national**grid**ESO

RR Implementation Guidelines
Issue 1.1 draft
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RR Market Integration

Introduction

This document will provide Balancing Service Providers (BSPs) with a description how National Grid will manage BSPs RR submissions.

The new pan-European RR market allows TSOs across Europe to exchange reserves. The document does not provide a guide to the RR market, which can be found in the reference documents cited below. However, it does provide further clarification for BSPs wishing to participate in the RR market following on from GC0097 (Final Modification Report) FMR.

The document assumes the reader understands the proposed RR market and the new LIBRA platform.

Reference Documents

The guidelines outlined in this document have been drawn from the sources listed below:

Document Title and Version	Document Reference	Description
BSC Modification P344 Final Report version 19/6/18	P344	Changes to the BSC to implement wider access and RR
P344 'Project TERRE implementation into GB market arrangements' Business Requirements 7/6/18	P344 BR	Business requirements specified by Elexon for implementation of P344
Grid Code Modification GC0097 Final Modification Report 26/6/18	Grid Code	Reference to the Grid Code as proposed in GC0097
TSO proposal for implementation framework for Replacement Reserves 18/6/18	RRIF	Proposal from TSOs submitted to NRAs
RRIF Explanatory Document 18/6/18	RRIFED	TSO document to support their RRIF
NGT Data Validation, Consistency & Defaulting Rules IS/24.12.0003, Issue 9, 14 July 2016	NGT Data	Rules on the submission of data by BSP via EDL and EDT
LIBRA Platform: Bid Formats		Describes the bid formats which will be submitted to the LIBRA platform

RR Market Dynamics

RR Market Cycle

Terminology

The terminology used in association with RR can vary in the documentation cited above. NGESO has adopted the following standard terms in this document:

| Term	Meaning
RR Auction Period	The RR auction operates over an hourly period made up of four 15-minute activation periods. As the market matures, the aim is to reduce the Auction period from one hour to half an hour. The Auction Period has been referred as the RR Delivery Period in other documents.
RR Activation period	A single 15-minute period for the delivery of RR. Activation Period has also been referred to as a RR Delivery Period in other documents.
RR Bid	A BSP can submit a 'bid' for the delivery of RR for each activation period within an RR Auction Period. A bid can either be Up or Down. RR Bid has been referred to as an RR Offer in other documents c.f. the Balancing Mechanism where there are bids & offers; in RR there are only bids
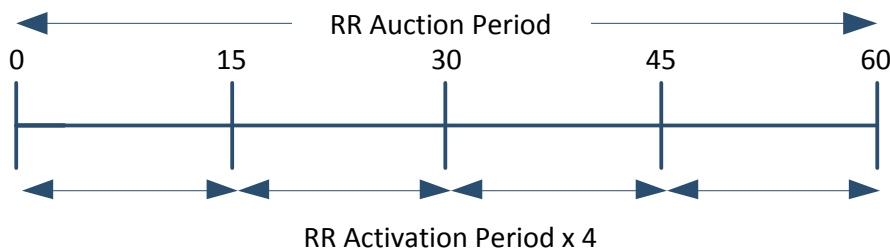
Figure 1 - RR Auction Period & RR Activation Period (in minutes)

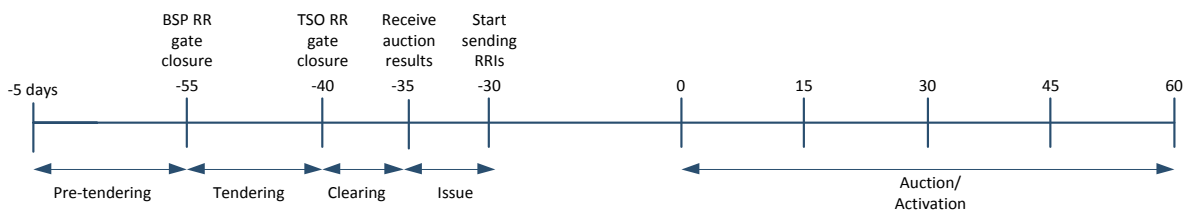The RR market cycle for each RR Auction Period is described as below:

Figure 2 - RR Market Cycle (in minutes relative to start of the Auction period)

The RR market cycle is defined relative to the start of each RR Auction period (H); hence:

Phase	Day 1 go-live		Market matures (future date)		Activities
	Start	End	Start	End	
Pre-tendering	*H-5 Days*	**H-60**	*H-5 Days*	**H-55**	• RR Submission • Initial 'Surface Level' Validation • NGESO Internal Validation & Consistency Checking
Tendering	H-60	H-40	H-55	H-40	• NGESO Restrictions • NGESO Submission to LIBRA
Clearing	**H-40**	**H-35**	**H-40**	**H-35**	• LIBRA auction
Issue	H-35	H-30	H-35	H-30	• Receiving Auction Results from LIBRA • Issuing RRIs
Delivery	**H**	**H+60mins**	**H**	**H+30mins**	• BSPs deliver energy as per instruction

Pre-Tendering Activities

RR Submission

All BSPs will need to submit RR bids to NGESO by RR gate closure. At go-live the gate closure will be set to -60 mins, after 12 months following go-live it will reduce to -55 mins.

For each RR auction period (initially 24, moving to 48, daily periods) a BSP can submit bids into the RR market for the BMUs that have met the NGESO RR qualification requirements. Each auction period is broken down further into four 15 minute periods - activation periods. For each activation period a power level and price are submitted by BMU. Bids are submitted for either an increase in the output of power/decrease in power consumption (Up) or a decrease in the output of power/ increase in power consumption (Down).

The general principles of submission are:
1. BSPs will need to send RR bids to NGESO using the existing EDT channels or the new API (details to be provided later).
2. If no submissions are received for a BMU then it is assumed that the BMU is not participating in the RR market for that period.
3. An EDT file will contain a submission of RR Bids that will be grouped by BMU and RR auction period.

4. Individual RR bid records in the EDT file will cover a single Activation Period, hence, to submit for the whole RR auction period, whilst it is an hour, four separate records are required.
5. Individual RR bid records for the same BMU and adjacent Activation Periods in the same Auction period can be implicitly linked via the Bid Id.
6. Submissions in subsequent EDT files for the same BMU/RR auction period will be deemed to be a new submission. So, the submission of a RR bid for a specific BMU/RR auction period will supersede any previous valid (i.e. one that has passed Initial Surface Level Validation) submission.
7. The submission for a BM Unit/RR auction period does not have to cover all the Activation Periods within the Auction period; if activation periods are missing (or null) then it is assumed that there is no submission for that Activation Period.
8. Considering the above two principles, if a BSP initially submits for all Activation Periods for a specific Auction Period/BMU, and then later submits for only a single Activation Period for the same BMU, the previously submitted Activation Periods are deemed superseded.
9. If a BSP wishes to withdraw a RR bid for a specific BMU during the Pre-Tendering phase then the BSP will need to resubmit a RR Bid with a zero level. This bid will pass NGESO validation but will not be forwarded to LIBRA.
10. There are no defaulted RR bids.
11. If a BSP wishes to submit an indivisible bid for a BMU then the divisible indicator needs to be set to FALSE.
12. A BSP will need to submit other market data (Physical Notification (PN), Maximum Export Level (MEL), Minimum Import Level (MIL), Run Up/Down Import/Export Rates) for the corresponding RR Auction periods that RR Bids have been submitted.

Associated RR Bid Rules

BSPs have the option of associating bids, bids can either be: Exclusive, Multipart or Linked. The different types of association are mutually exclusive, i.e. a bid can only be one of Linked, Exclusive or Multipart. Bids are associated via an *Associated Bid Set*. All associated bids must be for the same Auction period and for the same BMU, hence, the *Associated Bid Set* must be unique for each BSP, BMU and Auction period.

a. Exclusive Bids

If an Exclusive bid is accepted in the auction then all other RR bids with same *Associated Bid Set* will not be accepted.

b. Multipart Bids

If a Multipart bid (Up) is accepted then all associated bids with a lower price must also be accepted and if a bid (Down) is accepted then all associated bids with a higher price must also be accepted.

Multipart offers must have the same direction throughout the Auction period.

c. Linked Bids

If one Linked bid is accepted then all others with the same associated Bid ID must also be accepted. Linked bids are linked in time.

Initial 'Surface Level' Validation

Initial 'Surface Level' Validation is a 'light touch' validation applied by NGESO to ensure that basic checks are undertaken against the data. These checks are defined in NGESO Data Validation, Consistency & Defaulting Rules document. The general principles:

1. RR bid submissions will be subject to the following checks: V_GEN_1, V_GEN_2, V_GEN_3, V_GEN_4, V_GEN_5, V_RRB_1
2. RR bid submissions will be subject to a RR gate closure check: V_RRB_2.
3. If a valid RR submission is followed by a resubmission that fails Initial 'Surface Level' Validation, then the valid RR submission will prevail (**the same as standard EDT processing**)
4. The results of Initial 'Surface Level' Validation are reported back to the Trading Agent (**the same as standard EDT processing**)
5. The final submission that passes this Initial Validation will be sent onto LIBRA (apart from zero bids).

Validation checks falling under Initial Surface Level Validation:

Table 1 - Initial Surface Level Validation Checks

Rule	Description	Comments
V_RRB_1	Mandatory field One of {Time From, Time To, Direction, Level, Price} is not specified	This is reported back to participant and submission fails initial validation
V_RRB_2	Notification time of the RR Bid relates to a closed RR Auction period	This is reported back to participant and submission fails initial validation
V_RRB_5	Date/time from is beyond the maximum submission date	
V_RRB_6	Direction must be UP or DOWN	
V_RRB_7	Associated bid type must be one of LINK, MULT, EXCL	
V_RRB_8	MW Level must integer value	
V_RRB_9	Divisible flag must be TRUE or FALSE	

NGESO Internal Validation & Consistency Checking

NGESO will undertake its own Internal Validation & Consistency Checking. NGESO will undertake these checks in order to estimate the amount of RR Bids that will deemed to be valid by LIBRA, and perform the TSO needs & restrictions process.

These checks are internal to NGESO and are independent of any checks undertaken on LIBRA: bids passing or failing NGESO checks may pass or fail LIBRA checks. The checks are NGESO assessments of LIBRA validation.

General principles:

1. The results of the NGESO Internal Validation & Consistency checking for RR submissions are **NOT** relayed back to the Trading Agent (**contrary to standard EDT processing**)
2. Submissions that fail NGESO Internal Validation & Consistency checking will be forwarded onto LIBRA. This will only be possible where RR Bids have passed the Initial 'Surface Level' checks.

Table 2 - NGESO Validation Checks

Rule	Description	Comments
V_RRB_3	Min Level greater than max level	-
V_RRB_4	Date/time from does not align to the start of an Activation Period	-

Table 3 - NGESO Consistency Checks

Rule	Description	Comments
C_RRB_1	Associated Bids are different types	Application of associated bid rules mentioned above.
C_RRB_2	Associated Bids are across different BMUs	Application of associated bid rules mentioned above.
C_RRB_3	Linked bids do not have 15 minute resolution	
C_RRB_4	Linked bids overlap in time	
C_RRB_5	Multipart bids are in different directions	Multipart bids must be in the same direction.
C_RRB_6	Multipart bids must have increasing price curves	

Tendering Activities

RR Restrictions

As TSO NGESO has the authority to restrict RR bids based on operational security constraints. e.g. the BMU is contracted to provide an ancillary service. The current principles and criteria for applying restrictions is:

1. Restrictions will be applied at each BMU/RR Auction period, i.e. if a BMU is restricted for a single Activation periods then all the bids for the corresponding Auction period will be restricted.
2. Restrictions are independent of NGESO Internal Validation & Consistency Checking.
3. NGESO cannot 'partially' restrict RR bids, it is the LIBRA Auction that can accept part of a divisible bid.
    a. RR Bids that have failed NGESO Internal Validation & Consistency Checking will be omitted from the constraint assessment.
    b. when assessing against a constraint each RR bid will be considered in its entirety (up to the maximum quantity)
    c. if the maximum quantity of RR bids violates the constraint the bid will be marked as restricted.
4. The rules underlying the restrictions are defined below (again, this list is provisional at present)

Table 4 - RR Restrictions

Rule	Description
R_RRB_1	RR Bid has been restricted due to a constrained network area
R_RRB_2	BMU has an ancillary service obligation for the corresponding Auction period
R_RRB_3	BMU is instructed/scheduled to provide response
R_RRB_4	BMU provides TSO reserve
R_RRB_5	BMU does not have an active EDL connection
R_RRB_6	BMU has not submitted valid market data for the corresponding RR Auction period

NGESO Submission to LIBRA

NGESO undertakes the following steps before sending RR Bids onto LIBRA:

1. Bid prices will be converted to Euros using the prevailing GBP-Euro Exchange Rate published by Elexon.
2. Bids are anonymised before they are sent to LIBRA
3. RR Bids are grouped by BSP in a TSO Offers & Needs document which is sent to LIBRA, i.e. one file per BSP. The file will contain all the RR Bids pertinent to the corresponding RR Auction Period.

If any of the BSP RR Bids fail LIBRA validation then the whole file is rejected and there will be no accepted BSP RR bids for that Auction period.

NGESO is not sending separate TSO Offers & Needs document for each BMU.

Clearing

LIBRA Auction

Please consult the TERRE project documentation for an understanding of how the LIBRA platform and the RR market operates.

Issue

Receiving Auction Results from LIBRA

No details required.

Issuing of RR BOAs

No additional detail from GC0097 at present. A TERRE Dispatch Guide is being prepared.

Delivery

No additional detail from GC0097 at present.

AMENDMENT RECORD

Issue	Draft	Date	Author	Description of changes
1	1	28-Jan-2019	RDG	Updated to accommodate change to RR Bid format changes in EDT
1		5-Dec-2018	RDG	Final updates prior to issue
	3	5-Nov-2018	RDG	Updated after further peer reviews
	2	23-Oct-2018	RDG	Updated after peer reviews
	1	17-Oct-2018	RDG	New document

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