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**ELEXON Requirements Specification
To Support Modification P08 -
Incorporation of the BPA/SPA Price
Adjusters into the BSC**

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Version	Date	Reviewer	Signature	Responsibility
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1.0		Peter Davies		

b Distribution

Name	Organisation
	Modifications Group
	Ofgem
	NGC

c Change History

Version 0.1 issued for initial review.

Version 0.2 contains ELEXON internal review for Modification Group consultation

Version 0.3 contains Modification Group consultation review comments

Version 0.4 contains further Modification Group consultation review comments - issued for approval.

Version 1.0 is for use in Impact Assessment.

d Changes Forecast

None

e Related Documents

Reference 1	ELEXON (BSC Co) IS Development Standards Vol. 1
Reference 2	Balancing and Settlement Code V1.1 Section F
Reference 3	BSC Procedure 40 Change Management V2.0
Reference 4	Initial Assessment of Modification Proposal P08 (IWA008)
Reference 5	Balancing and Settlement Code V1.1 Section T
Reference 6	
Reference 7	BSC Systems Release 2 – Project Brief (001RMB)

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1 INTRODUCTION

1.1 Introduction

This document provides a statement of the changes required to the systems provided by the central service providers to implement Modification Proposal P08.

The requirement is for the Settlement Administration Agent (SAA), Balancing Mechanism Reporting Agent (BMRA) and BM System Operation Agent (SO) services to be modified to incorporate Price Adjuster functionality.

1.2 Background and Related Issues

Modification Proposal P08 (P8) was raised by the Transmission Company (TC) on April 20 2001. It is intended to replace Workaround W024, which was implemented as a temporary solution to Modification Proposal P03 - Correction of Price Spikes Generated by De-Minimis NGC Purchases.

The Ofgem decision on P3 was to make no changes to the Balancing and Settlement Code (BSC), but involved alterations to the Balancing Services Adjustment Data (BSAD) Methodology, the Central Service Provider's processes and ELEXON procedures. It was introduced as an interim solution, to enable a speedy implementation as required by the Regulator.

Modification P8 was raised to implement the same Price Adjuster functionality, but within the BSC and Central Service Provider's processes and systems.

ELEXON produced an Initial Assessment of P8 on April 30th (reference 4).

In their approval of moving P8 into the Assessment phase, the Panel decided to task the ISG with examining the wider issues with the price calculation process.

1.3 Purpose and Structure of Document

The primary purpose of this document is to specify the requirements for implementation of Modification Proposal P08, to enable impact assessments to be carried out by Modification Group members and industry participants.

The document is structured in the following manner:

- **Summary of Proposed Modification** – a description of Modification and any associate additional requirements.
- **Changes to BSC, Business definition documents and Central Systems** – a description of the changes to assets and services required to support the implementation of Modification P08.
- **Development Process** – a description of how this workaround is to be developed, tested and implemented.

1.4 Glossary

The following acronyms have been used throughout this document:

BCA	Buy Price Cost Adjustment
BMRA	Balancing Mechanism Reporting Agent
BPA	Buy Price Price Adjustment
BSAD	Balancing Services Adjustment Data
BSC	Balancing and Settlement Code
BVA	Buy Price Volume Adjustment
NGC	National Grid Company
SAA	Settlement Administration Agent
SBP	System Buy Price
SCA	Sell Price Cost Adjustment
SPA	Sell Price Price Adjustment
SSP	System Sell Price
SVA	Sell Price Volume Adjustment
SO	Balancing Mechanism System Operation Agent (NGC)
TC	Transmission Company (including System Operator)

2 SUMMARY OF PROPOSED MODIFICATION

2.1 Overview of the Modification Proposal

The initial assessment of Modification Proposal P8 identified the following issues to be considered during the Assessment phase:

- Submission, storage and reporting of the new Sell Price Price Adjuster (SPA)/Buy Price Price Adjuster (BPA) data items within the central systems (SAA and BMRA).
- Revision of the BSAD methodology to include submission of SPA and BPA.
- Discontinuation of the iterative settlement processing and resubmission of BSAD, as required by Workaround W024 (thus replacing the Workaround)
- Changes to BSC Parties' associated processes and systems, due to the changes to reporting of BSAD data within the current Settlement Reports.
- Changes to the Balancing and Settlement Code and subsidiary documents, resulting from amendment to the System Buy Price (SBP)/System Sell Price (SSP) Imbalance Price calculations.

2.2 Additional Requirements

The prime requirement of this document is to introduce the price adjusters into the calculation of SBP/SSP. It is recommended that some additional support functions are included in support of the main business change:

- The SAA-I014 flow is an automatic output flow distributed to all parties, which will require amendment to include the new SPA and BPA variables (see Section 4.1). The SAA system does not currently support the ability to distribute two versions of this flow at the same time (although it does support the distribution of various sub-flows). It is proposed that the reporting system is either updated to support the ability to distribute different versions of the same core report to different parties, or to implement the new reporting requirement as a new sub-flow of SAA-I014 (depending on cost).
- The SO to Central Systems interface for BSAD data is currently defined as a manual flow. It is recommended that this is upgraded to be a true automatic interface in order to reduce manual intervention and reduce potential sources of error. There will be no change in the timing of BSAD data submission.
- The BMRA currently does not include a facility to report the BSAD data used in the calculation of indicative imbalance prices (ISBP_i/ISSP_i). It is proposed that such a facility is added to the Web site, subject to cost, to improve transparency.

3 CHANGES TO THE BSC AND SUBSIDIARY DOCUMENTS

3.1 Modifications To BSC

The main business changes for this modification are to section T where Sections 4.4.5 and 4.4.6 will describe the new formulae for imbalance price calculation:

$$SBP_j = \{ \sum_i \sum^n \{ QAO_{ij}^n * PO_{ij}^n * TLM_{ij} \} + BCA_j \} / \{ \sum_i \sum^n \{ QAO_{ij}^n * TLM_{ij} \} + BVA_j \} + BPA_j$$

$$SSP_j = \{ \sum_i \sum^n \{ QAB_{ij}^n * PB_{ij}^n * TLM_{ij} \} + SCA_j \} / \{ \sum_i \sum^n \{ QAB_{ij}^n * TLM_{ij} \} + SVA_j \} + SPA_j$$

The new BPA_j/SPA_j terms will only be used within these two formulae, therefore all other aspects of Imbalance Price calculations are not impacted by this change (this includes defaulting requirements for SSP/SBP).

The two data items (BPA_j/SPA_j) are new to the BSC, and hence need to be recorded in Annex X Table X-2:

Defined Term	Acronym	Units	Definition/Explanatory Text
Buy Price Price Adjustment	BPA _j	£/MWh	The amount sent by the Transmission Company as the 'Buy Price Price Adjustment' in accordance with Section Q6.3
Sell Price Price Adjustment	SPA _j	£/MWh	The amount sent by the Transmission Company as the 'Sell Price Price Adjustment' in accordance with Section Q6.3

The other BSC changes are:

- to include these two new data items in Sections Q6.3.2 (BSAD data items);
- to bring Indicative Price Calculations in Section V2.6.5 in line with Section T 4.4.5 and 4.4.6.

See section 5.2 for further changes to the BSC if BSAD data is to be reported on the BMRA.

3.2 Service Descriptions

Amendments to Sections 3.28 and 3.29 of the SAA Service Description are required to reflect the use of the new Price Adjusters in Imbalance Price calculations.

4 CHANGES TO BUSINESS DEFINITION DOCUMENTS

4.1 NETA Data File Catalogue and Reporting Catalogue

The following NETA Data File Catalogue and Reporting Catalogue sections will need updating.

Document	Section	Title
NETA Data File Catalogue	A	SAA-I014 (output)
	B	BSAD data item references
IDD P1 (Word)	8.4	SAA-I014 (output)
IDD P2 (Word)	5.17	SAA-I014 (output) Settlement Report
	7.3	BMRA-I012 (input) System Parameters
	7.33	SAA-I023 (input) System Parameters
IDD P1 (Excel)	SAA-I014(1)	SDD record type
IDD P2 (Excel)	SAA-I014(2)	SPI record type
		SDD record type
	SAA-I014(3)	SPS record type
		SSD record type
Reporting Catalogue	3.1.1 (b), 3.1.1 (h), 3.1.2 (c)	Interim Information Settlement Report

- a) The SAA-I014 flow is an existing automated flow with a formal definition of the flow structures within the IDD. The precise number and any associated changes will be defined in the future User Requirement Specifications. The current version of the flow is 001 and this will need to be updated to version 002. The SAA will need to be able to generate the flow at either version 001 or version 002, depending on the trading party receiving the flow.
- b) The current BMRA-I012 and SAA-I023 flows are manual flows, and in addition cover two physical sources (BSCCo and SO). It is proposed that these flows are split into two, to allow the SO flow, which is required for each period, to be updated to an electronic flow to ease the regular processing and reduce the possibility of errors. This will formalise the current bi-lateral agreement on the format. The manual flow format will be retained for non-BSAD data supplied by BSCCo (e.g. Notional Reserve Level).
- c) Within this requirements document the two new flows will be referred to as BMRA-I0xx and SAA-I0xx and will hold the SO data. The existing BMRA-I012 and SAA-I023 flows will be updated to remove the references to the SO data. The following is a sample of the BMRA-I0xx, the SAA version will be similar

Requirement ID: BMRA-I0xx	Source: System Operator	Title: BSAD Data	ITT reference: CR 003
Mechanism: Electronic data file transfer, NGC File Format	Frequency: Daily	Volumes:	
Interface Requirement: The BMRA Service shall receive the following system parameters from the System Operator: Settlement Date Settlement Period (1-50) BCA _i (the Buy Price Cost Adjustment) (£) BVA _i (the Buy Price Volume Adjustment) (MWh) BPA _i (the Buy Price Price Adjustment) (£/MWh) SCA _i (the Sell Price Cost Adjustment) (£) SVA _i (the Sell Price Volume Adjustment) (MWh) SPA _i (the Sell Price Price Adjustment) (£/MWh)			
Physical Interface Details:			

4.2 User Requirement Specifications

The SAA and BMRA User Requirement Specifications (URS) need updating to alter formulae and change the previously described data flows.

Document	Section	Description
BMRA	SAA-F009	Update the SBP/SSP formulas (see section 3.1)
	SAA-I023	Remove references to BSAD and SO as originator
	SAA-I0xx	New flow for BSAD (see section 4.1)
SAA	BMRA-F004	Update the SBP/SSP formulas (see 3.1)
	BMRA-I012	Remove references to BSAD and SO as originator
	BMRA-I0xx	New flow for BSAD (see section 4.1)

4.3 BMRA SAA Interface Specifications

The NGC BMRA and SAA Interface Specification will require amendment to include the new electronic interface of BSAD data (see section 4.1).

5 CHANGES TO CENTRAL SYSTEMS SOFTWARE AND DOCUMENTATION

5.1 BSAD Submission

The current SAA and BMRA systems receive BSAD data from SO in the form of an email containing a spreadsheet compatible file CSV file. As stated in the previous section this is more formalised than specified in the IDD, which documents it as a manual flow.

The proposed changes will formalise the data transfer format between SO and the Central Services, allow the new data items to be included and the import into the Central Systems to be automated.

The data file will be sent to the BMRA at 17:00 on a daily basis, although BMRA will always use the latest available version of any data. BSAD can be resubmitted to SAA for any Settlement or Reconciliation Run Type. II, SF and later flows, where required.

5.2 Imbalance Price Calculations

The SAA and BMRA software should be revised to utilise the new BPA and SPA data items in Imbalance Price calculations, to reflect the changes to Section T of the BSC described in section 3.1 of this document.

5.3 BMRA Reporting Changes

BMRA will be updated to report the BSAD data used in the calculation of the indicative imbalance prices (ISBP_j/ISSP_j). This should be of the form current (today/yesterday) and historic periods.

Should such a change be accepted then the following additional changes would be required to the BSC:

- BSC V-1 Table of BMRS Reports
- BMRA URS Update to "BMRA-I005: Publish System Related Data" to include a new report of BSAD data.

5.4 SAA Reporting

5.4.1 New Version of Settlement Report

A new version of SAA-I014 will be produced containing the new Price Adjusters. If a new version of the flow is developed, the following additional factors will need to be taken into account:

- a) The SAA-I014 flow is an automatic output flow distributed to all parties. Within the header this flow contains a version number (currently 001) to allow control changes to be made to the format.
- b) The SAA system does not currently support the ability to simultaneously support two versions of this flow (this means that without introducing a new parallel flow, the system can only be upgraded using a "big bang" approach).

- c) The SAA Logical Data model contains the entity "Report Type" which currently contains a single item "#Report Type". This entity will need to be enhanced to support both the report type (i.e. I0141) and also the version number (i.e. 002).
- d) In addition the system will need the ability to generate both report versions, depending on the requirements of each Trading Party. This should be done in a manner that will allow easy creation of subsequent versions, and also the easy removal of obsolete versions of the report.

5.4.2 Alternative Implementation Options

As part of the assessment process, the Central Services Agent should also provide assessments for two alternative implementation options for the SAA_I014 Settlement Report changes.

- a) Implement the changes to SAA-I014 as version 2 of the flow as a "big bang", i.e. the new version will be effective from the implementation date, and version 1 will be discontinued on the implementation date.
- b) Implement the changes to the report as a new sub-flow to the SAA-I014, and leave existing sub-flows 1-3 unchanged.

5.5 Software Documentation and Operating Procedures

The SAA and BMRA System Specifications, Design Specifications and Operating Procedures will require amendment to reflect the changes to the Business Definition documents described in this document.

6 OTHER CHANGES (NON CENTRAL SYSTEMS)

6.1 BSAD Methodology

Changes to the BSAD Methodology are outside the remit of the P8 modification, which only covers changes to the BSC and BSC Central Services.

However, as stated in the original modification proposal the BSAD Methodology will need to be changed to remove the section which describes the temporary process for inputting the BPA/SPA data into the settlement systems using the existing BCA/SCA data items.¹

The SO will be required to submit BSAD data to BMRA and SAA in electronic format.

6.2 BSC Party Systems

Trading Parties and other recipients of settlement reports will need to revise their systems and procedures to receive the new format of the SAA-I014 data flow or the new SAA-I014 sub-flow.

6.3 Workaround W024

The current arrangements in Workaround W024 for a scheduled additional Settlement Run using revised BSAD data will be discontinued and replaced by the solution described in this document.

6.4 Workaround W018

The current arrangements in Workaround W018 will continue after implementation of Modification P08. However, cross-references to Workaround 024 will need to be deleted from the W018 description (e.g. Step 5).

1.1.1.1

¹ The P8 Modification Group (6th June 2001) considered a proposal by INNOGY that the BPA/SPA values should be derived on the basis of planned utilisation, rather than available capacity. This is a matter for the BSAD Methodology and is outside the scope of the BSC changes within this specification. The only requirement is that any such review of the BSAD Methodology does not change the 6 data items which are provided to the BSC Central Systems, or the formula which use these values in the calculation of the SBP/SSP.

7 DEVELOPMENT PROCESS

Responsibility for design, testing and implementation of the BMRA and SAA systems lies with the Logica Consortium. However, in order to gain assurance that changes made are consistent with their requirements, ELEXON requires visibility of these processes. These requirements are stated here, in order to ensure that the Logica Consortium understands the basis on which costs need to be assessed.

7.1 Design

ELEXON intend that responsibility for the correctness of the design should remain with the Logica Consortium, but that ELEXON should have the opportunity to review it, and identify apparent inconsistencies with the requirements. The following processes are proposed to achieve this:

- ELEXON will review changes to the User Requirement Specifications (URS), and sign the document off once review comments have been addressed.
- ELEXON will review changes to the System Specification and Design Specification, and identify any evident inconsistencies with the URS, but will not sign off the documents.

7.2 Testing

ELEXON intend that responsibility for software testing should remain with the Logica Consortium, but that ELEXON should have some visibility of the process, in order to gain assurance that the integrity of Trading and Settlement is maintained. The following processes are proposed to achieve this:

- a) As part of the response to this document, the Logica Consortium will provide a statement of their proposed testing strategy. This statement will be reviewed by ELEXON, and should explain how the Logica Consortium will demonstrate that the changes are ready for live operation, and that there is no unplanned impact on pre-existing facilities.
- b) ELEXON will be provided with test plans, test scripts and other test documentation that they may request. ELEXON will review these documents, and identify any evident inconsistencies with the agreed testing strategy, but will not sign them off.
- c) ELEXON will have the option of witnessing appropriate elements of the Logica Consortium's testing.

In addition, one SAA Settlement Run shall be undertaken in a pre-production or other test environment in parallel to the equivalent live run. Comparative results will be monitored and witnessed by ELEXON, to confirm that results are equivalent and the new processes work satisfactorily in a near-live environment.

The Logica Consortium will provide ELEXON with a test report, summarising the testing carried out, and the results of those tests. The report will also describe any defects found during testing, and the steps taken to resolve them.

Any requirements for end-to-end testing and trialling will be scoped and specified by an ELEXON project team as part of the project planning activity.

7.3 Implementation

ELEXON anticipate the following interaction with the Logica Consortium's implementation process:

- a) As part of the impact assessment of this document, the Logica Consortium will provide a high-level statement of their proposed implementation approach (describing, for example, whether a phased approach is proposed), including any alternative implementation options. ELEXON will review and sign off this high-level implementation strategy.
- b) Implementation date(s) for the changes described in this document will be agreed in advance by ELEXON and the Logica Consortium.

The decision on the original P3 Modification defined the effective starting Settlement Date for the P3 Modification to be 5th April 2001. The implementation of W024 has ensured that all Initial Settlement and Reconciliation Runs for that Settlement Day onward have been processed according to the Ofgem decision on P3.

It is expected that the replacement of W024 will be on a Calendar Day basis, thus P8 becoming effecting at different Settlement or Reconciliation Run Types for different Settlement Days according to the settlement Timetable. This will mean replacing all of the Workaround W024 modified BSAD data within the Central Systems with the original Modification P3 (6-value) BSAD data for all Settlement Days from 05/04/2001 to the P8 implementation date, as a one-off exercise by the Central Services Agent.