABILITY”.
- FSML is “Fast Start Min Load” in “START OF FAST START PROFILE”.
- T1 to T4 times are in “START OF FAST START PROFILE”.
- “Unit Ramp Up Rate” for each period is “ROC-UP” in “START OF UNIT LIMITS”.
- The registered maximum rate of change upwards of the unit is recorded by AEMO as in the **MaxRateOfChangeUp** column in ***DUDetail*** table with the highest **VersionNo** for the latest **EffectiveDate** on or prior to the bid effective date.
- “Unit Ramp Down Rate” for each period is “ROC-DOWN” in “START OF UNIT LIMITS”.
- The registered maximum rate of change downwards of the unit is recorded by AEMO as in the **MaxRateOfChangeDown** column in ***DUDetail*** table with the highest **VersionNo** for the latest **EffectiveDate** on or prior to the bid effective date.
- “Transmission Loss Factor” (TLF) is for the connection point where the unit attaches to the network (for the database tables relationship, see “MMS Data Model Report” in “References” on page 72).

The validation on each Energy bid includes:

1. All band prices must be ≥ “Market Price Floor” times “Transmission Loss Factor” or, equivalently (given the monotonic increase rule for band prices), “BandPrice1” ≥ $MPF * TLF.
2. All band prices must be ≤ “Market Price Cap” times “Transmission Loss Factor” or, equivalently (given the monotonic increase rule for band prices), BandPrice10 ≤ MPC * TLF.
3. For slow start units (as registered – that is, **StartType** column in ***DUDetail*** table is “SLOW”, case-insensitive):
   - FSML must be blank.
   - All T1 to T4 times must be blank or 0 (zero).
4. For fast start units (as registered – that is, **StartType** column in ***DUDetail*** table is “FAST”, case-insensitive):
   - FSML must be non-blank.
   - Either all T1 to T4 times must be greater than zero or all must be 0 (zero). When all T1 to T4 times are zero, the unit effectively becomes a slow start unit for dispatch purposes.
   - 0 < FSML ≤ “Maximum Capacity” of the unit.
   - T1 + T2 ≤ 30.
   - T1 + T2 + T3 + T4 < 60 (that is,. ≤ 59).
5. “Unit Fixed Loading” (“Fixed” in “START OF UNIT LIMITS”) is optional. If it is not blank,
   - “Unit Fixed Loading” ≥ 0.
   - “Unit Fixed Loading” ≤ Maximum Capacity of the unit.
   - Reason (“Reason” just before “END OF DISPATCHABLE UNIT”) must be non-blank.
6. “Unit Ramp Up Rate” for each period (ROC-UP) must be non-blank.
7. “Unit Ramp Up Rate” for each period (ROC-UP) ≥ 0.
8. “Unit Ramp Up Rate” for each period (ROC-UP) must be less than the registered maximum rate of change upwards of the unit.
9. “Unit Ramp Down Rate” (ROC-DOWN) is non-blank.
10. “Unit Ramp Down Rate” (ROC-DOWN) ≥ 0.
11. “Unit Ramp Down Rate” (ROC-DOWN) must be less than the registered maximum rate of change downwards of the unit.
12. The version number must be greater than previously accepted for the bid effective date (that is, for “Trading Date” in “START OF BID” matching one or more **OfferDate** in ***BidDayOffer*** table with a **BidType** of “ENERGY”, “Version No” in “START OF BID FILE” must be greater than any “**VersionNo**” for these records).
13. “Maximum Availability” ≤ “Maximum Capacity”.
14. The sum of the “Band Availability”s for each period ≥ “Maximum Capacity”.
15. “Band Availability” ≤ “Maximum Capacity”.

5.3 FCAS bid validation

This validation is in addition to the validation for all bids (as described in “Validation of bid file and general bid checks” on page 47).

In the following description of bid file validation for an FCAS bid, the following terms have the specified meanings and interpretation (in addition to the general terms):

- “Maximum Capacity” is the registered maximum capacity for the Service as recorded by AEMO (see **MaxCapacity** column in ***BidDUIDDetails*** table for given **DUID** and **BidType** with the highest **VersionNo** for the latest **EffectiveDate** on or prior to bid effective date).
- “Enablement Min” is in “START OF UNIT LIMITS”.
- “Low Break Pt” is in “START OF UNIT LIMITS”.

- "Enablement Max" is in "START OF UNIT LIMITS"
- "High Break Pt" is in "START OF UNIT LIMITS"

The FCAS bids validity rules are:

1. All band prices must be ≥ $zero.
2. All band prices must be ≤ "Market Price Cap" or, equivalently (given the monotonic increase rule for band prices), BandPrice10 ≤ MPC.
3. "Enablement Min" ≤ "Enablement Max".
4. "Low Break Pt" ≥ "Enablement Min".
5. "High Break Pt" ≤ "Enablement Max".
6. "Enablement Min" ≥ **MinEnablementLevel** column in ***BidDUIDDetails*** table for given **DUID.**
7. "Enablement Max" <= **MaxEnablementLevel** column in ***BidDUIDDetails*** table for given **DUID**.
8. $\tan^{-1}\left(\frac{\text{"Max Availability Loading "}}{(\text{"Low Break Pt"}-\text{"Enablement Min"})}\right) \leq (MaxLowerAngle)$
   $where\ MaxLowerAngle$
   $= \text{MaxLowerAngle in BidDUIDDetails table for given DUID (evaluating left} - \text{hand side as 90 degrees when Low Break Pt} = \text{Enablement Min).}$
9. $\tan^{-1}\left(\frac{\text{"Max Availability Loading "}}{(\text{"Enablement Max"} - \text{"High Break Pt"})}\right) \leq (MaxUpperAngle)$
   $where\ MaxUpperAngle$
   $= \text{MaxUpperAngle in BidDUIDDetails table for given DUID (evaluating left} - \text{hand side as 90 degrees when High Break Pt} = \text{Enablement Max).}$
10. "Max Availability Loading" <= "Maximum Capacity".
11. The sum of the "Band Availability"s for each period >= "Maximum Capacity".
12. Each "Band Availability" <= "Maximum Capacity".

5.4 MNSP bid validation

This validation is in addition to the validation for all bids (as described in "Validation of bid file and general bid checks" on page 47).

In the following description of bid file validation for an MNSP bid, the following terms have the specified meanings and interpretation (in addition to the general terms):

- "Maximum Capacity" of the link is the registered maximum capacity as recorded by AEMO (see **MaxCapacity** column in the ***MNSP_Interconnector*** table with the highest **VersionNo** for the latest **EffectiveDate** on or prior to bid effective date).
- "Transmission Loss Factor" (TLF) is for the interconnector (**TLF** column in ***MNSP_Interconnector*** table).

The validation on each MNSP bid includes:

1. All band prices must be ≥ "Market Price Floor" times "Transmission Loss Factor" or, equivalently (given the monotonic increase rule for band prices), "BandPrice1" ≥ $MPF * TLF.
2. All band prices must be ≤ "Market Price Cap" times "Transmission Loss Factor" or, equivalently (given the monotonic increase rule for band prices), "BandPrice10" ≤ MPC * TLF.
3. "Link Ramp Up Rate" ("ROC-UP" in "START OF UNIT LIMITS") is non-blank.
4. "Link Ramp Up Rate" ("ROC-UP" in "START OF UNIT LIMITS") ≥ 0.
5. "Link Fixed Loading" ("Fixed" in "START OF UNIT LIMITS") is optional. If it is not blank:
   - "Fixed" ≥ 0.
   - "Fixed" ≤ "Maximum Capacity" of the link.
   - "Reason" must be non-blank.

6. For the first bands of each link flow direction with a non-zero effective “Band Availability”, the associated band price in the reverse direction must be higher than the negative of the associated band price in the forward direction (after accounting for MNSP flow losses in the first loss segment). For more details, refer to “MNSP dispatch offer convexity validation rule” below.
7. “Maximum Availability” ≤ “Maximum Capacity”.
8. The sum of the “Band Availability”s for each period ≥ “Maximum Capacity”.
9. Each “Band Availability” ≤ “Maximum Capacity”.

5.4.1 MNSP dispatch offer convexity validation rule

The MNSP Offer Convexity validation is specifically required under NER Clause 3.8.6A (e). This validation is called the MNSP dispatch offer convexity validation rule or the MNSP negative band price validation rule. This price validation ensures a convex offer curve for the bi-directional MNSP interconnector. The rule avoids dispatch of circulating MNSP link flows between the two link flow directions.

MNSP bids for the two directions of an interconnector at the same time are closely related, since the negative flow in one direction is the positive flow in the other and negative prices are acceptable. The bid for the opposite direction can be either an earlier bid in the same file (that is, processed and valid but not yet committed to the database) or in a previously loaded bid in the database. Because the latest MNSP bid for a link is effective until superseded, the bid for the opposite direction always exists (even if days old).

The flexibility for the MNSP trading activity means the MNSP trader can:

- Validly offer negative band prices in both flow directions prior to the 1230 hrs cut-off time for a trading day, as long as at least one of the submitted flow direction dispatch offers has zero “Band Capacity” in all of its negatively-priced bands.
- After the 1230 hrs cut-off time or during the trading day itself, change the direction of dispatched flow by effectively switching between the dispatch of negatively-priced bands in each flow direction through sequential rebidding, as follows:
    - For the currently-dispatched flow direction for all trading intervals, move band capacity into sufficiently-high positively-priced bands in order to still satisfy the convexity rule against the existing valid MNSP dispatch offer in the other flow direction. The highest-priced band from which to remove band capacity depends upon the lowest negatively-priced band into which the MNSP trader wishes to shift band capacity for the other flow direction - the MNSP dispatch offer convexity rule cannot be violated at any time.

      Alternatively, the MNSP trader may rebid “Energy Availability” for the currently-dispatched flow direction to zero MW for all trading intervals.
    - For the other flow direction, move the desired amount of band capacity into the target negatively-priced bands.

The checking below is needed only if both directions have a non-zero maximum energy available in the same period (that is, if the “Maximum Availability” for either the forward and reverse direction is zero, then this validation check passes without any more calculation).

If the maximum energy available is non-zero in both directions for the same period (as above), the band prices for the lowest-priced non-zero band availability in each direction must be such that the loss-adjusted band price in the reverse flow direction is greater than the negative of the band price in the forward direction. The following mathematical expression is the precise calculation:

$$factor\ x\ BandPrice(Reverse\ Flow\ Offer)\ >\ -BandPrice(Forward\ Flow\ Offer)$$

where factor adjusts for losses, being

$$factor\ = \frac{1\ +\ FromRegionLossShare\ *\ MLF}{(1\ +\ FromRegionLossShare\ *\ MLF\ -\ MLF)}$$

and

$$MLF = LossConstant - 1 + (LossFlowCoefficient * \frac{(MWBreakPoint_0 + MWBreakPoint_1)}{2}$$

The following notes are relevant:

- MLF is the intra-regional marginal loss factor.
- The calculation above is a simplification of the general formula, with the simplification based on the assumption that the LossDemandConstant is zero (see "Appendix 1 – MNSP Convexity Validation Rule" on page 68 for the general formula and derivation of the rule).
- $MWBreakPoint_1$ is the smallest value of the **MWBreakPoint** column greater than zero in the ***LossModel*** table for the interconnector (being the upper breakpoint of the first loss segment in the MNSP forward direction).
- $MWBreakPoint_0$ is the next smaller value of the **MWBreakPoint** column in the ***LossModel*** table for the interconnector (being the lower breakpoint of the first loss segment in the MNSP forward direction). The $MWBreakPoint_0$ is planned to be zero, but might not be.
- **LossFlowCoefficient** is in the ***InterconnectorConstraint*** table for the interconnector.
- **LossConstant** is in the ***InterconnectorConstraint*** table for the interconnector.
- **FromRegionLossShare** is in the ***InterconnectorConstraint*** table for the interconnector.
- factor is independent of the bid, since all its components relate to the interconnector.
- factor is a number close to 1 (which is useful to know when doing validation checks manually).
- **BandPrice**(Forward Flow Offer) is the corresponding "PB1" to "PB10" in the "START OF PRICE BANDS" section of the current link bid to the lowest-numbered (that is, lowest-priced) non-zero band availability under the "PB1" to "PB10" headings for the period in the "START OF BAND AVAILABILITY" section in the same link bid.
- **BandPrice**(Reverse Flow Offer) is in a valid earlier bid (committed to database or not) for the same interconnector in the other direction. If an earlier uncommitted bid exists covering the same period, **BandPrice**(Reverse Flow Offer) is the corresponding "PB1" To "PB10" in the "START OF PRICE BANDS" section of the uncommitted link bid to the lowest-numbered non-zero band availability under the "PB1" to "PB10" headings for the period in the "START OF BAND AVAILABILITY" section in the same link bid. If the bid for the other direction is in the database, **BandPrice**(Reverse Flow Offer) is the corresponding **PriceBand1** to **PriceBand10** column in ***MNSP_DayOffer*** table to the lowest-numbered non-zero band availability in **BandAvail1** to **BandAvail10** in ***MNSP_PerOffer*** table.
- The calculation above is necessary only when the maximum available link capacity is not zero for both the forward and reverse direction. The maximum available link capacity is "Max Availability Loading" in "START OF UNIT LIMITS" section of the bid file or **MaxAvail** column in the ***MNSP_PerOffer*** table.

6 Bid data in the MMS Data Model

6.1 Energy bid - Update tables in NEM

An EMMS application loads energy bids to the NEM database for further use. An energy bid file is a bid file containing at least one bid with energy service type (“Service Type” in “START OF BID” being "ENERGY").

6.1.1 Every Energy bid

For each file containing an energy bid (whether the file is valid or not and whether or not the file contains other bid types as well), an EMMS application adds an entry to the ***BidOfferFileTrk*** table as follows:

BidOfferFileTrk **column**	**Source (bid file, unless stated otherwise)**
ParticipantID	“From” in “START OF BID FILE” (same as first part of file name and the path of the source file), being the Participant Identifier.
OfferDate	System date, being the actual date and time AEMO processed the bid file.
FileName	File name as submitted (with suffix of .txt or .zip), excluding path.
Status	Load status [SUCCESSFUL/CORRUPT] as determined by loader application.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
AuthorisedBy	“Authorised by” ” in “START OF BID FILE”, being the authorising officer.
AuthorisedDate	System time of the start of the run processing this file, being the date and time of creation of this record.

6.1.2 Accepted Energy bid

For every successful energy bid, an EMMS application updates the bid tables (***BidPerOffer*** and ***BidDayOffer***).

For each successful energy bid in the file, an EMMS application adds a new record to the ***BidDayOffer*** table, as follows:

BidDayOffer **column**	**Source (bid file, unless stated otherwise)**
DUID	“Dispatchable Unit Id” in “START OF DISPATCHABLE UNIT”, being the identifier for a unit.
BidType	“ENERGY”, being the “Service Type” in “START OF BID”.
SettlementDate	“Trading Date” in “START OF BID”, being the Market Date from which bid is active.
OfferDate	System date, being the actual date and time AEMO processed the bid file – the most recent offer takes precedence.
VersionNo	“Version No” in “START OF BID FILE” (for reference; not part of key).
ParticipantID	“From” in “START OF BID FILE” (same as first part of file name and the path of the source file), being the Participant Identifier.
DailyEnergyConstraint	“Daily Energy Constraint” in “START OF DISPATCHABLE UNIT”.
RebidExplanation	“Reason” just before “END OF DISPATCHABLE UNIT”, being the explanation for all rebids and inflexibilities.
PriceBand1	“PB1” in “PRICE BANDS” being the price for Availability Band 1.
PriceBand2	“PB2” in “PRICE BANDS” being the price for Availability Band 2.
PriceBand3	“PB3” in “PRICE BANDS” being the price for Availability Band 3.

PriceBand4	"PB4" in "PRICE BANDS" being the price for Availability Band 4.
PriceBand5	"PB5" in "PRICE BANDS" being the price for Availability Band 5.
PriceBand6	"PB6" in "PRICE BANDS" being the price for Availability Band 6.
PriceBand7	"PB7" in "PRICE BANDS" being the price for Availability Band 7.
PriceBand8	"PB8" in "PRICE BANDS" being the price for Availability Band 8.
PriceBand9	"PB9" in "PRICE BANDS" being the price for Availability Band 9.
PriceBand10	"PB10" in "PRICE BANDS" being the price for Availability Band 10.
MinimumLoad	"Fast Start Min Load" in "START OF FAST START PROFILE".
T1	"FS Time at Zero (T1)" in "START OF FAST START PROFILE".
T2	"FS Time to Min Load (T2)" in "START OF FAST START PROFILE".
T3	"FS Time at Min Load (T3)" in "START OF FAST START PROFILE".
T4	"FS Time to zero (T4)" in "START OF FAST START PROFILE".
NormalStatus	Empty, since unused.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
MR_Factor	"MR Offer Price Scaling Factor" in "START OF DISPATCHABLE UNIT"
EntryType	Bid type, either "Rebid" or "Daily" (depends on date and time of submission).

For each energy bid in the file, an EMMS application adds a new record for each of the 48 periods to the ***BidPerOffer*** table, as follows:

BidPerOffer **column**	**Source (bid file, unless stated otherwise)**
DUID	"Dispatchable Unit Id" in "START OF DISPATCHABLE UNIT", being the identifier for the unit.
BidType	"Service Type" in "START OF BID", being the literal "ENERGY" (determines this bid as an energy bid).
SettlementDate	"Trading Date" in "START OF BID", being the Market Date from which bid is active.
OfferDate	System date, being the actual date and time AEMO processed the bid file – the most recent offer takes precedence.
PeriodID	"Trading Interval" in "START OF UNIT LIMITS", being the "Trading Interval" number.
VersionNo	"Version No" in "START OF BID FILE", being the version of the bid file (although version is irrelevant to precedence for energy bids).
MaxAvail	"Max Availability Loading" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum planned availability MW.
FixedLoad	If "Fixed" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID** is blank or zero, **FixedLoad** is zero. Otherwise (0 < "Fixed" ≤ "Max Availability" for "Trading Interval"), **FixedLoad** is the "Fixed" for the "Trading Interval" matching this record's **PeriodID**. **FixedLoad** is the inflexibility flag and availability.
RocUp	"ROC UP" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum rate of increase in MW/min for this unit.
RocDown	"ROC DOWN" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum rate of decrease in MW/min for this unit.
EnablementMin	Empty for energy bids.
EnablementMax	Empty for energy bids.
LowBreakPoint	Empty for energy bids.

HighBreakPoint	Empty for energy bids.
BandAvail1	In “START OF BAND AVAILABILITY”, the number under “PB1” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail2	In “START OF BAND AVAILABILITY”, the number under “PB2” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail3	In “START OF BAND AVAILABILITY”, the number under “PB3” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail4	In “START OF BAND AVAILABILITY”, the number under “PB4” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail5	In “START OF BAND AVAILABILITY”, the number under “PB5” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail6	In “START OF BAND AVAILABILITY”, the number under “PB6” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail7	In “START OF BAND AVAILABILITY”, the number under “PB7” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail8	In “START OF BAND AVAILABILITY”, the number under “PB8” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail9	In “START OF BAND AVAILABILITY”, the number under “PB9” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail10	In “START OF BAND AVAILABILITY”, the number under “PB10” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
PASAAvailability	“PASA Availability” in “START OF UNIT LIMITS” for the “Trading Interval” matching this record’s **PeriodID**, being the physical plant capability including any capability potentially available within 24 hours.
MR_Capacity	“MR Capacity” in “START OF UNIT LIMITS” for the “Trading Interval” matching this record’s **PeriodID**, being the “MR Capacity” bid for the current period.

6.1.3 Usage of energy bid data

The target location for each source field in an energy bid follows. The list is in sequence from beginning of a bid file containing a single energy bid.

Energy bid source field	Target(s) and Notes
Name of file	**FileName** in ***BidOfferFileTrk.***
START OF BID FILE	(Required heading).
To	Unused (must be the literal “NEMMCO”).
From	**ParticipantID** in ***BidOfferFileTrk***.
Issued On	Ignored.
Version No	**VersionNo** in ***BidDayOffer***, **VersionNo** in ***BidPerOffer***.

Authorised by	**AuthorisedBy** in ***BidOfferFileTrk.***
START OF BID	(Required heading).
Service Type	literal “ENERGY” determines this as an energy bid.
Trading Date	**SettlementDate** in ***BidDayOffer***, **SettlementDate** in ***BidPerOffer***.
START OF DISPATCHABLE UNIT	(Required heading).
Dispatchable Unit Id	**DUID** in ***BidDayOffer***, **DUID** in ***BidPerOffer***.
Daily Energy Constraint	**DailyEnergyConstraint** in ***BidDayOffer***.
START OF FAST START PROFILE	(Required heading).
Fast Start Min Load	**MinimumLoad** in ***BidDayOffer***.
FS Time at Zero (T1)	**T1** in ***BidDayOffer***.
FS Time to Min Load (T2)	**T2** in ***BidDayOffer***.
FS Time at Min Load (T3)	**T3** in ***BidDayOffer***.
FS Time to zero (T4)	**T4** in ***BidDayOffer***.
END OF FAST START PROFILE	(Required heading).
START OF UNIT LIMITS	(Required heading).
Trading Interval	**PeriodID** in ***BidPerOffer***.
Max Availability Loading	**MaxAvail** in ***BidPerOffer***.
ROC-UP	**RocUp** in ***BidPerOffer***.
ROC-DOWN	**RocDown** in ***BidPerOffer***.
Fixed	**FixedLoad** in ***BidPerOffer***.
Pasa Availability	**PasaAvailability** in ***BidPerOffer***.
END OF UNIT LIMITS	(Required heading).
START OF PRICE BANDS	(Required heading).
Price Band	(Required heading; must be “PB1” to “PB10”).
Price($/MWh) under PB1	**PriceBand1** in ***BidDayOffer***.
Price($/MWh) under PB2	**PriceBand2** in ***BidDayOffer***.
Price($/MWh) under PB3	**PriceBand3** in ***BidDayOffer***.
Price($/MWh) under PB4	**PriceBand4** in ***BidDayOffer***.
Price($/MWh) under PB5	**PriceBand5** in ***BidDayOffer***.
Price($/MWh) under PB6	**PriceBand6** in ***BidDayOffer***.
Price($/MWh) under PB7	**PriceBand7** in ***BidDayOffer***.
Price($/MWh) under PB8	**PriceBand8** in ***BidDayOffer***.
Price($/MWh) under PB9	**PriceBand9** in ***BidDayOffer***.
Price($/MWh) under PB10	**PriceBand10** in ***BidDayOffer***.
END OF PRICE BANDS	(Required heading).
START OF BAND AVAILABILITY	(Required heading).
Trading Interval	(Required heading; must be “PB1” to “PB10”).
01 to 48: PB1 column	**BandAvail1** in ***BidPerOffer***.
01 to 48: PB2 column	**BandAvail2** in ***BidPerOffer***.

01 to 48: PB3 column	**BandAvail3** in ***BidPerOffer***.
01 to 48: PB4 column	**BandAvail4** in ***BidPerOffer***.
01 to 48: PB5 column	**BandAvail5** in ***BidPerOffer***.
01 to 48: PB6 column	**BandAvail6** in ***BidPerOffer***.
01 to 48: PB7 column	**BandAvail7** in ***BidPerOffer***.
01 to 48: PB8 column	**BandAvail8** in ***BidPerOffer***.
01 to 48: PB9 column	**BandAvail9** in ***BidPerOffer***.
01 to 48: PB10 column	**BandAvail10** in ***BidPerOffer***.
END OF BAND AVAILABILITY	(Required heading).
Reason	**RebidExplanation** in ***BidDayOffer***.
END OF DISPATCHABLE UNIT	(Required heading).
END OF BID	(Required heading).
END OF BID FILE	(Required heading)

6.1.4 TLF for a DUID

To see the relationships between tables in the MMS Data Model, see the “MMS Data Model Report”.

For example, to find the relevant TLF for the “Dispatchable Unit Id” in “START OF DISPATCHABLE UNIT”, use the “Dispatchable Unit Id” as the **DUID** column in ***DUDetail*** together with relevant values for **EffectiveDate** and **VersionNo**, link to the ***TransmissionLossFactor*** table via the **ConnectionPointID** column with the relevant **EffectiveDate** and **VersionNo**, and use the value in the **TransmissionLossFactor** column. The ***DUDetailSummary*** table is a derivation from other tables, so using a query based on the “Dispatchable Unit Id” as the **DUID** column in the ***DUDetailSummary*** table, plus a relevant **StartDate** gets the same result.

6.2 FCAS bid - Update tables in NEM

An EMMS application loads FCAS bids to the NEM database for further use. An FCAS bid file is a bid file containing at least one bid with FCAS service type (that is, with “Service Type” in “START OF BID” being one of "RAISE6SEC", "RAISE60SEC", "RAISE5MIN", "RAISEREG", "LOWER6SEC", "LOWER60SEC", "LOWER5MIN" and "LOWERREG").

6.2.1 Every FCAS bid

For every FCAS bid file (whether successful or not and whether or not the file contains other bid types as well), an EMMS application adds an entry to the ***BidOfferFileTrk*** table as follows:

BidOfferFileTrk **column**	**Source (bid file, unless stated otherwise)**
ParticipantID	“From” in “START OF BID FILE” (same as first part of file name and the path of the source file), being the participant identifier.
OfferDate	System date, being the actual date and time AEMO processed the bid file.
FileName	File name as submitted with suffix (.txt or .zip).
Status	Load status [SUCCESSFUL/CORRUPT] as determined by an EMMS application.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.

6.2.2 Accepted FCAS bid

For every successful FCAS bid, an EMMS application updates the two bid tables (***BidPerOffer*** and ***BidDayOffer***).

For each successful FCAS bid in the file, an EMMS application adds a new record to ***BidDayOffer*** as follows:

BidDayOffer column	Source (bid file, unless stated otherwise)
DUID	"Dispatchable Unit Id" in "START OF DISPATCHABLE UNIT", being the identifier for a unit.
BidType	"Service Type" in "START OF BID", being one of the literals "RAISE6SEC", "RAISE60SEC", "RAISE5MIN", "RAISEREG", "LOWER6SEC", "LOWER60SEC", "LOWER5MIN" and "LOWERREG" (determines this bid as an FCAS bid).
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date and time AEMO processed the bid file; the most recent offer takes precedence.
VersionNo	"Version No" in "START OF BID FILE", being the version of the bid file (although version is irrelevant to precedence for FCAS bids).
ParticipantID	"From" in "START OF BID FILE" (same as first part of file name and the path of the source file), being the participant identifier.
DailyEnergyConstraint	Empty for FCAS bids.
RebidExplanation	"Reason" just before "END OF DISPATCHABLE UNIT", being the explanation for all rebids and inflexibilities.
PriceBand1	"PB1" in "PRICE BANDS" being the price for Availability Band 1.
PriceBand2	"PB2" in "PRICE BANDS" being the price for Availability Band 2.
PriceBand3	"PB3" in "PRICE BANDS" being the price for Availability Band 3.
PriceBand4	"PB4" in "PRICE BANDS" being the price for Availability Band 4.
PriceBand5	"PB5" in "PRICE BANDS" being the price for Availability Band 5.
PriceBand6	"PB6" in "PRICE BANDS" being the price for Availability Band 6.
PriceBand7	"PB7" in "PRICE BANDS" being the price for Availability Band 7.
PriceBand8	"PB8" in "PRICE BANDS" being the price for Availability Band 8.
PriceBand9	"PB9" in "PRICE BANDS" being the price for Availability Band 9.
PriceBand10	"PB10" in "PRICE BANDS" being the price for Availability Band 10.
MinimumLoad	Empty for FCAS bids.
T1	Empty for FCAS bids.
T2	Empty for FCAS bids.
T3	Empty for FCAS bids.
T4	Empty for FCAS bids.
NormalStatus	Empty, since unused.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
MR_Factor	
EntryType	Bid type, either "Rebid" or "Daily" (depends on date and time of submission).

For each FCAS bid in the file, an EMMS application adds a new record for each of the 48 periods to ***BidPerOffer*** as follows:

BidPerOffer **column**	**Source (bid file, unless stated otherwise)**
DUID	"Dispatchable Unit Id" in "START OF DISPATCHABLE UNIT", being the identifier for the unit.
BidType	"Service Type" in "START OF BID", being one of the literals "RAISE6SEC", "RAISE60SEC", "RAISE5MIN", "RAISEREG", "LOWER6SEC", "LOWER60SEC", "LOWER5MIN" and "LOWERREG" (determines this bid as an FCAS bid).
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date and time AEMO processed the bid file; the most recent offer takes precedence.
PeriodID	"Trading Interval" in "START OF UNIT LIMITS", being the "Trading Interval" number.
VersionNo	"Version No" in "START OF BID FILE", being the version of the bid file (although version is irrelevant to precedence for FCAS bids).
MaxAvail	"Max Availability Loading" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum planned availability MW.
FixedLoad	Empty for FCAS bids.
RocUp	Empty for FCAS bids.
RocDown	Empty for FCAS bids.
EnablementMin	"Enablement Min" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the minimum energy output (MW) at which this ancillary service becomes available.
EnablementMax	"Enablement Max" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum energy output (MW) at which this ancillary service can be supplied.
LowBreakPoint	"Low Break Pt" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's PeriodID, being the minimum energy output (MW) at which the unit can provide the full availability (**MaxAvail**) for this ancillary service.
HighBreakPoint	"High Break Pt" in START OF UNIT LIMITS for the "Trading Interval" matching this record's **PeriodID**, being the maximum energy output (MW) at which the unit can provide the full availability (**MaxAvail**) for this ancillary service.
BandAvail1	In "START OF BAND AVAILABILITY", the number under "PB1" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail2	In "START OF BAND AVAILABILITY", the number under "PB2" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail3	In "START OF BAND AVAILABILITY", the number under "PB3" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail4	In "START OF BAND AVAILABILITY", the number under "PB4" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail5	In "START OF BAND AVAILABILITY", the number under "PB5" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.

BidPerOffer **column**	**Source (bid file, unless stated otherwise)**
BandAvail6	In "START OF BAND AVAILABILITY", the number under "PB6" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail7	In "START OF BAND AVAILABILITY", the number under "PB7" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail8	In "START OF BAND AVAILABILITY", the number under "PB8" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail9	In "START OF BAND AVAILABILITY", the number under "PB9" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
BandAvail10	In "START OF BAND AVAILABILITY", the number under "PB10" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
PASAAvailability	Empty for FCAS bids.
MR_Capacity	

6.2.3 Usage of FCAS bid data

The target location for each source field in a FCAS bid follows. The list is in sequence from beginning of a bid file containing a single FCAS bid.

FCAS bid source field	**Target(s) and Notes**
Name of file	**FileName** in ***BidOfferFileTrk.***
START OF BID FILE	(Required heading).
To	Unused (must be the literal "NEMMCO").
From	**ParticipantID** in ***BidOfferFileTrk.***
Issued On	Ignored.
Version No	**VersionNo** in ***BidDayOffer***, **VersionNo** in ***BidPerOffer.***
Authorised by	??
START OF BID	(Required heading).
Service Type	**BidType** in ***BidDayOffer***, **BidType** in ***BidPerOffer***, being one of the literals "RAISE6SEC", "RAISE60SEC", "RAISE5MIN", "RAISEREG", "LOWER6SEC", "LOWER60SEC", "LOWER5MIN" and "LOWERREG" (determines this bid as an FCAS bid).
Trading Date	**SettlementDate** in ***BidDayOffer***, **SettlementDate** in ***BidPerOffer.***
START OF DISPATCHABLE UNIT	(Required heading).
Dispatchable Unit Id	**DUID** in ***BidDayOffer***, **DUID** in ***BidPerOffer.***
START OF UNIT LIMITS	(Required heading).
Trading Interval	**PeriodID** in ***BidPerOffer.***
Max Availability Loading	**MaxAvail** in ***BidPerOffer.***
Enablement Min	**EnablementMin** in ***BidPerOffer.***

Low Break Pt	**LowBreakPoint** in ***BidPerOffer.***
Enablement Max	**EnablementMax** in ***BidPerOffer.***
High Break Pt	**HighBreakPoint** in ***BidPerOffer.***
END OF UNIT LIMITS	(Required heading).
START OF PRICE BANDS	(Required heading).
Price Band	(Required heading; must be PB1 to PB10).
Price($/MWh) under PB1	**PriceBand1** in ***BidDayOffer.***
Price($/MWh) under PB2	**PriceBand2** in ***BidDayOffer.***
Price($/MWh) under PB3	**PriceBand3** in ***BidDayOffer.***
Price($/MWh) under PB4	**PriceBand4** in ***BidDayOffer.***
Price($/MWh) under PB5	**PriceBand5** in ***BidDayOffer.***
Price($/MWh) under PB6	**PriceBand6** in ***BidDayOffer.***
Price($/MWh) under PB7	**PriceBand7** in ***BidDayOffer.***
Price($/MWh) under PB8	**PriceBand8** in ***BidDayOffer.***
Price($/MWh) under PB9	**PriceBand9** in ***BidDayOffer.***
Price($/MWh) under PB10	**PriceBand10** in ***BidDayOffer.***
END OF PRICE BANDS	(Required heading).
START OF BAND AVAILABILITY	(Required heading).
Trading Interval	(Required heading; must be PB1 to PB10).
01 to 48: PB1 column	**BandAvail1** in ***BidPerOffer.***
01 to 48: PB2 column	**BandAvail2** in ***BidPerOffer.***
01 to 48: PB3 column	**BandAvail3** in ***BidPerOffer.***
01 to 48: PB4 column	**BandAvail4** in ***BidPerOffer.***
01 to 48: PB5 column	**BandAvail5** in ***BidPerOffer.***
01 to 48: PB6 column	**BandAvail6** in ***BidPerOffer.***
01 to 48: PB7 column	**BandAvail7** in ***BidPerOffer.***
01 to 48: PB8 column	**BandAvail8** in ***BidPerOffer.***
01 to 48: PB9 column	**BandAvail9** in ***BidPerOffer.***
01 to 48: PB10 column	**BandAvail10** in ***BidPerOffer.***
END OF BAND AVAILABILITY	(Required heading).
Reason	**RebidExplanation** in ***BidDayOffer***.
END OF DISPATCHABLE UNIT	(Required heading).
END OF BID	(Required heading).
END OF BID FILE	(Required heading).

6.3 MNSP bid - Update tables in NEM

An EMMS application loads MNSP bids to the NEM database for further use. A MNSP bid file is a bid file containing at least one bid with MNSP service type (that is, with a “Service Type” in “START OF BID” being "MNSP").

6.3.1 Every MNSP bid

For each file containing an MNSP bid (whether the file is valid or not and whether or not the file contains other bid types as well), an EMMS application adds an entry to the ***MNSP_FileTrk*** table as follows:

MNSP_FileTrk **column**	**Source (bid file, unless stated otherwise)**
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date (without time) AEMO processed the bid file.
ParticipantID	"From" in "START OF BID FILE" (same as first part of file name and the path of the source file), being the participant identifier.
FileName	File name submitted for bids, rebids, re-offers or meter files, as appropriate to table.
Status	Load status [SUCCESSFUL/CORRUPT] as determined by an EMMS application.
AckFileName	Acknowledgement file name.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.

6.3.2 Accepted MNSP bid

For every successful MNSP bid, an EMMS application updates the three MNSP bid tables (***MNSP_OfferTrk***, ***MNSP_PerOffer*** and ***MNSP_DayOffer***).

For each error-free file containing at least one MNSP bid, an EMMS application adds a new record to ***MNSP_OfferTrk*** as follows:

MNSP_OfferTrk **column**	**Source (bid file, unless stated otherwise)**
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date (without time) AEMO processed the bid file.
VersionNo	"Version No" in "START OF BID FILE", being the version of data for other key data; a higher version for same key data takes precedence.
ParticipantID	"From" in "START OF BID FILE" (same as first part of file name and the path of the source file), being the participant identifier.
FileName	The name of submitted file including the suffix (.txt or .zip) and excluding the path.
AuthorisedDate	"Issued On" in "START OF BID FILE", being the date and time of authorisation.
AuthorisedBy	"Authorised by" " in "START OF BID FILE", being the authorising officer.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.

For each MNSP bid in the file, an EMMS application adds a new record to ***MNSP_DayOffer*** as follows:

MNSP_DayOffer **column**	**Source (bid file, unless stated otherwise)**
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date (without time) AEMO processed the bid file.

MNSP_DayOffer **column**	**Source (bid file, unless stated otherwise)**
VersionNo	"Version No" in "START OF BID FILE", being the version of data for other key data – a higher version for same key data takes precedence.
ParticipantID	"From" in "START OF BID FILE" (same as first part of file name and the path of the source file), being the participant identifier.
LinkID	"Dispatchable Unit Id" in "START OF DISPATCHABLE UNIT", being the identifier for one of the two MNSP interconnector links. Each link pertains to the direction from and to.
EntryType	Bid type, either "Rebid" or "Daily" (depends on trading date and time of submission).
RebidExplanation	"Reason" just before "END OF DISPATCHABLE UNIT", being the explanation for all rebids and inflexibilities.
PriceBand1	"PB1" in "PRICE BANDS" being the price for Availability Band 1.
PriceBand2	"PB2" in "PRICE BANDS" being the price for Availability Band 2.
PriceBand3	"PB3" in "PRICE BANDS" being the price for Availability Band 3.
PriceBand4	"PB4" in "PRICE BANDS" being the price for Availability Band 4.
PriceBand5	"PB5" in "PRICE BANDS" being the price for Availability Band 5.
PriceBand6	"PB6" in "PRICE BANDS" being the price for Availability Band 6.
PriceBand7	"PB7" in "PRICE BANDS" being the price for Availability Band 7.
PriceBand8	"PB8" in "PRICE BANDS" being the price for Availability Band 8.
PriceBand9	"PB9" in "PRICE BANDS" being the price for Availability Band 9.
PriceBand10	"PB10" in "PRICE BANDS" being the price for Availability Band 10.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.

For each MNSP bid in the file, an EMMS application adds a new record for each of the 48 periods to ***MNSP_PerOffer*** as follows:

MNSP_PerOffer **column**	**Source (bid file, unless stated otherwise)**
SettlementDate	"Trading Date" in "START OF BID", being the NEM market date from which bid is active.
OfferDate	System date, being the actual date (without time) AEMO processed the bid file.
VersionNo	"Version No" in "START OF BID FILE", being the version of data for other key data – a higher version for same key data takes precedence.
ParticipantID	"From" in "START OF BID FILE" (same as first part of file name and the path of the source file), being the Participant Identifier.
LinkID	"Dispatchable Unit Id" in "START OF DISPATCHABLE UNIT", being the identifier for one of the two MNSP interconnector links. Each link pertains to the direction from and to.
PeriodID	"Trading Interval" in "START OF UNIT LIMITS", being the "Trading Interval" number.
MaxAvail	"Max Availability Loading" in "START OF UNIT LIMITS" for the "Trading Interval" matching this record's **PeriodID**, being the maximum planned availability MW.
BandAvail1	In "START OF BAND AVAILABILITY", the number under "PB1" for the "Trading Interval" matching this record's **PeriodID**, being the band availability for current period.

MNSP_PerOffer **column**	**Source (bid file, unless stated otherwise)**
BandAvail2	In “START OF BAND AVAILABILITY”, the number under “PB2” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail3	In “START OF BAND AVAILABILITY”, the number under “PB3” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail4	In “START OF BAND AVAILABILITY”, the number under “PB4” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail5	In “START OF BAND AVAILABILITY”, the number under “PB5” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail6	In “START OF BAND AVAILABILITY”, the number under “PB6” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail7	In “START OF BAND AVAILABILITY”, the number under “PB7” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail8	In “START OF BAND AVAILABILITY”, the number under “PB8” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail9	In “START OF BAND AVAILABILITY”, the number under “PB9” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
BandAvail10	In “START OF BAND AVAILABILITY”, the number under “PB10” for the “Trading Interval” matching this record’s **PeriodID**, being the band availability for current period.
LastChanged	System time of the start of the run processing this file, being the date and time of creation of this record.
FixedLoad	If “Fixed” ” in “START OF UNIT LIMITS” for the “Trading Interval” matching this record’s **PeriodID** is blank or zero, **FixedLoad** is zero. Otherwise (0 < “Fixed” <= “Max Availability” for “Trading Interval”), **FixedLoad** is the “Fixed” for the “Trading Interval” matching this record’s **PeriodID**. **FixedLoad** is the inflexibility flag and availability.
RampUpRate	“ROC UP” in “START OF UNIT LIMITS” for the “Trading Interval” matching this record’s **PeriodID**, being the maximum rate of change in MW/min for this link (that is, this direction on the interconnector).

6.3.3 MNSP bid data usage

The target location for each source field in an MNSP bid follows. The list is in sequence from beginning of a bid file containing a single MNSP bid.

MNSP bid source field	**Target(s) and Notes**
Name of file	**FileName** in ***MNSP_FileTrk***, FileName in ***MNSP_OfferTrk.***
START OF BID FILE	(Required heading).
To	Unused (must be the literal “NEMMCO”).
From	**ParticipantID** in ***MNSP_FileTrk***, **ParticipantID** in ***MNSP_OfferTrk***, **ParticipantID** in ***MNSP_DayOffer***, **ParticipantID** in ***MNSP_PerOffer.***

MNSP bid source field	Target(s) and Notes
Issued On	**AuthorisedDate** in ***MNSP_OfferTrk***.
Version No	**VersionNo** in ***MNSP_OfferTrk***, **VersionNo** in ***MNSP_DayOffer***, **VersionNo** in ***MNSP_PerOffer***.
Authorised by	**AuthorisedBy** in ***MNSP_OfferTrk***.
START OF BID	(Required heading).
Service Type	(determines validation rules) For an MNSP bid, “Service Type” is “MNSP”.
Trading Date	**SettlementDate** in ***MNSP_FileTrk***, **SettlementDate** in ***MNSP_OfferTrk***, **SettlementDate** in ***MNSP_DayOffer***, **SettlementDate** in ***MNSP_PerOffer***.
START OF DISPATCHABLE UNIT	(Required heading).
Dispatchable Unit Id	**LinkID** in ***MNSP_DayOffer***, **LinkID** in ***MNSP_PerOffer***.
START OF UNIT LIMITS	(Required heading).
Trading Interval	**PeriodID** in ***MNSP_PerOffer***.
Max Availability Loading	**MaxAvail** in ***MNSP_PerOffer***.
ROC-UP	**RampUpRate** in ***MNSP_PerOffer***.
Fixed	**FixedLoad** in ***MNSP_PerOffer***.
START OF PRICE BANDS	(Required heading).
Price Band	(Required heading; must be “PB1” to “PB10”).
Price($/MWh) under PB1	**PriceBand1** in ***MNSP_DayOffer***.
Price($/MWh) under PB2	**PriceBand2** in ***MNSP_DayOffer***.
Price($/MWh) under PB3	**PriceBand3** in ***MNSP_DayOffer***.
Price($/MWh) under PB4	**PriceBand4** in ***MNSP_DayOffer***.
Price($/MWh) under PB5	**PriceBand5** in ***MNSP_DayOffer***.
Price($/MWh) under PB6	**PriceBand6** in ***MNSP_DayOffer***.
Price($/MWh) under PB7	**PriceBand7** in ***MNSP_DayOffer***.
Price($/MWh) under PB8	**PriceBand8** in ***MNSP_DayOffer***.
Price($/MWh) under PB9	**PriceBand9** in ***MNSP_DayOffer***.
Price($/MWh) under PB10	**PriceBand10** in ***MNSP_DayOffer***.
END OF PRICE BANDS	(Required heading).
START OF BAND AVAILABILITY	(Required heading).
Trading Interval	(Required heading; must be “PB1” to “PB10”).
01 to 48: PB1 column	**BandAvail1** in ***MNSP_PerOffer***.
01 to 48: PB2 column	**BandAvail2** in ***MNSP_PerOffer***.
01 to 48: PB3 column	**BandAvail3** in ***MNSP_PerOffer***.
01 to 48: PB4 column	**BandAvail4** in ***MNSP_PerOffer***.
01 to 48: PB5 column	**BandAvail5** in ***MNSP_PerOffer***.
01 to 48: PB6 column	**BandAvail6** in ***MNSP_PerOffer***.
01 to 48: PB7 column	**BandAvail7** in ***MNSP_PerOffer***.
01 to 48: PB8 column	**BandAvail8** in ***MNSP_PerOffer***.

MNSP bid source field	Target(s) and Notes
01 to 48: PB9 column	**BandAvail9** in ***MNSP_PerOffer***.
01 to 48: PB10 column	**BandAvail10** in ***MNSP_PerOffer***.
END OF BAND AVAILABILITY	(Required heading).
Reason	**RebidExplanation** in ***MNSP_DayOffer***.
END OF DISPATCHABLE UNIT	(Required heading).
END OF BID	(Required heading).
END OF BID FILE	(Required heading).

6.4 Writes to Database

The bid tables use an insert-only model to support a full audit trail of all transactions.

7 Implementation Instructions

All Participants are encouraged to use the AEMO pre-production environment to test procedures and to train their users, before attempting any changes or operations on production systems.

8 Appendix 1 – MNSP Convexity Validation Rule

8.1 Illustration of Dispatch Offer Convexity Issue

MSNP dispatch offer convexity must be maintained in order to avoid MNSP flow dispatch in both directions, as illustrated in “

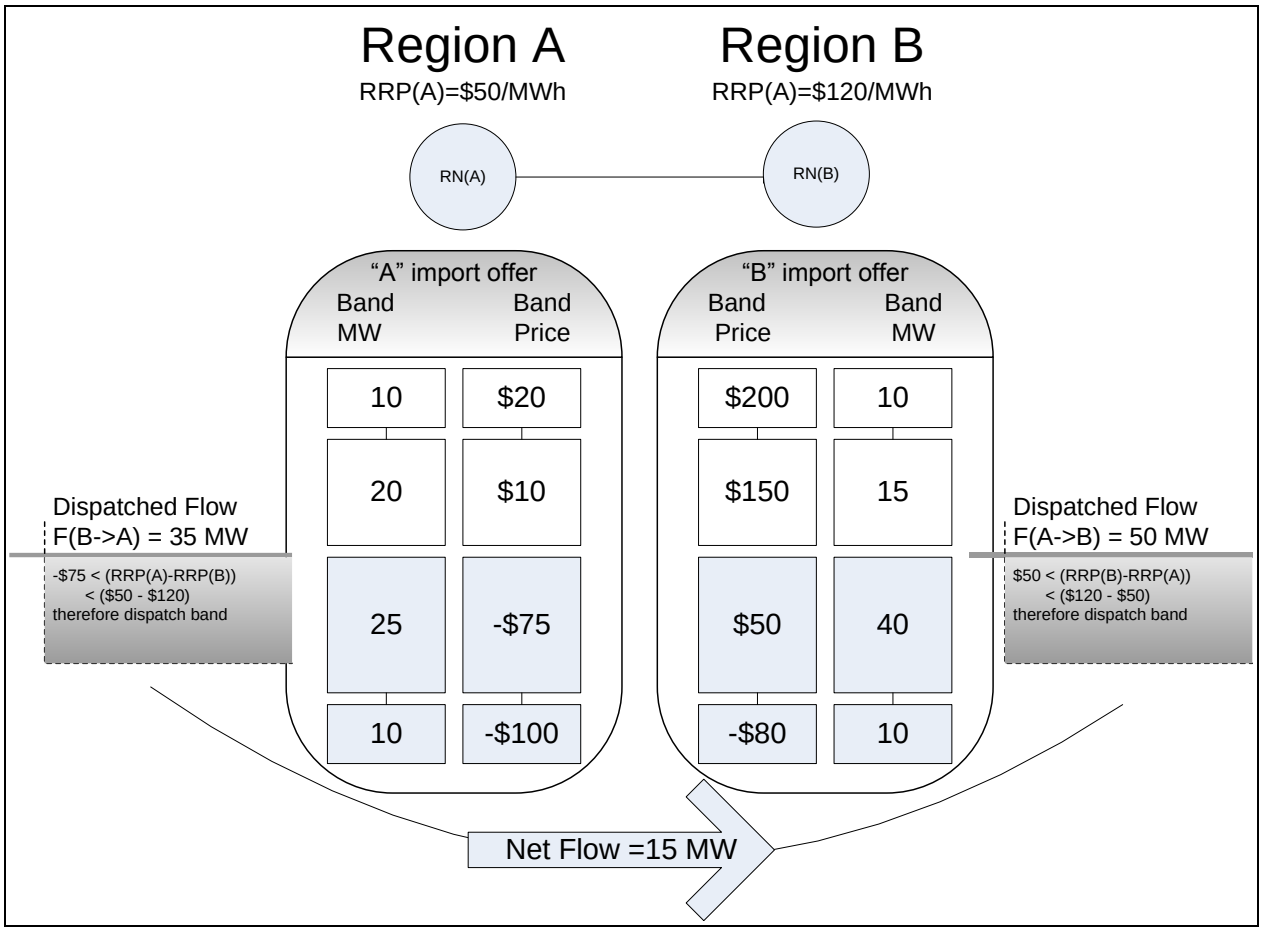

Diagram 1: MNSP dispatch offer convexity issue” on page 69.

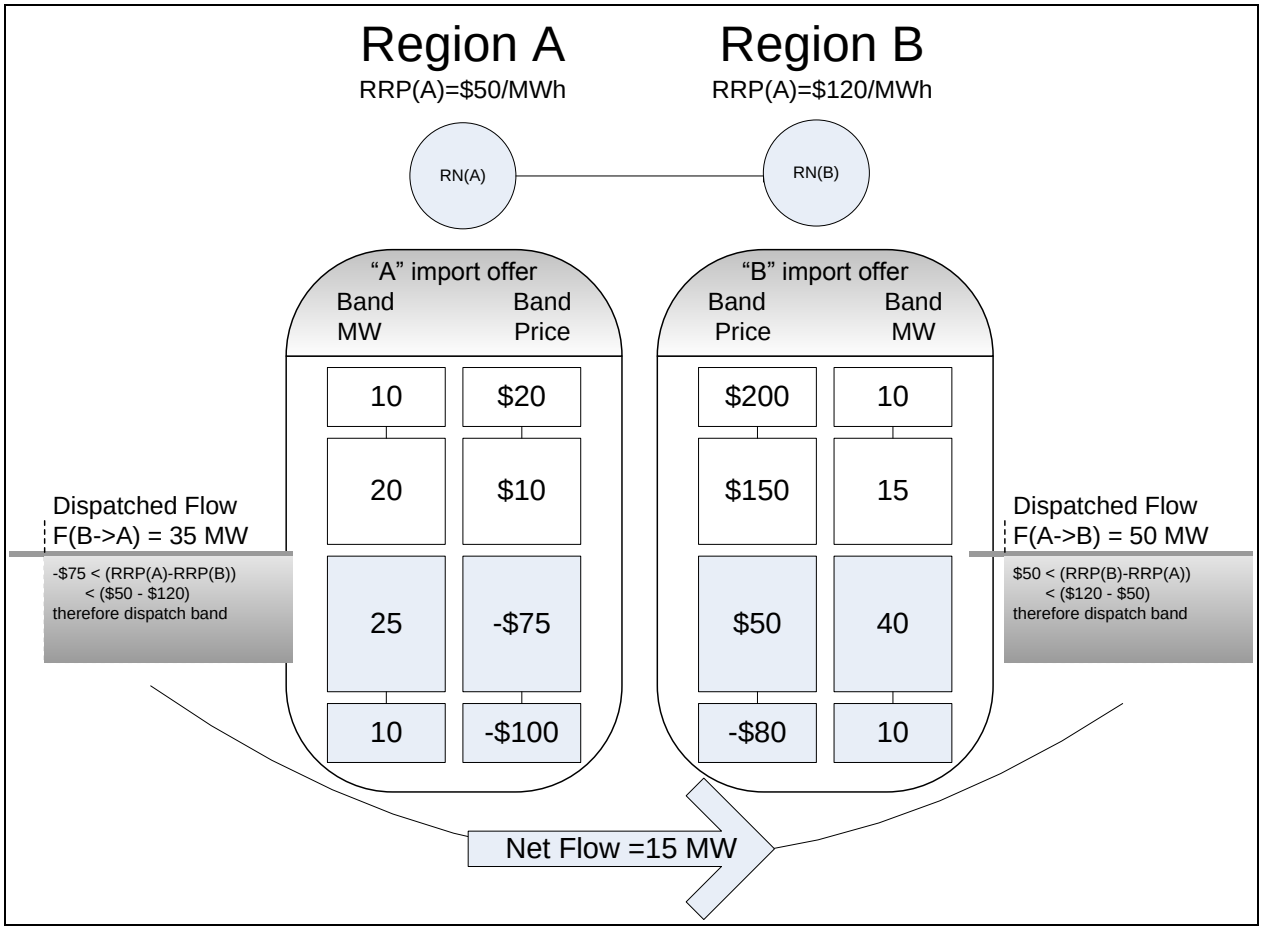

Diagram 1: MNSP dispatch offer convexity issue

Ignoring MNSP flow losses, the minimum allowable band 1 price to avoid dispatch of the "B" import offer

= negative ("A" import offer band 1 price)

= - (-$100) = $100/MWh

8.2 Details of MNSP Convexity Validation Rule

The first band price in an MNSP dispatch offer submitted for a particular flow direction and trading day must be greater than the negative of the first band price in the valid MNSP dispatch offer for the opposite flow direction for that same trading day, after accounting for MNSP flow losses. MNSP flow losses are included in the validation rule by determining a scaling factor 'k' on the basis of the MNSP loss model.

$$(1/k)\ x\ BandPrice1(Reverse\ Flow\ Offer)\ >\ -BandPrice1(Forward\ Flow\ Offer)$$

Where:

- BandPrice1(Reverse Flow Offer) is the first band price of the MNSP dispatch offer for the reverse flow direction.
- BandPrice1(Forward Flow Offer) is the first band price of the MNSP dispatch offer for the forward flow direction.
- k is the validation scaling factor, determined from the MNSP loss model, being

$$k\ = \frac{1 - [(1 - RLS)\ x\ MLF]}{1 + [(RLS)\ x\ MLF]}$$

- RLS = RegionLossShare (**FromRegionLossShare** column in ***InterconnectorConstraint*** table in MMS Data Model).

- $MLF = \left[\frac{(LF(f-)+LF(f+))}{2}\right] - 1$
- $LF(f) = (LossConstant + LossDemandConstant) + (LossFlowCoefficient\ x\ f)$
- f- = Lower breakpoint of first loss segment in MNSP Forward Flow Direction
- f+ = Upper breakpoint of first loss segment in MNSP Forward Flow Direction
- The LossConstant and LossFlowCoefficient parameters are taken from the ***InterconnectorConstraint*** table (**LossConstant** and **LossFlowCoefficient** columns) in the MMS Data Model. For regulated interconnectors, the LossDemandConstant parameter is variable and calculated when initiating the linear program solver. However, for MNSPs, the LossDemandConstant parameter must be set to zero so the MNSP Dispatch Offer convexity rule can be validly applied.

8.3 Example Interconnector

From the a sample losses model:

- RLS = 0
- f- = 0
- f+ = 5
- LossConstant = 0.9959
- LossDemandConstant = 0
- LossFlowCoefficient = 0.00082818

Hence the MNSP dispatch offer convexity validation rule applicable is:

- $0.99797456\ \text{x}\ \text{BandPrice1(LINKB)} > -BandPrice1(LINKA)$

Alternatively expressed as:

- $1.00202955\ \text{x}\ \text{BandPrice1(LINKA)} > -BandPrice1(LINKB)$

9 Glossary

9.1 Abbreviations

Abbreviation	Abbreviation Explanation
AEMC	Australian Energy Market Commission.
CSV	Comma Separated Variable; a file format for data using commas as delimiters.
EMMS	Electricity Market Management System; software, hardware, network and related processes to implement the National Electricity Market (NEM).
FCAS	Frequency Control Ancillary Services
FTP	File transfer protocol
MMSDM	(electricity) market management systems data model
MR	Mandatory Restrictions.
MTPASA	Medium Term Projected Assessment of System Adequacy; 2 years worth of data.
NEM	National Electricity Market.
NER	National Electricity Rules; also often just called the Rules.

Table 1: Abbreviations

9.2 Special Terms

Term	Definition
Pre-production	AEMO's test system available for participant use
Production	AEMO's live system
Rules	National Electricity Rules (NER)

Table 2: Special terms

10 References

Note: it is important to ensure that you are reading the current version of any document.

- "Operating Procedure: Mandatory Restriction Offers" (Document Number: SO_OP 3713) is available from the AEMO website (http://www.aemo.com.au/electricityops/3713.html) and gives suitable guidelines to the market participants who wish to participate in the Mandatory Restriction Offer process as well as to AEMO staff who will be involved in the mandatory restriction management process.
- "EITS Publications" secured web page is http://www.aemo.com.au/eits/eits.html (Credentials are "User Name" = "AEMOparticipant"; password = "OKkeepSecure").
- "AEMO's IP Addresses for Participants" is available from the "EITS Publications" secured web page.
- To access the "Electricity Market Management Systems" application, refer to "AEMO's IP Addresses for Participants" available from the "EITS Publications" secured web page.
- For the "file servers user name", the participant's IT security contacts with AEMO can refer to the welcome e-mail from AEMO. The password expires regularly (see "Changing your Password on the Participant Server" on the "EITS Publications" secured web page).
- "Participant Data Replication Batcher" software and the user guide ("Participant Data Replication Batcher User Guide" are available from the "EITS Publications" secured web page.
- "AEMO CSV Data Format Standard" is available from the "EITS Publications" secured web page.
- "MMS Data Model Report" is available from http://www.aemo.com.au/data/market_data.html or from the relevant RDBMS installation package on the "EITS Publications" secured web page.
- "MMS Data Model installation packages" for the supported RDBMSs are available from the "EITS Publications" secured web page.
- "Rules" are available from the Australian Energy Market Commission website (http://www.aemc.gov.au/).

11 Needing Help?

To suggest corrections to this document or to request AEMO support, please contact AEMO's Help Desk - Telephone: 1300 300 295 (option 2), E-mail: helpdesk@aemo.com.au.