



**Redlined Balancing Mechanism Reporting Agent User Requirements Specification  
text for P369 'National Grid Legal Separation changes to BSC'**

This Modification proposes changes to sections 1.0, 1.2, 2.0, 4.1, 4.2, 4.0, 5.1, 6.1, Appendix C: C.1, C.2 and C.7. We have redlined these changes against Version 20.0.

**There is no impact on any other part of this document for this Modification.**

*Amend Section 1 as follows:*

## **1. Introduction**

This document is the User Requirements Specification (URS) for the Balancing Mechanism Reporting Agent (BMRA) role within the Balancing and Settlement Code Services. It is one of a set of documents forming the baseline for requirements of the seven BSC central services. This document set comprises:

- BMRA URS;
- CRA URS;
- SAA URS;
- ECVAA URS;
- CDCA URS;
- FAA URS
- SVAA URS
- Interface Specifications.

The objective of this document is to provide a complete specification of the requirements that the BMRA service must meet, from the users' point of view. For this purpose, the "users" include Ofgem, ~~National Grid~~ the Transmission Company as the (balancing mechanism operator), BSCCo Ltd (as the client), other Service Providers, BSC Parties, and the BMRA Service Provider's own operators.

This User Requirements Specification forms the input to the System Specification for the BMRA Service. The System Specification constitutes the definition of the computer system requirements to be built in support of the BMRA Services.

The BMRA functional requirements include calculations of derived market data that are much in common with those implemented by the SAA. In order to maintain consistency between both systems, and minimise maintenance costs, common source code shall be applied where appropriate in the SAA and BMRA.

*Amend section 1.2 as follows:*

## **1.2 References**

The code listed in the final column is used as a cross reference in the detailed requirement specifications listed in section 5.

It should be noted that these references do not form part of the BMRA User Requirements Specification (except for the non-functional requirements that are common to BSC central systems, defined in CRA URS).

Source	Author	Reference
Service Description for Balancing Mechanism Reporting	BSCCo	BMRA SD
Balancing Mechanism Reporting Business Process Models	BSCCo	BMRA BPM
Settlement Administration Business Process Models	BSCCo	SAA BPM
Interface Definition and Design - Parts 1 and 2	BSCCo	INTERFACE
Central Registration Agent User Requirements Specification	BSCCo	CRA URS
BMRA & SAA Interface Specification	<del>National Grid</del> <u>the Transmission Company</u>	NGC IS
ETSO Balancing Process Results Management Document Implementation Guide Version 1.0 Release 0	ETSO Vista	ETSO BPRM

*Amend section 2 as follows:*

## 2 Management Summary

The Balancing Mechanism Reporting Agent (BMRA) is one of the suite of seven services to be provided to support the operation of the Balancing and Settlement Code (BSC).

The BMRA role is critical to the successful operation of the BSC, as it facilitates the opening of the wholesale electricity trading market in Great Britain under the NETA arrangements. Its role is to provide near to real-time reporting of all market information disseminated by the ~~System Operator~~ Transmission Company (SO) and submitted to the Balancing Mechanism (BM) from market participants. The principal business processes involved may be summarised as:

- The capture of data from the SO, relating to the operation of the BM in each half hour;
- For each Settlement Period, calculation of preliminary estimates of derived market data, i.e. system sell and buy prices;
- Distribution of market data to BSC Parties, including near real-time BM and SO data and derived market data for each Settlement Period;
- Displaying real-time market data on dynamically updateable screens.

The purpose of this document is to provide a complete specification of the set of business requirements which the BMRA service must satisfy for all of its various user types. These

range from the BSC Parties to BSCCo Ltd and its various agents, including the operators of the BMRA central system and the other BSC services. Similar documents will be produced to define the requirements for the other services. A convention has therefore been used for uniquely identifying the requirements in each document, so as to ensure that the fulfilment of each requirement can be unambiguously traced through the subsequent functional specification, design and implementation. The requirements which have been identified have been divided into four categories:

- Functional requirements - those requirements relating to a specific business activity, usually requiring some degree of automated support;
- Interface requirements - the requirements for the exchange of data between the BMRA, the other BSC services shown above, and the external participants; (and covered in more detail in the Interface Definition and Design (IDD) documents;
- Non-functional requirements - those requirements relating to such activities as security (both physical and user access related), audit, and system housekeeping (systems backups and archiving etc.). It is anticipated that the majority of these will be common to all of the services to be provided;
- Service requirements - the underlying requirements for implementing and operating the overall BMRA service, including issues such as performance, service availability, etc.

*Amend section 4.1 as follows:*

#### **4.1 Summary of Business Requirements**

The Balancing Mechanism Reporting Agent (BMRA) is responsible for collecting, displaying and providing Balancing Mechanism and other market information near to real-time to market participants and other interested parties, such as energy customers. The information needs to provide the necessary visibility of electricity market and balancing mechanism trading conditions to encourage liquidity in bid-offer submission pre-gate closure, and so has to be published in an intuitive graphical form where appropriate, but within time-scales that allow traders to take action on the basis of what is published.

The BMRA shall provide a continuous service. As information is received from the ~~System Operator~~ Transmission Company it shall be stored and published. If for some reason the data that has been received cannot be processed and stored, then the BMRA will inform either the SO or the CRA of the difficulties encountered. Thus a small degree of automatic validation is included in the service.

To avoid raising unnecessary barriers to market information there will be two levels of service provision:

1. a high grade 24x7 real-time service, providing defined delivery times for high performance market data that is “pushed” onto BMR service user screens. This service shall be provided at cost to the BMR service user, and will require a high performance private WAN and software licences for event driven client software;
2. a low grade service via the public Internet, with consequently no guarantees on access times. This service shall be available to the general public, and require no additional software other than a Java enabled Web browser;

Entire BMRA data will be available to both grades of service users. In order to provide market signals on a timely basis, the BMRA is also required to calculate certain market information in advance of its calculation, some days later, by the Settlement Administration Agent. These calculations are not official and only represent indicative estimates to the market. The information that the BMRA will derive and publish includes the following:

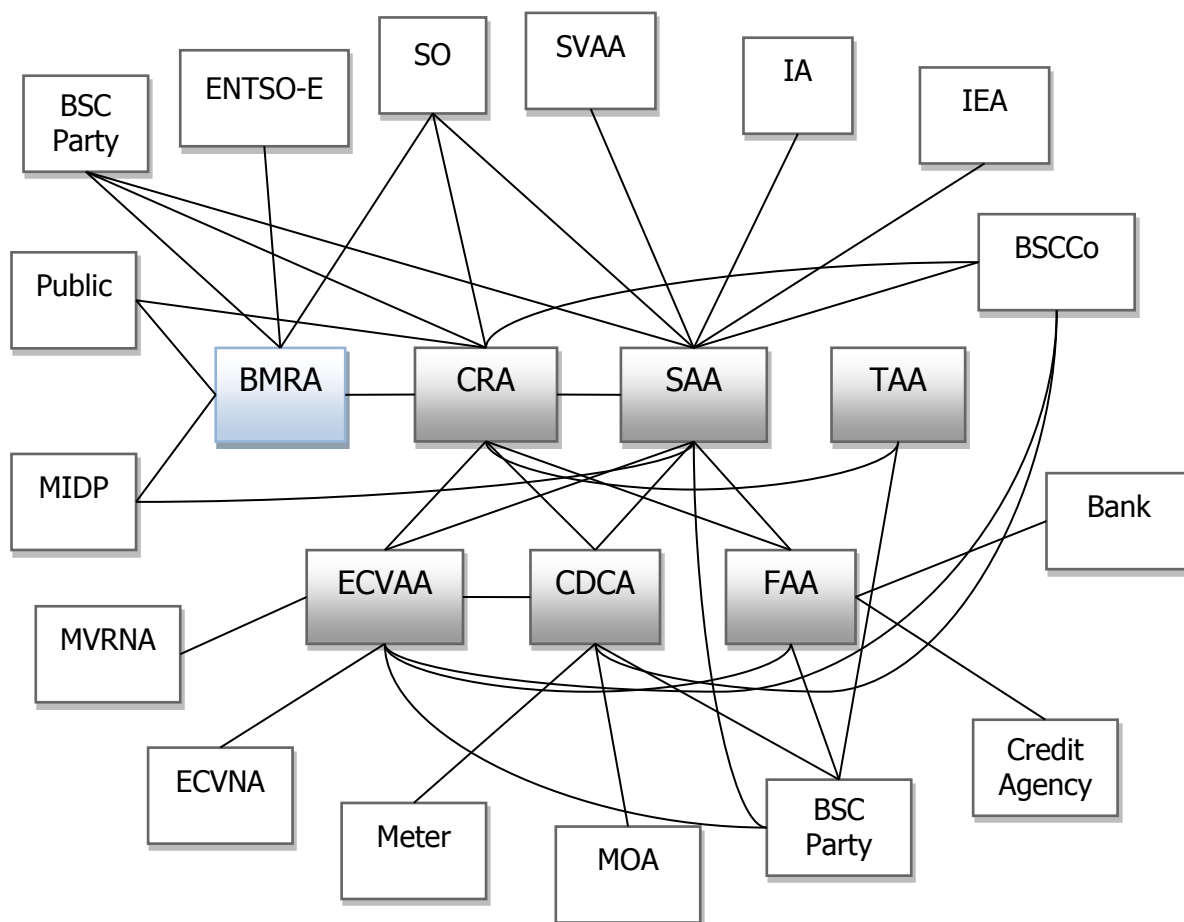
- Period bid and offer acceptance volumes;
- Period BM Unit total accepted bid-and offer volumes;
- Period balancing mechanism bid and offer cashflows;
- System sell price and system buy price;
- Total Bid/Offer Volumes and Total Accepted Bid/Offer Volumes.

The Balancing Mechanism Reporting Agent is required to be available 24 hours a day, 7 days a week with no interruptions for resilience activities such as backup and archiving. The requirement for a continuous IT operation will be met by running two hardware and operating system platforms, each of which runs a duplicate copy of the application and database. These two copies will be mirrored so that no problems of database synchronisation are introduced, and the live application can switch between copies, allowing uninterrupted access to the same data.

*Amend section 4.2 as follows:*

## **4.2 Service Context**

The following diagram illustrates the context of the BMRA service within the wider market of the Balancing and Settlement Code. This is a simplified view for clarity; section 6 describes the interfaces from the BMRA service to other parties in detail.



Item	Description
Bank	A bank which receives debit and credit instructions from the Funds Administration Agent.
BMRA	Balancing Mechanism Reporting Agent.
BSC Party	Any user of Balancing and Settlement Code services.
BSCCo Ltd	The Balancing and Settlement Code Company.
CDCA	Central Data Collection Agent.
CRA	Central Registration Agent
Credit Agency	A credit agency which provides credit cover data on Traders.
ECVAA	Energy Contract Volume Aggregation Agent.
ECVNA	Energy Contract Volume Notification Agent.
FAA	Funds Administration Agent.
IA	Interconnector Administrator.
IEA	Interconnector Error Administrator
Meter	A physical meter registered within the Balancing and Settlement Code arrangements.
MOA	Meter Operation Agent.
MVRNA	Meter Volume Reallocation Notification Agent
Public	A member of the general public.
SAA	Settlement Administration Agent.
SO	<del>System Operator</del> Transmission Company
SVAA	Supplier Volume Aggregation Agent, equivalent to the current Initial Settlement and Reconciliation Agent (ISRA).

Item	Description
TAA	Technical Assurance Agent.

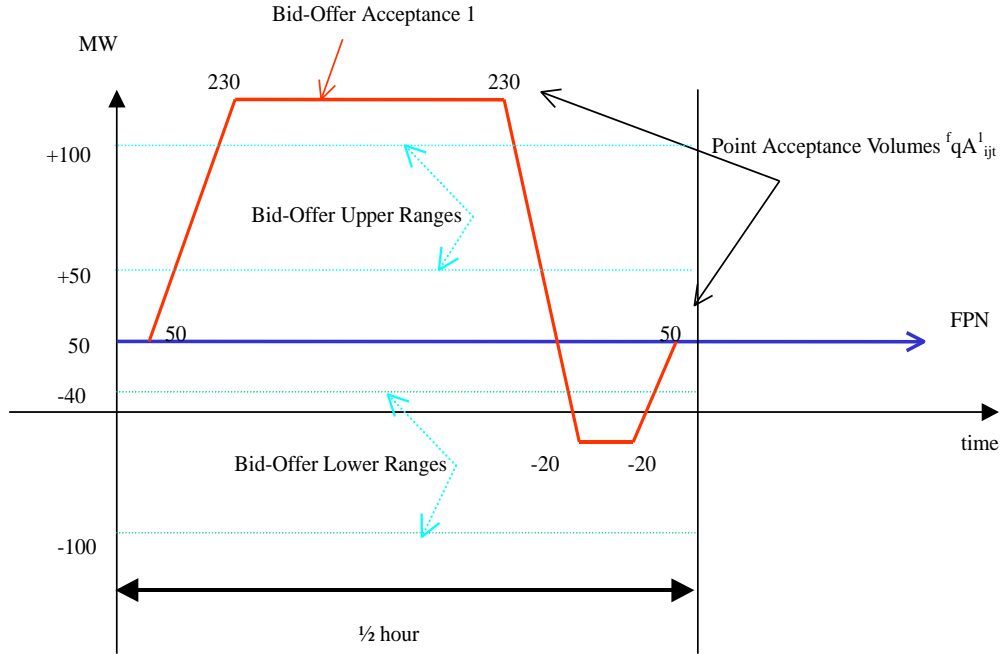
*Amend section 5.1 as follows:*

## 5.1 BMRA-F001: Calculate Period Bid and Offer Acceptance Volumes

<b>Requirement ID:</b> BMRA-F001	<b>Status:</b> Mandatory	<b>Title:</b> Calculate Period Bid and Offer Acceptance Volumes	<b>BSC reference:</b> BMRA SD 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, BMRA BPM 3.3, CR009, P305.
<b>Man/auto:</b> Automatic	<b>Frequency:</b> Once, for each settlement period.	<b>Volumes:</b> Between 1000 - 5000 BM units. At least 1 FPN data per BM unit. For those BM units that receive bids and offers (estimated 1000), at most 10 Bid- Offer Pairs and 30 Bid- Offer Acceptances per BM unit, per settlement period.	
<b>Functional Requirements:</b>			
A large number of intermediate calculations are required to produce the Period Bid and Offer Acceptance Volumes. All calculation steps in this requirement are included here.			
<b>1:</b> The value of Final Physical Notification, $FPN_{ij}(t)$ shall be defined for spot times, $t$ , falling within Settlement Period $j$ by linear interpolation from the values of Point FPN ( $fPN_{it}$ ), submitted for that Settlement Period $j$ , for BM Unit $i$ .			
<b>2:</b> For any value of Bid- Offer Number, $n$ , the Bid- Offer Volume ( $qBO^n_{ij}(t)$ ) at any spot time $t$ shall be defined by linear interpolation from the values of Point Bid- Offer Volume ( $fBO^n_{it}$ ) submitted for spot times $t$ in Settlement Period $j$ for BM Unit $i$ .			
<b>3:</b> The Bid- Offer Upper Range $BOUR^n_{ij}(t)$ at any spot time $t$ shall be defined for Bid- Offer Pairs with positive Bid- Offer Pair Numbers, as follows:  $BOUR^n_{ij}(t) = FPN_{ij}(t) + \sum^{n+} qBO^n_{ij}(t)$ ; and $BOUR^0_{ij}(t) = FPN_{ij}(t)$  Where $\sum^{n+}$ represents a sum over all positive Bid- Offer Pairs, 1 to $n$ .  The Bid- Offer Lower Range $BOLR^n_{ij}(t)$ at any spot time $t$ shall be defined for Bid- Offer Pairs with negative Bid- Offer Pair Numbers, as follows:  $BOLR^n_{ij}(t) = FPN_{ij}(t) + \sum^{n-} qBO^n_{ij}(t)$ ; and $BOLR^0_{ij}(t) = FPN_{ij}(t)$  Where $\sum^{n-}$ represents a sum over the range of Bid- Offer Pair Numbers -1 to $n$ .			
<b>4:</b> The Acceptance Volume ( $qA^k_{ij}(t)$ ) attributable to each Bid- Offer Acceptance shall be defined through processing the Point Acceptance Volumes that define the MW output levels that the <b>System Operator/Transmission Company</b> requested the BM Unit to operate for certain times within the Balancing Mechanism Window Period.  Linear interpolation shall be used to define the profile of power output in MW expected to be delivered in each Settlement Period within the Balancing Mechanism Window Period as a result of Bid- Offer Acceptance, $k$ .  For spot times within the Balancing Mechanism Window Period prior to the first value Point Acceptance Volume for Bid- Offer Acceptance $k$ , the value of the Acceptance Volume is set to the last calculated value of Acceptance Volume for those spot times. If no such previously calculated value of Acceptance Volume exists, then the Acceptance Volume will be set to the value of Final Physical Notification ( $FPN_{ij}(t)$ ) for those times.			

Acceptance Volumes are then ordered by reference to increasing values of k.

The diagram below shows a Bid-Offer Acceptance in relation to Point Acceptance Volumes and the Bid-Offer Upper and Lower Ranges.



**5:** The Accepted Bid-Offer Volumes ( $qABO_{ij}^{kn}(t)$ ) shall be defined in MW of a Bid or Offer from Bid-Offer Pair n accepted as a result of Bid-Offer Acceptance k in Settlement Period j from BM Unit i. This is determined as follows:

For  $n > 0$ ,

$$qABO_{ij}^{kn}(t) = \text{Max}\{\text{Min}(qA_{ij}^k(t), \text{BOUR}_{ij}^n(t), \text{BOUR}_{ij}^{n-1}(t)) - \text{Max}\{\text{Min}(qA_{ij}^{k-1}(t), \text{BOUR}_{ij}^n(t), \text{BOUR}_{ij}^{n-1}(t))\}$$

For  $n < 0$ ,

$$qABO_{ij}^{kn}(t) = \text{Min}\{\text{Max}(qA_{ij}^k(t), \text{BOLR}_{ij}^n(t), \text{BOLR}_{ij}^{n+1}(t)) - \text{Min}\{\text{Max}(qA_{ij}^{k-1}(t), \text{BOLR}_{ij}^n(t), \text{BOLR}_{ij}^{n+1}(t))\}$$

Where, from all Bid-Offer Acceptances for which an Acceptance Volume has been determined for Settlement Period j, k- represents that Bid-Offer Acceptance with the Bid-Offer Acceptance Time ( $T_{it}^{k-}$ ) most recently preceding that of Bid-Offer Acceptance k.

If, there is no Bid-Offer Acceptance, for which an Acceptance Volume has been determined in Settlement Period j which has a Bid-Offer Acceptance Time that precedes that of Bid-Offer Acceptance k, the value of  $qA_{ij}^{k-}(t) = \text{FPN}_{ij}(t)$ .

**6:** The Accepted Offer Volume ( $qAO_{ij}^{kn}(t)$ ) and Accepted Bid Volume  $qAB_{ij}^{kn}(t)$  shall be defined in MW by splitting the positive and negative parts of the Bid-Offer Acceptance Volume.

The Accepted Offer Volume ( $qAO_{ij}^{kn}(t)$ ) represents the volume (in MW) of Offer n accepted as a result of Bid-Offer Acceptance k from BM Unit i at spot times t within Settlement Period j. It is the positive part of the Bid-Offer Acceptance Volume, calculated by:

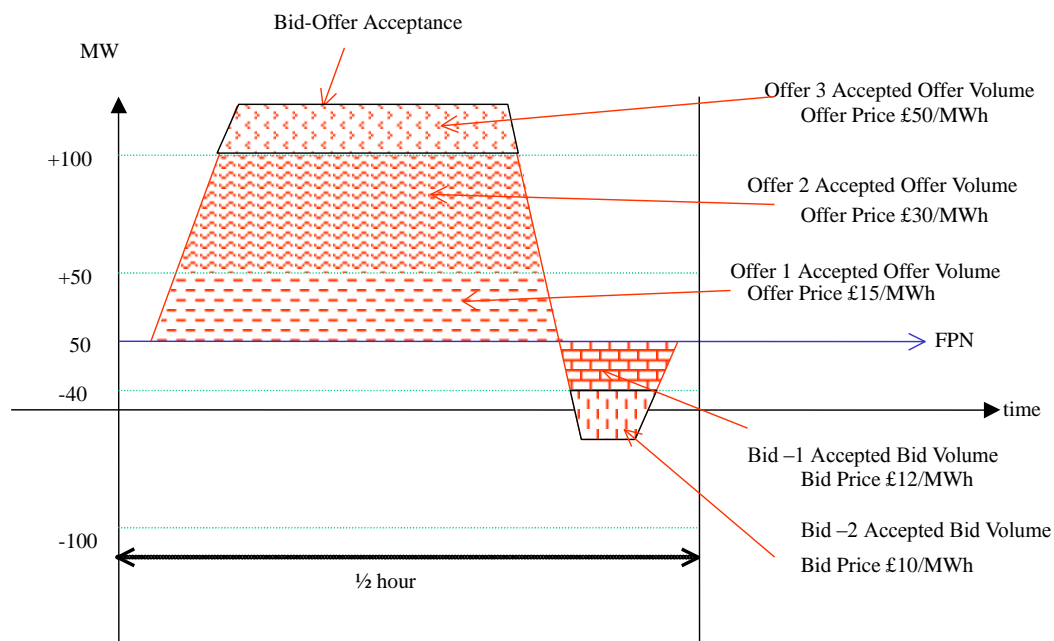
$$qAO_{ij}^{kn}(t) = \text{Max}\{qABO_{ij}^{kn}(t), 0\}$$

Similarly, the Accepted Bid Volume ( $qAB_{ij}^{kn}(t)$ ) represents the volume of Bid n accepted as a result of Bid-Offer Acceptance k from BM Unit i at spot times t within Settlement Period j. It is the negative part of the Bid-Offer Acceptance Volume, calculated by:



$$qAB_{ij}^{kn}(t) = \text{Min} \{qABO_{ij}^{kn}(t), 0\}$$

The diagram below represents the volumes of Bids and Offers bought or sold as a result of a Bid-Offer Acceptance.



- 7:** The Period Accepted Offer Volume ( $QAO_{ij}^{kn}$ ) and Period Accepted Bid Volume ( $QAB_{ij}^{kn}$ ) shall be calculated by integrating the Accepted Offer Volume and Accepted Bid Volume over all spot times in the Settlement Period.

The Period Accepted Offer Volume ( $QAO_{ij}^{kn}$ ) is determined by integrating the Accepted Offer Volume over all spot times  $t$  in Settlement Period  $j$ . It represents the half-hourly integrated volume of Offer  $n$ , in MWh, accepted as a result of Bid-Offer Acceptance  $k$ .

The Period Accepted Bid Volume ( $QAB_{ij}^{kn}$ ) is determined by integrating the Accepted Bid Volume over all spot times,  $t$ , in Settlement Period,  $j$ . It represents the half-hourly integrated volume of Bid  $n$ , in MWh, accepted as a result of Bid-Offer Acceptance  $k$ .

For more information on the method used for performing linear interpolation and integration please refer to the BMRA System Specification.

- 8:** The Reserve Scarcity Price ( $RSVP_j$ ) shall be calculated as:

$$RSVP_j = LoLP_j * VoLL$$

where  $LoLP_j$  is the Final Loss of Load Probability for the Settlement Period and  $VoLL$  is the Value of Lost Load system parameter.

Until 1 November 2018, if the SO does not report a Final Loss of Load Probability for the Settlement Period, then:

$$RSVP_j = 0.$$

From 1 November 2018, if the SO does not report a Final Loss of Load Probability for the Settlement Period, then the BMRA will use the most recent Indicative  $LoLP$  as though it were the Final  $LoLP$ , else if no Indicative  $LoLP$  is available then:

$$RSVP_j = 0.$$

<p>If the BMRA uses an Indicative LoLP in the absence of a Final LoLP provided to it by the SO, then the BMRA will set the Default LoLP Flag to 'True'.</p>
<p><b>9:</b> The STOR Instructed Volume (<math>QSIV_j^t</math>) shall be calculated as follows:</p> <p>In respect of each Settlement Period that is in a STOR Availability Window, for each accepted Offer or BSAA that is a STOR Action, the STOR Instructed Volume (<math>QSIV_j^t</math>) shall be equal to the Period Accepted Offer Volume derived from an accepted Offer that is STOR Flagged.</p>
<p><b>10:</b> The STOR Action Price (<math>STAP_j^t</math>) shall be calculated as follows:</p> <p>In respect of each Settlement Period that is in a STOR Availability Window, for each accepted Offer that is a STOR action:</p> $STAP_j^t = \max(PO_{ij}^n, RSVP_j).$ <p>In respect of each Settlement Period, for each Balancing Services Adjustment Action that is a STOR action:</p> $STAP_j^t = \max(BSAP_j^m, RSVP_j).$
<p><b>11:</b> The Demand Control Volumes shall be calculated as follows:</p> <p>The Start Point Demand Control level and End Point Demand Control Level shall be the Demand Control Event Estimates determined at the relevant times and dates notified by the Transmission Company.</p> <p>In respect of each Settlement Period, the Demand Control Volume for each Demand Control Event Stage shall be established by linear interpolation from the values of the Start Point Demand Control Level and End Point Demand Control Level.</p> <p>The System Demand Control Volume (<math>QSDC_j</math>) shall be determined as the sum of the Demand Control Volumes where the Demand Control Volume Notice has the SMAF Flag set to 'Yes'.</p> <p>The Balancing Demand Control Volume (<math>QBDC_j</math>) shall be determined as the sum of the Demand Control Volumes where the Demand Control Volume Notice has the SMAF Flag set to 'No'.</p>
<p><b>Non Functional Requirement:</b></p> <p>If there is insufficient data to calculate Period Bid and Offer Acceptance Volumes, an exception report shall be sent to the SO and BSCCo Ltd.</p>
<p><b>Interfaces:</b></p> <p>BMRA-I001, BMRA-I002, BMRA-I006.</p>
<p><b>Issues:</b></p>

*Amend section 6.1 as follows:*

## 6.1 Overview

The BMRA Service shall provide an interface to the following external parties.

Other Service Providers:

- Central Registration Agent (CRA)
- Settlement Administration Agent (SAA)

Other external parties:

- ~~System Operator~~ Transmission Company (SO)
- BMRS User

The BMRS shall provide inbound and outbound interfaces as summarised in the following table. Each interface requirement is listed below.

Reqt. No.	Interface Requirement	I/O	Interface User	Mechanism
BMRA-I001	Receive Registration Data	I	CRA	Automatic
BMRA-I002	Receive Balancing Mechanism Data	I	SO	Automatic
BMRA-I003	Receive System Related Data	I	SO	Automatic
BMRA-I004	Publish Balancing Mechanism Data	O	BMR Service User	Automatic
BMRA-I005	Publish System Related Data	O	BMR Service User	Automatic
BMRA-I006	Publish Derived Data	O	BMR Service User	Automatic
BMRA-I007	SAA/ECVAA Balancing Mechanism Data	O	SAA, ECVAA	Automatic
BMRA-I010	Data Exception Reports	O	SO, CRA, BSCCo Ltd, MIDP	Automatic
BMRA-I011	Performance Reports	O	BSCCo Ltd	Manual
BMRA-I012	Receive System Parameters	I	BSCCo Ltd	Manual
BMRA-I013	BMRA BSC Section D Charging Data	O	BSCCo Ltd	Manual
BMRA-I014	Receive Adjustment Data	I	SO	Automatic
BMRA-I015	Receive Market Index Data	I	MIDP	Automatic
BMRA-I016	Receive Market Index Data Provider Thresholds	I	BSCCo Ltd	Manual
BMRA-I017	Report Market Index Data Provider Thresholds	O	BSCCo Ltd	Manual
BMRA-I018	Receive Credit Default Notices	I	ECVAA	Automatic
BMRA-I019	Publish Credit Default Notices	O	BMR Service User	Automatic
BMRA-I020	Receive BM Unit Fuel Type List	I	SO	Manual
BMRA-I021	Receive Temperature Reference Data	I	SO	Manual
BMRA-I022	Receive Daily Energy Volume Reference Data	I	SO	Manual
BMRA-I023	Receive Wind Generation Registered Capacities	I	SO	Manual
BMRA-I024	Large Combustion Plant Directive Spreadsheet	I	BSCCo Ltd	Manual
BMRA-I025	SO-SO Prices	I	SO	Automatic
BMRA-I026	SO-SO Standing Data	I	SO	Manual
BMRA-I027	Settlement Report	I	SAA	Automatic
BMRA-I028	REMIT Data	I	BMR Service User SO	Automatic
BMRA-I029	Transparency Regulation Data	I	SO	Automatic
BMRA-I030	Publish REMIT Data	O	BMR Service User	Automatic
BMRA-I031	Publish Transparency Regulation Data	O	BMR Service User ENTSO-E	Automatic
BMRA-I034	Trading Unit Data	I	SAA	Automatic
BMRA-I035	Publish Trading Unit Data	O	BMR Service User	Automatic

BMRA-I004, I005, I006, I030 and I031 are outbound interfaces that comprise of the following formats:

- screen based (on both high and low grade services);
- programmatic (on high grade service);
- file download (on both high and low grade services).

*Amend Appendix C as follows:*

## **Appendix C      BMRA external data flow timings and formats**

### **C.1      ~~System Operator~~Transmission Company System Related Data (BMRA-I003 and BMRA-I005 (partial))**

DATA ITEM	[NGC IS] Reference and Flow Acronym	BSC Section Q Ref	TIMING (when issued by SO)	COVERAGE	FORMAT
2-14 days ahead (TSDFD) Transmission System demand forecast	5.1.3 TSDFD	6.1.3	By 1500hrs each day	Data for D+2 to D+14	Tabular and graphic (½ hour average MW value for the peak of the day)
2-14 days ahead (NDFD) National demand forecast	5.1.2 NDFD	6.1.3	By 1500hrs each day	Data for D+2 to D+14	Tabular and graphic (½ hour average MW value for the peak of the day)
2-52 weeks ahead (TSDFW) Transmission System demand forecast	5.1.3 TSDFW	6.1.2(b)	By 1500hrs each Thursday	Data for Week+2 to Week+52	Tabular and graphic (½ hour average MW value for the peak of the week)
2-52 weeks ahead (NDFW) National demand forecast	5.1.2 NDFW	6.1.2(a)	By 1500hrs each Thursday	Data for Week+2 to Week+52	Tabular and graphic (½ hour average MW value for the peak of the week)
2-14 days ahead (SPLD) National surplus forecast	5.1.1 OCNMFD	6.1.4	By 1600hrs each Business Day	Data for D+2 to D+14	Tabular and graphic (½ hour average MW value for the peak of the day)
2-52 weeks ahead (SPLW) National surplus forecast	5.1.1 OCNMFW	6.1.2(b)	By 1700hrs each Friday	Data for Week+2 to Week+52	Tabular and graphic (½ hour average MW value for the peak of the week)
2-14 days ahead National Generating Plant Demand Margin	16.2.1 OCNMFD2	6.1.4	By 1600hrs each Business Day	Data for D+2 to D+14	Tabular and graphic (½ hour average MW value for the peak of the day)
2-52 weeks ahead National Generating Plant Demand Margin	16.2.1 OCNMFW2	6.1.2	By 1700hrs each Friday	Data for Week+2 to Week+52	Tabular and graphic (½ hour average MW value for the peak of the week)

DATA ITEM	[NGC IS] Reference and Flow Acronym	BSC Section Q Ref	TIMING (when issued by SO)	COVERAGE	FORMAT
Output Usable Data	National 16.1.2				Download (½ hour average MW value for the peak of the day)
	NOU2T14D	6.1.4A(a)	By 1600hrs each Business Day	Data for D+2 to D+14	
	NOU2T49D	6.1.2B(a)	Once every month	Data for D+2 to D+49	Download (½ hour average MW value for the peak of the week)
	NOU2T52W	6.1.2A(a)	By 1700hrs each Friday	Data for Week+2 to Week+52	
	NOUY1	6.1.4B(a)	Every 6 months	Data for Year+1	
	NOUY2	6.1.4B(a)	Every 6 months	Data for Year+2	
	NOUY3	6.1.4B(a)	Every 6 months	Data for Year+3	
	NOUY4	6.1.4B(a)	Every 6 months	Data for Year+4	
	NOUY5	6.1.4B(a)	Every 6 months	Data for Year+5	
	Zonal 16.1.1				Download (½ hour average MW value for the peak of the day)
	ZOU2T14D	6.1.4A(d)	By 1600hrs each Business Day	Data for D+2 to D+14	
	ZOU2T49D	6.1.2B(b)	Once every month	Data for D+2 to D+49	Download (½ hour average MW value for the peak of the week)
	ZOU2T52W	6.1.2A(d)	By 1700hrs each Friday	Data for Week+2 to Week+52	
	ZOUY1	6.1.4B(b)	Every 6 months	Data for Year+1	
	ZOUY2	6.1.4B(b)	Every 6 months	Data for Year+2	
	ZOUY3	6.1.4B(b)	Every 6 months	Data for Year+3	
	ZOUY4	6.1.4B(b)	Every 6 months	Data for Year+4	
	ZOUY5	6.1.4B(b)	Every 6 months	Data for Year+5	
	By Fuel Type 16.1.3				Graphic and download (½ hour average MW value for the peak of the day)
	FOU2T14D	6.1.4A(b)	By 1600hrs each Business Day	Data for D+2 to D+14	
	FOU2T52W	6.1.2A(b)	By 1700hrs each Friday	Data for Week+2 to Week+52	Graphic and download (½ hour average MW value for the peak of the week)

DATA ITEM	[NGC IS] Reference and Flow Acronym	BSC Section Q Ref	TIMING (when issued by SO)	COVERAGE	FORMAT
	By Fuel Type and BM Unit 16.1.4				
	UOU2T14D	6.1.4A(c)	By 1600hrs each Business Day	Data for D+2 to D+14	Download (½ hour average MW value for the peak of the day)
	UOU2T52W	6.1.2A(c)	By 1700hrs each Friday	Data for Week+2 to Week+52	Download (½ hour average MW value for the peak of the week)
Initial Day ahead National demand forecast (NDF)	5.2 NDF	6.1.5(a)	By 0900hrs each day	Data for the following Operational Day (D+1)	Tabular and graphic (½ hour average MW values).
Initial Day ahead transmission system demand forecast (TSDF)	5.2 TSDF	6.1.5(b)	By 0900hrs each day	Data for the following Operational Day (D+1)	Tabular and graphic (½ hour average MW values).
Initial Day ahead Zonal transmission system demand forecast (TSDF)	5.2 TSDF	6.1.5(c)	By 0900hrs each day	Data for the following Operational Day (D+1)	Tabular, graphic and pictorial (½ hour average MW values).
Initial National Day ahead Indicated Margin (MELNGC)	5.3 MELNGC	6.1.6(a)	By 1200hrs each day	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).
Initial National Day ahead Indicated Imbalance (IMBALNGC)	5.3 IMBALNGC	6.1.6(b)	By 1200hrs each day	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).
Initial National Day ahead Indicated Generation (INDGEN)	5.3 INDGEN	6.1.6(c)	By 1200hrs each day.	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).
Initial National Day ahead Indicated Demand (INDDDEM)	5.3 INDDDEM	6.1.6(d)	By 1200hrs each day.	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).

DATA ITEM	[NGC IS] Reference and Flow Acronym	BSC Section Q Ref	TIMING (when issued by SO)	COVERAGE	FORMAT
Updated Day ahead National demand forecast (NDF)	5.3.1 NDF	6.1.6(e)	By 1200hrs each day	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).
Updated National Grid Transmission System Demand Forecast (TSDF)	5.3.1 TSDF	6.1.6(f)	By 1200hrs each day	Data for the following Operational Day (D+1)	Tabular or graphic (½ hour average MW values).
Current Day and Day Ahead Updated Market Information (MELNGC, IMBALNGC, INDGEN, INDDEM, NDF and TSDF)	National 5.3.1 NDF 6.1.8(a) MELNGC.....6.1.8(b) IMBALNGC .....6.1.8(c) INDDEM.....6.1.8(d) INDGEN .....6.1.8(e) TSDF 6.1.8(k)		By 0200hrsData for 0200D to 0500D+1 By 1000hrsData for 1000D to 0500D+1 By 1600hrsData for 0500D+1 to 0500D+2 By 1630hrsData for 1630D to 0500D+1 By 2200hrsData for 2200D to 0500D+2		Tabular, graphic and pictorial (½ hour average MW values).
Current Day and Day Ahead Updated Market Information (MELNGC, IMBALNGC, INDGEN, INDDEM and TSDF)	Zonal 5.3.2 TSDF 6.1.8(f) MELNGC.....6.1.8(g) IMBALNGC .....6.1.8(h) INDDEM .....6.1.8(i) INDGEN .....6.1.8(j)		By 0200hrsData for 0200D to 0500D+1 By 1000hrsData for 1000D to 0500D+1 By 1600hrsData for 0500D+1 to 0500D+2 By 1630hrsData for 1630D to 0500D+1 By 2200hrsData for 2200D to 0500D+2		Tabular, graphic and pictorial (½ hour average MW values).
Initial National Demand Out-turn (INDO)	7.0 INDO	6.1.13	Within 15 minutes of the end of the settlement period	Data for previous Settlement Period	Tabular and graphic
Initial Transmission System Demand Out-turn (ITSDO)	7.0 ITSDO	6.1.13	Within 15 minutes of the end of the settlement period	Data for previous Settlement Period	Tabular and graphic
System warnings (SYS_WARN)	SYSWARN	n/a	Within 15 minutes of issue to MCUSA signatories	n/a	Textual
SO-SO Prices	SOSO	n/a	By 15 minutes before the start of each hour	Data for next hour	Tabular
Temperature (TEMP)	14.0 TEMP	6.1.15	By 1700hrs each day	Data for the previous Operational Day (D-1)	Tabular and graphic

DATA ITEM	[NGC IS] Reference and Flow Acronym	BSC Section Q Ref	TIMING (when issued by SO)	COVERAGE	FORMAT
Reference Temperature (REFTEMP)	N/A	6.1.16	By 1700hrs each day	Data for the previous Operational Day (D-1)	Tabular and graphic
Wind Generation Forecast (WINDFOR)	15 WINDFOR	6.1.17	By 1700hrs each day	Data for D to D+2	Tabular and graphic
Instantaneous Generation by Fuel Type (FUELINST)	12 FUELINST	6.1.18	Every 5 minutes	Data for previous 5 minutes	Tabular and graphic
Half Hourly Generation by Fuel Type (FUELHH)	12.FUELHH	6.1.19	Within 15 minutes of the end of the settlement period	Data for previous Settlement Period	Tabular and graphic
Non-BM STOR (NONBM)	16 NONBM	6.1.22	Within 15 minutes of the end of the settlement period	Data for previous Settlement Period	Tabular and graphic
System Frequency (FREQ)	13 FREQ	6.1.23	Every 2 minutes	Data for previous 2 minutes	Tabular and graphic
Initial National Demand Out-Turn Daily (INDOD)	7 INDOD	6.1.21	By 1700hrs each day	Data for the previous Operational Day (D-1)	Tabular and graphic
Reference Initial National Demand Out-Turn Daily (REFINDOD)	N/A	6.1.21	By 1700hrs each day	Data for the previous Operational Day (D-1)	Tabular and graphic

Notes: All forecast data is sourced from the ~~System Operator~~Transmission Company.

In the event that a forecast update is not received from the ~~System Operator~~Transmission Company, the BMRA shall display the most recent forecast value for that time.

If an initial forecast is not received from the ~~System Operator~~Transmission Company, the BMRA shall display nothing.

All data is published within 5 minutes of receipt by BMRA

Where data is scheduled to be issued on a Friday and this is a non-working day, it will be published on the Thursday instead



**C.2      BM Data (BMRA-I002, BMRA-I014, BMRA-I004 and BMRA-I005 (partial))**

DATA ITEM	SOURCE	FORMAT	DEFAULT	COMMENTS
FPN per BM Unit (PN, QPN)	SO (Grid Code)	Tabular and graphic.	None	
Bids and Offers per BM Unit (BOD)	SO (Grid Code)	Tabular.	None	Prices and volumes to be displayed
Total Bid Volume	BMRA	Tabular and graphic.	None	Calculated from BOD data.
Total Offer Volume	BMRA	Tabular and graphic.	None	Calculated from BOD data.
Dynamics per BM Unit (MEL, MIL, RURE, RURI, RDRE, RDRI, NDZ, NTO, NTB, MZT, MNZT, SEL, SIL, MDV, MDP)	SO (Grid Code)	Tabular.	Previously submitted dynamics	
Acceptances per BM Unit (BOAL)	SO (Grid Code)	Tabular and graphic.	None	
Balancing Services Adjustment Data (BSAD): ESCA ESVA SSVA SPA EBCA EBVA SBVA BPA	SO	Tabular	None	Include BSAD as used in derivation of estimated SSP and SBP (published alongside derived estimated SSP/SBP) Also list of most recent version of BSAD data.
Disaggregated Balancing Services Adjustment Data (DBSAD)	SO	Tabular	None	

Notes: All BM data is sourced from the ~~System Operator~~ Transmission Company.

All data is published within 5 minutes of receipt by BMRA and retained for 12 months.

Total Bid/Offer volumes are computed when Bid-Offer data is processed

## C.7 Transparency Regulation Data (BMRA-I029)

Transparency Regulation Data is sourced from the ~~System Operator~~ Transmission Company or generated by BMRA and is provided in a tabular format along with options to download the information. All data is published within 5 minutes of receipt or generation by BMRA.

DATA ITEM	ARTICLE REF	TIMING	COVERAGE
Actual Total Load per Bidding Zone	6.1.(a)	No later than one hour after the Settlement Period	Data per Settlement Period over the previous day
Day Ahead Total Load per Biding Zone	6.1.(b)	Two hours after gate closure	Data per Settlement Period over the day ahead
Week Ahead Total Load Forecast per Bidding Zone	6.1.(c)	Each Friday, two hours before gate closure	Data per day for the week ahead
Month Ahead Total Load Forecast per Bidding Zone	6.1.(d)	One week before the delivery month	Data per week for the month ahead
Year Ahead Total Load Forecast per Bidding Zone	6.1.(e)	15 <sup>th</sup> day of the month before year to which the data refers to	Data per month for the year ahead
Planned Unavailability of Consumption Units (>=100MW)	7.1.(a)	One hour after decision regarding planned unavailability	Any details of planned unavailability
Changes in Actual Availability of Consumption Units (>=100MW)	7.1.(b)	One hour after decision regarding planned unavailability	Any details of planned unavailability
Year Ahead Forecast Margin	8.1	15 <sup>th</sup> day of the month before year to which the data refers to	Data for the year ahead
Expansion and Dismantling Projects (≥100MW)	9.1	One week before the yearly capacity auction, but no later than December 15th at 2400 local time	Data for the year ahead
Planned Unavailability in the Transmission Grid (≥100MW)	10.1.(a)	An any time	Any details of planned unavailability
Changes in Actual Availability in the Transmission Grid (≥100MW)	10.1.(b)	At any time	Any details of actual unavailability

<b>DATA ITEM</b>	<b>ARTICLE REF</b>	<b>TIMING</b>	<b>COVERAGE</b>
Changes in Actual Availability of Off-Shore Grid Infrastructure	10.1.(c)	One hour after the change in actual availability	Any details of wind unavailability
Countertrading	13 (b)	No later than one hour after the settlement period	Any details of countertrading
Costs of Congestion Management	13 (c)	Before the last working day of the following month	Details of cost incurred in a given month
Installed Generation Capacity Aggregated (>1MW)	14.1.(a)	One week before the beginning of the forecast year	Data for the next year
Installed Generation Capacity per Unit (>100MW)	14.1.(b)	One week before the beginning of the first forecast year	Data for the next 3 years
Day-Ahead Aggregated Generation	14.1.(c)	By 18:00 hours (Brussels time, UTC+01:00), one day before actual delivery	Data per Settlement Period for the day ahead
Day-Ahead Generation Forecasts for Wind and Solar (MWh)	14.1.(d)	18:00 hours (Brussels time, UTC+01:00), one day before actual delivery	Data per Settlement Period for the day ahead
Planned Unavailability of Generation Units (>100MW)	15.1.(a)	No Later than one hour after the decision regarding the planned unavailability	Data for up to 3 years ahead
Changes in Actual Availability of Generation Units (>100MW)	15.1.(b)	No Later than one hour after the change in actual availability	Data for up to 3 years ahead
Planned Unavailability of Production Units ( $\geq 200$ MW including changes of 100 MW or more)	15.1.(c)	No later than one hour after the decision regarding the planned unavailability	Data for up to 3 years ahead
Changes in Actual Availability of Production Units ( $\geq 200$ MW)	15.1.(d)	One hour after the decision regarding the planned unavailability	Data for up to 3 years ahead
Actual Generation Output Per Generation Unit	16.1.(a)	Five days after the Settlement Period	Data per Settlement Period
Aggregated Generation per Type (units >100MW installed capacity)	16.1.(b)	No later than one hour after the Settlement Period	Data for the previous Settlement Period
Actual or Estimated Wind and Solar Power Generation	16.1.(c)	No later than one hour after the operational period	Data for the previous Settlement Period

DATA ITEM	ARTICLE REF	TIMING	COVERAGE
Rules on Balancing	17.1.(a)	At any time	N/A
Amount of Balancing Reserves under Contract	17.1.(b)	Two hours before the next procurement	Coverage dependent on by contract type (yearly monthly, etc.)
Prices of Procured Balancing Reserves	17.1.(c)	No later than one hour after the procurement process ends	Coverage dependent on by contract type (yearly monthly, etc.)
Accepted Aggregated Offers	17.1.(d)	No Later than one hour after the Settlement Period	Data for the previous Settlement Period
Activated Balancing Energy	17.1.(e)	No later than 30 minutes after the end of the Settlement Period	Data for the previous Settlement Period
Prices of Activated Balancing Energy	17.1.(f)	No Later than one hour after the Settlement Period	Data for the previous Settlement Period
Market Imbalance Prices	17.1.(g)	Two hours after the end of the Settlement Period	Data for the previous Settlement Period
Aggregated Imbalance Volumes	17.1.(h)	No later than 30 minutes after the end of the Settlement Period	Data for the previous Settlement Period
Financial Expenses And Income For Balancing	17.1.(i)	No later than three months after the operating month	Data for the previous month
Cross-Border Balancing <ul style="list-style-type: none"> <li>• Volumes of Exchanged Bids and Offers.</li> <li>• Prices</li> <li>• Energy Activated</li> </ul>	17.1.(j)	No later than one hour after the Settlement Period	Data for the previous Settlement Period