



MARKET PROCEDURE: BALANCING MARKET FORECASTS

VERSION 1

ELECTRICITY INDUSTRY ACT 2004
ELECTRICITY INDUSTRY
(WHOLESALE ELECTRICITY MARKET)
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COMMENCEMENT:

This Market Procedure took effect from [TBA].

VERSION HISTORY

VERSION	EFFECTIVE DATE	NOTES
1	TBA	Market Procedure for Balancing Market Forecasts

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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 [date]. These references are included for convenience only, and are not part of this Procedure.

1.2 Purpose of this Procedure

1.2.1 This Procedure sets out the processes the Independent Market Operator (IMO) must follow in:

- (a) Preparing and providing the Forecast Balancing Merit Order (BMO) to System Management in accordance with clauses 7A.3.15 and 7A3.16(b);
- (b) Assigning priority to Facilities in the case where there is a tie in the Forecast BMO; and
- (c) Preparing and publishing the Balancing Forecast in accordance with clauses 7A.3.17 to 7A.3.19 including the Balancing Quantities expected to be provided by each Market Participant **[MR 7A.3.16(A)]**.

1.3 Application of this Procedure

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 Balancing Forecast and the Balancing Quantities expected to be provided by each Market Participant; and
- (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.

1.3.2 In this Procedure where obligations are conferred on a Rule Participant, as outlined in step 1.3.1, that Rule Participant must comply with the relevant obligations in accordance with clauses 2.9.6, 2.9.7 and 2.9.8, as applicable.

1.4 Associated Market Procedures

1.4.1 The following IMO Market Procedures are associated with this Procedure:

- (a) IMS Interface Market Procedure.

1.5 Conventions Used

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

1.6 Terminologies and Definitions

1.6.1 A word or phrase defined in the Market Rules, the Electricity Industry Act or the Regulations has the same meaning when used in this Procedure.

1.6.2 For clarity throughout this Procedure the:

- (a) Forecast BMO is a BMO for future Trading Intervals in the Balancing Horizon; and
- (b) BMO is the last Forecast BMO generated for a Trading Interval before the Trading Interval commences. Note that the IMO must provide a BMO to System Management in accordance with clause 7A.3.5 between 15 to 30 minutes before the start of the Trading Interval to which the BMO relates.

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 **[MR 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 it prepares a Forecast BMO **[MR 7A.3.16(a)]**;
- (c) determine the Balancing Forecast for each Trading Interval in the Balancing Horizon **[MR 7A.3.17]**;
- (d) update the Balancing Forecast using, to the extent practicable, the latest information available to the IMO **[MR 7A.3.18(a)]**; and
- (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.3.19(b)]**.

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 enable:

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

Trading Intervals of the Balancing Horizon (including to meet their obligations in accordance with clauses 7A.2.8(a) and 7A.2.9(a)(i));

- (d) 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) the IMO, for a Trading Interval for which the BMO is not available, to determine the Balancing Price from the most recent Forecast BMO **[MR 7A.3.12(B)]**.

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

- (a) Relevant Dispatch Quantity, in MW, at the end of the Trading Interval (as provided by System Management under clause 7A.3.14);
- (b) aggregate output, in MW, at the end of the Trading Interval, of all Non-Scheduled Generators which are Balancing Facilities (as provided by System Management under clause 7A.3.14); and
- (c) Balancing Price.

2.1.4 The purpose of the Balancing Forecast is to provide Market Generators with information upon which to make an assessment regarding the making or updating of a Balancing Submission in accordance with clauses 7A.2.8(a) and 7A.2.9(a)(i).

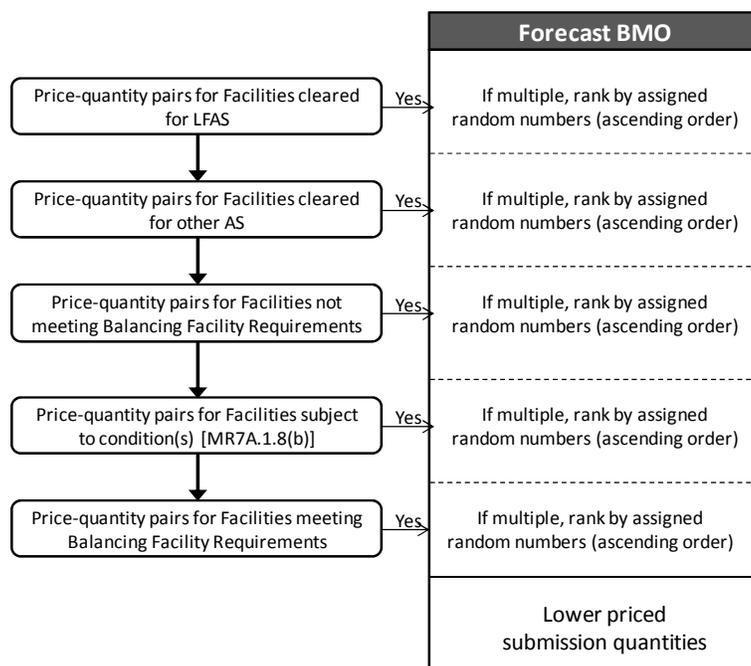
2.2 Preparation of the Forecast BMO

2.2.1 Each half hour, the IMO must 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 to a price at Muja, using the applicable Facility Loss Factor;
- (b) where System Management provides a forecast End of Interval (EOI) Quantity in accordance with clause 7A.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 steps 2.1.1(2.1.1(a) and 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 step 2.1.1(2.1.1(d) in order of lowest to highest price; and
- (e) where any Price-Quantity pairs in the table created in step 2.1.1(2.1.1(e) have an identical price, breaking the tie in accordance with clause 7A.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:

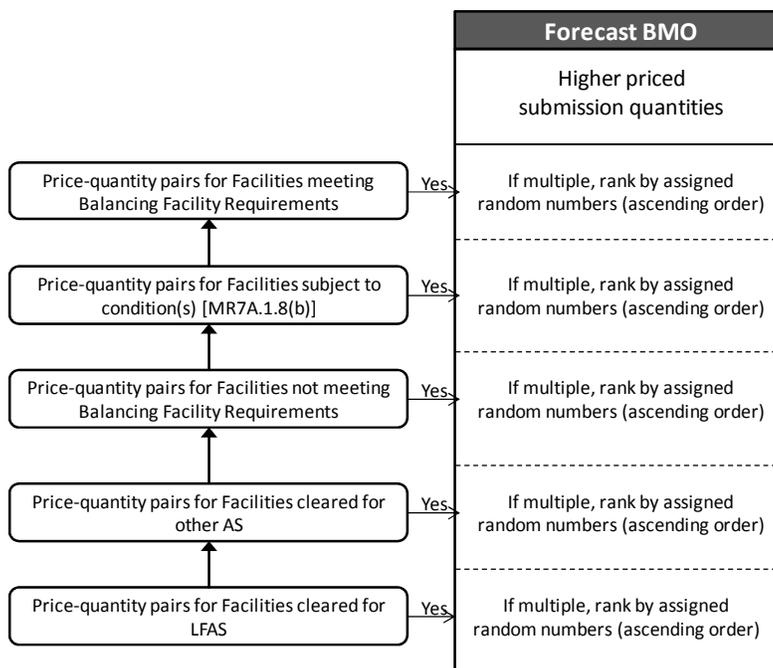
FIGURE 1: RANKING QUANTITIES PRICED AT THE [ALTERNATE] MAXIMUM STEM PRICE¹



- 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 of this Market Procedure

FIGURE 2: RANKING QUANTITIES PRICED AT THE MINIMUM PRICE CAP²



- 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 step 2.8 of this Procedure 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 **[MR 7A.3.18(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 clause 7A.3.14.

2.4 Preparation of Forecast Relevant Dispatch Quantities

2.4.1 The IMO will receive forecast Relevant Dispatch Quantities for each future Trading Interval in the Balancing Horizon from System Management in accordance with clause 7A.3.14.

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

2.5 Preparation of Forecast Balancing Prices and Quantities

2.5.1 The IMO must determine the forecast Balancing Price for each future Trading Interval in the Balancing Horizon by:

- (a) calculating the forecast marginal dispatch quantity by increasing by 1 MW the most recent forecast Relevant Dispatch Quantity supplied by System Management;
- (b) iterating through the Forecast BMO from the lowest Price-Quantity pair upwards, summing the MW quantities until the total equals or exceeds the forecast marginal dispatch quantity determined in step 2.5.1(a); and
- (c) setting the forecast Balancing Price to the price of the last Price-Quantity pair in the Forecast BMO determined in step 2.5.1(b) or, if the forecast marginal dispatch quantity exceeds the MW sum of all the Price-Quantity pairs, the highest price in the Forecast BMO.

2.5.2 The IMO must determine forecast Balancing Quantities for each future Trading Interval in the Balancing Horizon by:

- (a) iterating through the Forecast BMO from the lowest Price-Quantity pair upwards, summing the MW quantities, or part thereof, until the total equals the most recent forecast Relevant Dispatch Quantity supplied by System Management; and
- (b) calculating a forecast Balancing Quantity for each Balancing Facility by summing the Price-Quantity pairs, or part thereof, from step 2.5.2(a) for the relevant Facility; or
- (c) where in step 2.5.2(a) the MW sum of all the Price-Quantity pairs in the Forecast BMO is less than the forecast Relevant Dispatch Quantity, setting the forecast Balancing Quantity to the sum of all of the Facility's quantities within the Forecast BMO.

2.5.3 The IMO must exclude Ramp Rate Limits and start of Trading Interval values from the calculations described in steps 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 must provide to System Management, in accordance with the IMS Interface Market Procedure, for each future Trading Interval of the Balancing Horizon:

- (a) the Forecast BMO determined in Section 2.2 of this Procedure, but excluding price information for each Price-Quantity pair;
- (b) the applicable Facility Ramp Rate Limit associated with each Price-Quantity pair; and
- (c) any other information which the IMO is required to provide to System Management in accordance with the IMS interface Market Procedure.

2.7 Publication of Balancing Forecast Information to Market Participants

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

- (a) Forecast BMO prepared in Section 2.2 of this Procedure in the form of anonymous Price-Quantity supply curves;
- (b) most recent forecast Relevant Dispatch Quantity provided by System Management to the IMO in accordance with clause 7A.3.14;
- (c) sum of the most recent forecast EOI Quantities for Non-Scheduled Generator Facilities provided by System Management to the IMO in accordance with clause 7A.3.14 or, if no forecasts have been provided, the sum of all Non-Scheduled Generator Facility quantities in applicable Balancing Submissions;
- (d) forecast Balancing Price determined in Section 2.5 of this Procedure; and
- (e) forecast Balancing Quantities determined in Section 2.5.2 of this Procedure for Facilities owned or operated by the Participant in accordance with clause 7A.3.16(b).

2.8 Random number assignment

2.8.1 Prior to the start of each Trading Day, the IMO must assign a unique random number to each Balancing Facility, including the Verve Energy Balancing Portfolio. The IMO must use this number as described in step 2.2.1(e) of this Procedure to determine the order of identically priced Price-Quantity pairs in the Forecast BMO.

2.9 Unavailable information

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