MARKET PROCEDURE: Balancing Market Forecasts

Draft ~~21Nov~~ 8 Dec 2011

ELECTRICITY INDUSTRY ACT 2004

ELECTRICITY INDUSTRY (WHOLESALE ELECTRICITY MARKET) REGULATIONS 2004

WHOLESALE ELECTRICITY MARKET RULES

COMMENCEMENT:

This Market Procedure took effect from[1 April 2012].

VERSION HISTORY

VERSION	EFFECTIVE DATE	NOTES
Draft	21 Nov 2011	Market Procedure for Balancing Forecasts
Draft	8 December 2011	Revisions following informal feedback

CONTENTS

1. PROCEDURE OVERVIEW

1.1 Relationship with the Market Rules

1.1.1 This Balancing Market Forecasts Procedure (Procedure) should be read in conjunction with sections 7A.3.15 to 7A.3.19 of the Wholesale Electricity Market (WEM) Rules (Market Rules).

1.1.2 Reference to particular Market Rules within the Procedure in bold and square brackets **[MR XX]** are current as of [1 Apr 2012]. These references are included for convenience only, and are not part of this Procedure.

1.2 Purpose

1.2.1 This Procedure sets out the processes the IMO will follow in:

a) Preparing and providing the Forecast Balancing Merit Order (BMO) to System Management in accordance with [**MR7A.3.15** and **MR7A3.16**];

~~b) Preparing and publishing the Balancing Forecast in accordance with [**MR7A.3.18**]; and~~

b) ~~The process by which the IMO will a~~Assigning priority to ~~facilities~~ Facilities in the case where there is a tie in the Forecast BMO; and

c) Preparing and publishing the Balancing Forecast in accordance with [**MR7A.3.18**] including the Balancing quantities expected to be provided by each Market Participant [**MR7A.3.16(a)**].

1.2.2 For clarity:

~~1.2.2 This Procedure refers to both Forecast BMO and BMO. For clarity these are defined as:~~

- Forecast BMO is a Balancing Merit Order for future trading intervals in the Balancing Horizon.
- ~~•~~ BMO is the last Forecast BMO generated for a Trading Interval before the Trading Interval commences.
- ~~•~~
- The IMO must provide a BMO to System Management in accordance with [**MR7A.3.5**] between 15 to 30 minutes before the start of the Trading Interval to which the BMO relates.

1.3 Application

1.3.1 This Procedure applies to:

a) The IMO in relation to the processes it must follow in preparing and publishing the Forecast BMO, the ~~forecast Balancing Price and the~~ Balancing Forecast and the Balancing quantities expected to be provided by each Market Participant;

b) System Management in relation to the information it must provide to the IMO to enable the Forecast BMO and Balancing Forecast to be prepared; and

c) Market Participants in relation to their obligations, amongst other things, to take into account the Balancing Forecast in the preparation of Balancing Submissions [**MR7A.2.8(a)** and **MR7A.2.9(a)i**].

1.4 Interpretation

1.4.1 In this Procedure, the conventions specified in clauses 1.3 - 1.5 of the Market Rules apply.

2. Balancing Forecasts

2.1 Background

2.1.1 The IMO is required to:

a) Determine a Forecast BMO for each Trading Interval in the Balancing Horizon [**7A.3.15**];

b) Determine the Balancing quantities expected to be provided by each Market Participant for a Trading Interval in the Balancing Horizon whenever the it prepares a Forecast BMO [**MR7A.3.16**];

~~b)~~c) Determine the Balancing Forecast for each Trading Interval in the Balancing Horizon [**MR7A.3.17**];~~;~~

~~c)~~d) Update the Balancing Forecast using, to the extent practicable, the latest information available to the IMO [**MR7A.3.18a**];

~~d)~~e) By the end of every half hour, publish on the Market Website a Balancing Forecast for each future Trading Interval in the Balancing Horizon [**MR7A.19b**].

2.1.2 The Forecast BMO for a Trading Interval is the BMO determined from the latest Balancing Submissions available to the IMO for the Trading Interval. The purpose of the Forecast BMO is to:

a) Enable System Management to develop and assess the implications, including system security and system constraints, of likely generation dispatch schedules in future Trading Intervals of the Balancing Horizon;

b) Enable Market Participants, in preparing their Balancing Submissions, to take account of expected quantities to be dispatched for future Trading Intervals of the Balancing Horizon (including to meet their obligations accordance with [**MR 7A.2.8(a)**] and [**MR 7A.2.9(a)(i)**]);

c) Enable Market Participants, in preparing their Balancing Submissions, to take account of aggregated Balancing Market Price-Quantity supply curves for future Trading Intervals of the Balancing Horizon (including to meet their obligations accordance with [**MR 7A.2.8(a)**] and [**MR 7A.2.9(a)(i)**]);

d) Enable System Management, for a Trading Interval for which the BMO is not available, to determine the appropriate levels of dispatch for Balancing Facilities [**MR 7.6.2AA**]; and

e) Enable the IMO, for a Trading Interval for which the BMO is not available, to determine the Balancing Price from the most recent Forecast BMO [**MR7A.3.12(b)**].

2.1.3 The Balancing Forecast includes forecasts, for each Trading Interval during the Balancing Horizon, of:

a) The Relevant Dispatch Quantity ~~for a Trading Interval~~, in MW, at the end of the Trading Interval (as provided by System Management in [**MR 7A.3.14**]);

b) The aggregate output of all Non-Scheduled Generators, which are Balancing Facilities~~, for a Trading Interval~~; and

c) The Balancing Price~~s for each Trading Interval during the Balancing Horizon~~.

2.1.4 The purpose of the Balancing Forecast is to provide Market Generators with information upon which to make an assessment regarding ~~whether to~~ the ~~make~~ making or updating of a Balancing Submission ~~or to update a Balancing Submission~~ in accordance with the Market Rules [**MR7A.2.8(a)** and **MR 7A.2.9(a)(i)**].

2.2 Preparation of the Forecast BMO

2.2.1 Each half hour, the IMO will determine the Forecast BMO for each future Trading Interval in the Balancing Horizon by:

a) Converting the price in each Balancing Price-Quantity pair for a Balancing Facility that is not in the Verve Energy Balancing Portfolio ~~Balancing~~

~~Submissions~~to a price at Muja, using the applicable Facility Loss Adjustment Factor;

b) Where System Management provides a Forecast End of Interval (EOI) Quantity in accordance with [**MR7A.3.14**] for a Non-Scheduled Generator that is the subject of a Facility Balancing Submission, altering the quantity in that Balancing Submission to the most recent forecast value provided by System Management to the IMO;

c) Creating a table of all of the quantities from Balancing Submissions in 2.1.1~~2.1.1~~(a)~~a)~~ and 2.1.1~~2.1.1~~(b), with corresponding Loss Factor Adjusted prices, and all of the quantities and corresponding prices from Verve Energy Portfolio Balancing Submissions;

d) Sorting the table of quantities and corresponding prices created in 2.1.1~~2.1.1~~(d)~~c)~~ in order of lowest to highest price;

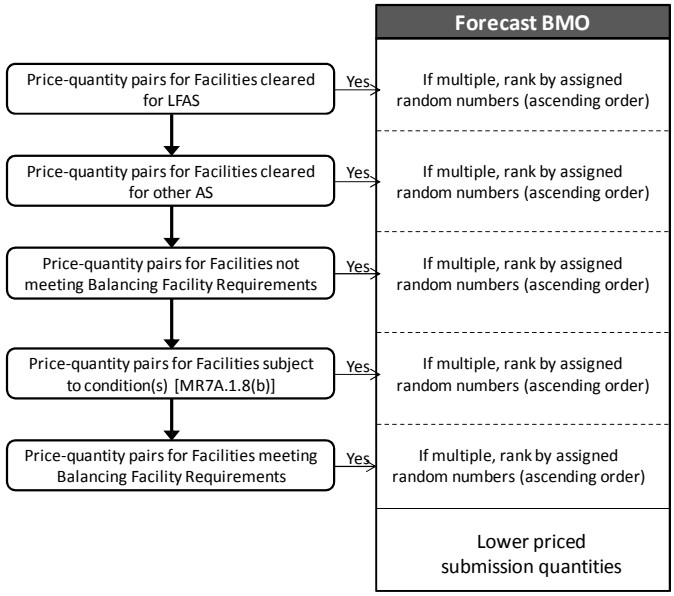
~~d)~~e) Where any Price-Quantity pairs in the table created in 2.1.1~~2.1.1~~(e)~~d)~~ contain an ancillary purpose value, these values are included in the BMO. Ancillary purpose values will indicate if a Price-Quantity pair is required for the provision of LFAS, other ancillary services, or is part of a commissioning test.

~~e)~~f) Where any Price-Quantity pairs in the table created in 2.1.1~~2.1.1~~(e)~~d)~~ have an identical price, breaking the tie in accordance with [**MR7A.3.3**] as follows:

i) Where that price equals either the Alternate Maximum STEM Price or the Maximum STEM Price, sorting the affected Price-Quantity pairs in the following order as if the top-most quantity had the highest price:

Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt
Formatted: Font: 12 pt

FIGURE 1: RANKING QUANTITIES PRICED AT THE [ALTERNATE] MAXIMUM STEM PRICE[1]

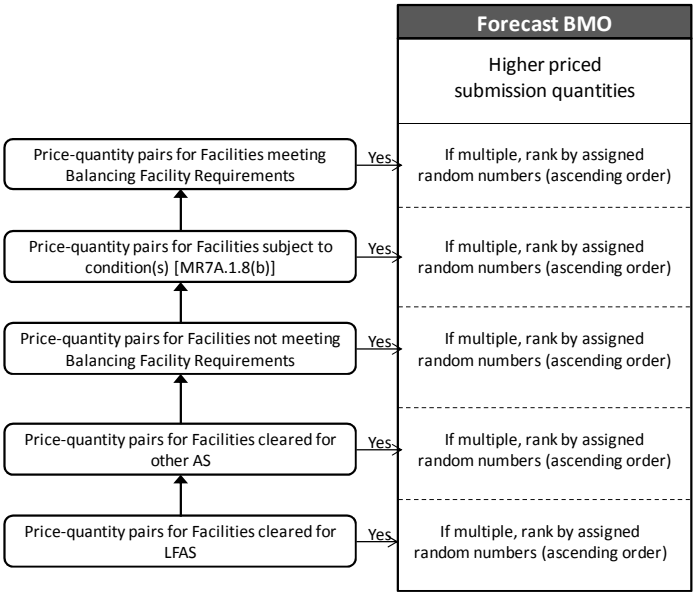


ii) Where that price equals the Minimum STEM Price, sorting the affected Price-Quantity pairs in the following order as if the bottom-most quantity had the lowest price:

[1] Random numbers in this table are assigned as per section 2.8~~2.8~~ of this Market Procedure

Formatted: Font: (Default) Calibri

FIGURE 2: RANKING QUANTITIES PRICED AT THE MINIMUM PRICE CAP[2]



iii) Where that price does not equal the Minimum STEM Price, the Maximum STEM Price or the Alternate Maximum STEM Price, sorting the affected quantities in ascending order using the random number assigned to the Facility by the IMO in accordance with [**MR 7A.3.3(f)**] as if the bottom-most quantity had the lowest price.

2.2.2 In preparing the Forecast BMO, the IMO must to the extent practical use the most recent Balancing Submissions available to it [7A.3.18~~MR 7A.3.5(a)~~].

2.3 Preparation of Forecast Non-Scheduled Generation Quantities

2.3.1 The IMO will receive Forecast EOI Quantities of Non-Scheduled Generators for each future Trading Interval in the Balancing Horizon from System Management in accordance with [**MR 7A.3.14**].

2.4 Preparation of Forecast Relevant Dispatch Quantities

2.4.1 The IMO will receive Forecast Relevant Dispatch Quantities (RDQ) for each future Trading Interval in the Balancing Horizon from System Management in accordance with [**MR 7A.3.14**].

[2] Random numbers in this table are assigned as per section 2.8~~2.8~~ of this Market Procedure

Formatted: Font: (Default) Calibri

2.5 Preparation of Forecast Balancing Market Quantities and Prices

2.5.1 The IMO will determine the Forecast Balancing ~~Market~~ Prices for each future Trading Interval in the Balancing Horizon by:

a) Calculating the Forecast Marginal Dispatch Quantity by increasing the latest System Management supplied Forecast Relevant Dispatch Quantity by 1 MW.

b) Iterating through the BMO from the lowest Price-Quantity pair upwards, summing the MW quantities until the total equals or exceeds the Forecast Marginal Dispatch Quantity created in 2.5.1(a). The price of the last Price-Quantity pair is the Forecast Balancing Market Price.

c) Where the Forecast Marginal Dispatch Quantity in 2.5.1(a) exceeds the MW sum of all the Price-Quantity pairs in the BMO, the Forecast Balancing Market Price will be the highest price in the BMO.

2.5.2 The IMO will determine the Forecast Balancing Market Quantities for each future Trading Interval in the Balancing Horizon by:

a) Iterating through the BMO from the lowest Price-Quantity pair upwards, summing the MW quantities until the total equals the latest Forecast Relevant Dispatch Quantity supplied by System Management. If the total exceeds the Forecast Relevant Dispatch Quantity, the MW quantity of the last Price-Quantity pair is reduced so that the total MW value matches the Forecast Relevant Dispatch Quantity.

b) Aggregating the summed Price-Quantity pairs from 2.5.2(a) by Participant and ~~facilit~~Facility so there is one MW quantity per ~~facilit~~Facility/P~~p~~ortfolio.

c) Where the Forecast Relevant Dispatch Quantity in 2.5.2(a) exceeds the MW sum of all the Price-Quantity pairs in the BMO, the Forecast Balancing Market Quantity for a ~~facilit~~Facility/P~~p~~ortfolio will be sum of all Balancing Quantities within the BMO.

2.5.3 The IMO will exclude Ramp Rate Limits and Start of Interval values from the calculations described in 2.5.1 and 2.5.2 of this Procedure.

2.6 Provision of the Forecast BMO to System Management

2.6.1 The IMO will provide the Forecast BMO determined in Section 2.2~~2.2~~ of this Procedure to System Management for each future Trading Interval of the Balancing Horizon in accordance with the IMS interface procedure. The Forecast BMO sent to System Management will additionally:

Formatted: Font: 12 pt

a) Exclude price information from each Price-Quantity pair.

b) Include the applicable Ramp Rate Limit associated with each Price-Quantity pair.

2.7 Publication of Balancing Forecast Information to Market Participants

2.7.1 The IMO will publish the following information on the Market Participant Interface for each future Trading Interval of the Balancing Horizon:

a) The Forecast BMO prepared in Section 2.2 in the form of anonymous Price-Quantity supply curves;

b) The most recent Forecast Relevant Dispatch Quantity provided by System Management to the IMO in accordance with [**MR 7A.3.14**].

c) The sum of the most recent Forecast EOI Quantities for Non-Scheduled Generator Facilities provided by System Management to the IMO in accordance with [**MR 7A.3.14**] or, if no forecasts have been provided, the sum of all Non-Scheduled Generator Facility quantities in applicable Balancing Submissions.

d) The Forecast Balancing Quantities determined in Section 2.5 for ~~facilities~~ Facilities owned or operated by the Participant in accordance with [**MR 7A.3.16(b)**].

e) The Forecast Balancing Price determined in Section 2.5 of this Procedure.

2.8 Random number assignment

2.8.1 At the start of each Trading Day, all generation ~~facilit~~Facilities and the Verve Energy Balancing Portfolio will be assigned a random number. This number is used when preparing the Forecast BMO (Section 2.2) to determine the order of identically priced submissions.

2.9 Unavailable information

2.9.1 In the event that System Management does not provide the IMO with Forecast Relevant Dispatch ~~Quantities~~Quantity for a Trading Interval, the IMO will continue to publish Forecast Prices and Quantities based on previously issued forecasts for the Trading Interval. If no previously issued forecasts are available for the relevant Trading Interval, then publication of Forecast Prices and Quantities will cease.