NETA Change Form		ELEXON Reference
		MP136
Title		**Version No.**
Marginal Definition of the 'main' Energy Imbalance Price		Version 0.1
		LogicaCMG Reference
		ICR546
Type of Assessment	**Date CP Received**	**Date IA Issued**
DLIA	06-Oct-2003	22-Oct-2003

Brief Summary of Change

The 'main' energy imbalance price will be calculated at the highest priced energy action i.e. the most expensive ('marginal') MWh in the Net Imbalance Volume (NIV).

For example, when the market is short (NIV >0), System Buy Price will be the main price and will be calculated at the price of the most expensive accepted whole or part offer/purchase in the NIV stack. Similarly when the market is long or balanced (NIV ≤ 0), System Sell Price is the main price and will be calculated at the price of the most expensive bid/sale in the NIV stack.

The concepts of NIV tagging and market price for the 'reverse' imbalance price remain unchanged from those introduced by P78 "Revised Definition of System Buy Price and System Sell Price".

To facilitate this marginal methodology, there will be a requirement to change the Balancing Services Adjustment Data (BSAD) variables submitted by the Transmission Company. In parallel with this modification proposal National Grid intend to progress changes to the BSAD Methodology Statement.

LogicaCMG's Proposed Solution

Option 0: Disaggregated BSAD, EUC
Modify Settlement Calculation process to include new data (EUC and Disaggregated BSAD) in NIV tagging.

Option 1: Marginal Price, Disaggregated BSAD, EUC
Modify Settlement Calculation process to include new data (EUC and Disaggregated BSAD) in NIV tagging.
Modify Settlement Calculation process to take the Marginal Price.

Option 2: Marginal Price, Disaggregated BSAD
Modify Settlement Calculation process to include new data (Disaggregated BSAD) in NIV tagging.
Modify Settlement Calculation process to take the Marginal Price.

Option 3: Marginal Price
Modify Settlement Calculation process to take the Marginal Price.

Option 4: Marginal Price, No BSAD
Modify Settlement Calculation process to take the Marginal Price.
Modify BSAD loader so BSAD for Settlement Dates post P136 effective date is rejected.

Option 5: Load new BSAD
Modify BSAD loader to handle new format BSAD.
Modify BSAD form to handle new format data.
Create new loader to handle Expected Utilisation Cost data.

Option 6: Publish new system and energy BSAD data
Modify existing BSAD web page / tibco to publish System and non-BMU Energy BSAD.
New web page (tibco & csv) to publish BMU Energy BSAD against System and non-BMU Energy BSAD. The new page's query will be consistent with existing web page queries (the criteria fields are Settlement Date, Settlement Period, and BM Unit ID. Settlement Period or BM Unit ID can be wild card. Queries that cause more than 50 BM Units worth of data to be returned will not be displayed).

Option 7: Publish Energy Imbalance Price Calculation Details
Modify Settlement Calculation process to store details of calculation.
New web page (tibco & csv) to show this detail pictorially, as per Figure 3 in requirements document.
Update existing Derived Data page to show EUC impact on Acceptances.

Option 8: Re-Run Indicative Calc
The relevant data screens and loaders will be updated to trigger a re-calculation on receipt of updates.
Modify Indicative Settlement Calculation process such that it can be re-run without impacting on calculating each periods initial indicative results.
Modify Indicative Settlement Calculation process so that it stores derived data and tags the data used to calculate it.
Allow a web view of the history of changes by modifying all pages relating to the indicative calculation such that they allow the queries and reporting to specify which version of the run the data displayed will relate to.

Option 9: Publish EUC
New web page to show EUC in a tabular format. The new page's query will be consistent with existing web page queries (the criteria fields are Settlement Date, Settlement Period, and BM Unit ID. Settlement Period or BM Unit ID can be wild card. Queries that cause more than 50 BM Units worth of data to be returned will not be displayed).

Option 10: Publish EUC

We consider that the solution to Option 9 is also sufficient for this solution.

Option 11: Dummy BM Units
Define a new BM Unit type.
Modify CRA-I015 so new BMU type not reported to ECVAA
Modify SAA-I014 so that new BMU type is reported correctly.

Option 12: SAA-I014 to include Disaggregated BSAD
Modify SAA-I014 to include Disaggregated BSAD.

Option 13: SAA-I014 to include EUC
Modify SAA-I014 to include EUC.

Option 14: SAA-I014 to Report Energy Imbalance Price Calculation Details
Modify Settlement Calculation process to store details of calculation.
Modify SAA-I014 to report the stored details.

Option 15: Freeze Main Price
New BMRA report for the Main Price and data that it was derived from.
New SAA loader to load data from BMRA.
Modify Settlement Calculation process to use Indicative Main Price.
Modify relevant data screens so that data can be entered into SAA and flagged as being related to a manifest error / trading dispute (i.e. to be used in the Main Price calculation).
Modify Settlement Calculation so that it can be used to re-calculate the Main Price as the result of a manifest error / trading dispute.

Possible modification of SAA-I014 to report data from which the Main Price was derived.

Option 16: Freeze Main Price Data
New BMRA report for the Main Price and data that it was derived from.
New SAA loader to load data from BMRA.
Modify Settlement Calculation process to calculate the Main Price using the Indicative Calculation's data.
Modify relevant data screens so that data can be entered into SAA and flagged as being related to a manifest error / trading dispute (i.e. to be used in the Main Price calculation).

Possible modification of SAA-I014 to report data from which the Main Price was derived.

Option 17: Price Cap
Dated parameter (assumption that there will be no more than 4 values per year).
Modify Settlement Calculation process to set the price to be the cap value if the price exceeds the cap value.

NOTES

- Option 5 – this price is not included in the base options (0 to 4).
- Option 8 – a large percentage of the development costs of this option (>60%) relate to the web interface historical data view.
- Option 15 and 16 – Prices for the modification of SAA-I014 to support these options has been included even though not directly requested.
- BMRA web pages – currently there are restrictions on the amount of data that can be returned via queries to the web pages in order to ensure the service cannot be impacted by high volume activity (such as generated by data trawlers). These restrictions will be enforced on all the new and updated web pages described in this assessment. LogicaCMG are aware that this might mean that the proposed solutions may therefore not necessarily meet those envisioned. There are a number of methods by which the restrictions can be reduced which can be explored further if required.
- Attached DCR - The attached DCR is included only as a means of illustrating LogicaCMG's understanding of the core changes to the Settlement Calculation process with BMRA and SAA. The terms used in the text and formulae are intended to demonstrate understanding and will, if the modification is implemented, be replaced by the terminology used in the BSC.

Deviation from ELEXON's Solution / Requirements

None.

Operational Solution and Impact

None.

Testing Strategy

Unit	X	Change Specific	X	End to End	
Module	X	Operational Acceptance		Participant Testing	
System	X	Performance		Parallel Running	
Regression		Volume		Deployment/ Backout	

Other:

- Some Performance testing of the SAA and BMRA changes is covered for those Options where it is applicable.
- No estimates for running CRA, CDCA, ECVAA tests or Functional Area Tests (FAT) are included.
- Estimates have been provided for the EXTRA Regression testing required in future Full Releases for which Regression testing is already paid.
- Options 5 to 17 would not necessarily be tested with individual test scripts - it may be more appropriate to combine several options into 1 test.
- BMRA tests (RT-11 and part of RT-33) will need updating to include different BSAD (for Opts 0, 1 and 2 only) since BMRA runs in real-time.

Validated Assumptions

None.

Outstanding Issues							
None.							
Changes to Service							
Services Impacted (Options listed)							
	BMRA	CDCA	CRA	ECVAA	SAA	TAA	Other
Software							
IDD	4, 5, 6, 7, 8, 9, 10, 15, 16		11		4, 5, 12, 13, 14, 15, 16		
URS	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16		11		0, 1, 2, 3, 4, 5, 12, 13, 14, 15, 16, 17		
SS	0, 1, 2, 3, 4, 5, 6, 8, 9, 10, 15, 16		11		0, 1, 2, 3, 4, 5, 10, 12, 13, 14, 15, 16, 17		
DS	0, 1, 2, 3, 4, 5, 6, 8, 15, 16		11		0, 1, 2, 3, 4, 5, 10, 12, 13, 14, 15, 16, 17		
MSS							
OSM	8		11		15, 16		
LWIs							
RTP	Regression testing will involve all Regression tests: RT-01, RT-02, RT-04, RT-11, RT-33, R2T-27 and R2T-28.						
Comms							
Other							
Nature of Documentation Changes							
Documentation alterations as per option references.							

Nature / Size of System Changes	
Large	
Type of Release Costed:	Interim (Patch)
Deployment Issues, e.g. Outage Requirements:	Outage required for any changes involving BMRA.
Impact on Service Levels:	None.
Impact on System Performance:	None.

Responsibilities of ELEXON

- For all DCRs which are subject to review, LogicaCMG shall provide one draft issue and a maximum of 6 working days has been allowed for ELEXON to review and comment on the updates. Comments will be addressed and the final issue will be provided. A maximum of 2 working days has been allowed for review confirmation and signoff by ELEXON.
- Within reasonable levels, ELEXON will make available appropriate staff to assist LogicaCMG during the development of this change.

Acceptance Criteria

This is covered by the acceptance criterion 2 in the "CVA Program – Release Acceptance Criteria" document for the Feb03 release.

Any Other Information

The requirement is to assess Options 0 to 4, each combined with 5 to 17.
Options 9 and 10 are exclusive - option 10 includes option 9.
Options 8, 15 and 17 are also exclusive, also these do not directly relate to the key objectives of P136.
So for example option 1 and options 5 to 17 (except 8, 9, 15, 16) would be a complete solution.

Attachments

MP136
MP136 SAA URS draft DCR

PRICING		
Price Breakdown		
Item description	**Remarks**	**Price (ex VAT)**
Change Specific Cost	MP136	£92 197
	plus one of:	
	Option 0	£346 648
	Option 1	£386 182
	Option 2	£271 327
	Option 3	£90 485
	Option 4	£119 633
	and combinations of (within the limitations outlined in "Any Other Information"):	
	Option 5	£141 542
	Option 6	£83 080
	Option 7	£149 526
	Option 8	£453 890
	Option 9	£77 820
	Option 10	£77 820
	Option 11	£67 127
	Option 12	£54 170
	Option 13	£54 170
	Option 14	£97 218
	Option 15	£395 905
	Option 16	£362 021
	Option 17	£37 863

Project Overhead	MP136	£191 766
	Option 0	£71 921
	Option 1	£80 375
	Option 2	£58 272
	Option 3	£27 809
	Option 4	£40 188
	Option 5	£76 705
	Option 6	£36 856
	Option 7	£65 822
	Option 8	£234 170
	Option 9	£31 688
	Option 10	£31 688
	Option 11	£16 050
	Option 12	£16 050
	Option 13	£16 050
	Option 14	£36 856
	Option 15	£182 259
	Option 16	£152 112
	Option 17	£9 725

Total Price (ex VAT)	MP136 - £283 963 *plus one of:* Option 0 - £418 569 Option 1 - £466 557 Option 2 - £329 599 Option 3 - £118 294 Option 4 - £159 821 *and combinations of (within the limitations outlined in "Any Other Information"):* Option 5 - £218 247 Option 6 - £119 936 Option 7 - £215 348 Option 8 - £688 060 Option 9 - £109 508 Option 10 - £109 508 Option 11 - £83 177 Option 12 - £70 220 Option 13 - £70 220 Option 14 - £134 074 Option 15 - £578 164 Option 16 - £514 133 Option 17 - £47 588

Project Duration	*The summation of (whichever options chosen):* MP136 - 5 weeks Option 0 - 7 weeks Option 1 - 6 weeks Option 2 - 4 weeks Option 3 - 2 weeks Option 4 - 3 weeks Option 5 - 6 weeks Option 6 - 3 weeks Option 7 - 5 weeks Option 8 - 18 weeks Option 9 - 3 weeks Option 10 - 3 weeks Option 11 - 1 week Option 12 - 1 week Option 13 - 1 week Option 14 - 3 weeks Option 15 - 14 weeks Option 16 - 12 weeks Option 17 - 1 week
Operational Price (e.g. per annum or event) (ex VAT)	£0 per annum
Rationale	
n/a	
Annual Maintenance Price (ex VAT)	MP136 - £12 908 Option 0 - £48 531 Option 1 - £54 065 Option 2 - £37 986 Option 3 - £12 668 Option 4 - £16 749 Option 5 - £19 816 Option 6 - £11 631 Option 7 - £20 934 Option 8 - £63 545 Option 9 - £10 895 Option 10 - £10 895 Option 11 - £9 398 Option 12 - £7 584 Option 13 - £7 584

	Option 14 - £13 611 Option 15 - £55 427 Option 16 - £50 683 Option 17 - £5 301

Rationale

The Annual Maintenance Price is derived as 14% of the Change Specific Price.

Validity Constraints

- Price and duration assume that this change is developed in isolation and the effects of other changes are excluded.
- Price is for creating DCRs, not a formal documentation issue.
- Maintain charges will be invoiced monthly in arrears.
- No allowance has been included for supporting PwC activities.

The validity period for this quote is 30 days and the offer is based on the following payment milestones:-

- LogicaCMG will invoice 30% on receipt of Purchase Order or authorised start of work, 50% on completion of first build phase, 15% on live implementation and 5% made the earlier of either 1 month after the live implementation date or subject to the successful completion of the Success Criteria (to be agreed between Parties and defined in the Full Release Specification).

Authorised Signature	**Date Signed**

Modification Proposal	**MP No: 136** *(mandatory by BSCCo)*

Title of Modification Proposal *(mandatory by proposer)*:

Marginal Definition of the 'main' Energy Imbalance Price

Submission Date *(mandatory by proposer)*: 1st August 2003

Description of Proposed Modification *(mandatory by proposer)*:

The 'main' energy imbalance price will be calculated at the highest priced energy action i.e. the most expensive ('marginal') MWh in the Net Imbalance Volume (NIV).

For example, when the market is short (NIV >0), System Buy Price will be the main price and will be calculated at the price of the most expensive accepted whole or part offer/purchase in the NIV stack. Similarly when the market is long or balanced (NIV ≤ 0), System Sell Price is the main price and will be calculated at the price of the most expensive bid/sale in the NIV stack.

For the avoidance of doubt, the concepts of NIV tagging and market price for the 'reverse' imbalance price remain unchanged from those introduced by P78 "Revised Definition of System Buy Price and System Sell Price".

To facilitate this marginal methodology, there will be a requirement to change the Balancing Services Adjustment Data (BSAD) variables submitted by the Transmission Company. In parallel with this modification proposal National Grid intend to progress changes to the BSAD Methodology Statement.

Description of Issue or Defect that Modification Proposal Seeks to Address *(mandatory by proposer)*:

The current definition of the 'main' energy imbalance price, using an average price methodology, significantly understates the cost of the marginal balancing action. This occurs particularly in times of energy shortage (i.e. high demand and/or low generation availability) when the marginal cost of balancing energy is likely to be high, and the differential between the average price and the marginal price is the greatest. For example, on 10 December 2002, Offers were accepted up to £9,999/MWh for periods 35 and 36, however the System Buy Price was £270/MWh and £261/MWh respectively due to averaging effects.

The consequence is that imbalance prices have failed to reflect the true underlying marginal cost of balancing the system and thus have not provided the appropriate signals to the forward markets with the result that participants have insufficient incentives to mitigate the risk of not being able to achieve a balanced position at Gate Closure.

Impact on Code *(optional by proposer)*:

Section T, Paragraph 4.4 would need to be revised.

Section Q, Paragraph 6.3 may need to be revised.

Modification Proposal	**MP No: 136** *(mandatory by BSCCo)*

Impact on Core Industry Documents *(optional by proposer)*:

None identified

Impact on BSC Systems and Other Relevant Systems and Processes Used by Parties *(optional by proposer)*:

Change to imbalance price calculation software

Impact on other Configurable Items *(optional by proposer)*:

None identified

Justification for Proposed Modification with Reference to Applicable BSC Objectives *(mandatory by proposer)*:

The two main concepts of NIV tagging and market price for the 'reverse' imbalance price introduced by P78 are considered to better facilitate the BSC Objectives. This modification will not alter these concepts, however, it builds and improves upon the existing incentives to balance within the current methodology.

The calculation of the 'main' imbalance price, using a marginal methodology, will provide more appropriate price signals to incentivise Market Participants to contract forward in order to mitigate the risk of not being able to balance at Gate Closure. This is because marginal pricing provides an undiluted signal to the market as to the underlying cost of supplying the last increment of energy required to balance generation and demand.

By enhancing the incentives to balance, this modification will increase the level of competition by encouraging Parties to trade ahead of Gate Closure. This will better facilitate the applicable BSC Objective (c) "Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity".

In addition, this modification will benefit the operation of the Transmission System when security of supply is an issue and will therefore better facilitate applicable BSC Objective (b) "the efficient, economic and co-ordinated operation by the Transmission Company of the Transmission System".

Details of Proposer:

Name: Mike Calviou

Organisation: National Grid Transco

Telephone Number: 01926 656029

Email Address: mike.calviou@ngtuk.com

Modification Proposal	**MP No: 136** *(mandatory by BSCCo)*

Details of Proposer's Representative:

Name: Mark Brackley

Organisation: National Grid Transco

Telephone Number: 01926 656024

Email Address: mark.brackley@ngtuk.com

Details of Representative's Alternate:

Name: Louise Petchell

Organisation: National Grid Transco

Telephone Number: 01926 656338

Email Address: louise.petchell@ngtuk.com

Attachments: YES

If Yes, Title and No. of Pages of Each Attachment:

Supporting paper entitled "Marginal Imbalance Pricing" (5 pages).

MP136 SAA URS draft DCR

Document Change Record	Reference and Version:	See file name in header See below for change history	*Document references are allocated by NETA Design authority.*
	Status:	1	*1--Draft Change; 2-Change For Review; 3-Change Accepted; 4-Change Applied; 5-Updated Document Awaiting Review; 6-Updated Document Approved*
	Acceptance document reference:		*Reference of letter or email from client accepting change (required to progress status to 3)*
	Related Change Record(s):		*Earlier change records which affect the same parts of the document this change relates to*
Change notice	Reference:	P136	*Identification of document leading to this change*
Baseline Document	Reference and title:	07-550104 SAA URS	*Logica file reference & title*
	Apply to Version:	6.0	*Last released version - should be an integer*
	Included in Version:		*Version incorporating the changes described in this document - set when status reaches 4*

Change History

version	date	comments	author
1	22/10/03	First draft	Jonathan Blott

Review (use where comments submitted as mark-up)

date	reviewer name	reviewer signature

Description of change

5.9 SAA-F009: Calculate energy imbalance prices

Requirement ID:	Status:	Title:	ITT reference:
SAA-F009	M	Calculate energy imbalance prices	SAA SD 3.24.1, 3.24.2, 3.26, 3.27, 3.28, 3.29, SAA BPM 3.9, CR003, P8, P10, P18A, CP598, P71, P72, P78, P136
Man/auto: Automatic	Frequency: Once, on each settlement run.	Volumes:	

Functional Requirements:

A number of intermediate calculations are required to produce the energy imbalance prices. All calculation steps in this requirement are included here.

(Note: In order that Energy Imbalance Prices may be calculated as soon as possible after a particular Settlement Period has ended, Energy Imbalance Prices will not be adjusted in order to account for volumes of non-delivered Bids and/or Offers.)

1**:** Identify Short-Duration Acceptances.

Short-Duration Acceptances are excluded from the price calculations as they may distort the results. The rules for identifying Short-Duration Acceptances are:

a. Acceptances for each BM Unit are grouped into sets of overlapping acceptances (for the avoidance of doubt, if the last spot time of one acceptance matches the first of another the two are considered to overlap).

b. The overall duration of the group is computed (earliest spot time of any acceptance in a group to latest spot time of any acceptance in a group).

c. If the overall duration is less than the Continuous Acceptance Duration Limit, $CADL_d$ then the Short Duration Acceptance flag for each acceptance in the group is set to show that it is a Short-Duration Acceptance. If $CADL_d = 0$ then no acceptances are "Short-Duration Acceptances". $CADL_d$ will be an integer number of minutes from 0 to 30.

d. All acceptance volumes (QAO^n_{ij} or QAB^n_{ij})for periods intersected by one or more Short-Duration Acceptances (for the same BM Unit i) are "Short-Duration Volumes" and are excluded from the price calculations (if the last

spot time of a Short-Duration Acceptance is on a period boundary then the period starting at that spot time **is** intersected by the acceptance, similarly if the first spot time of a Short-Duration Acceptance is on a period boundary, the period ending at that spot time **is** intersected by the acceptance).

e. Short-Duration volumes have priced acceptance volumes set to 0:

$QAPO^{n}_{ij} = 0$
$QAPB^{n}_{ij} = 0$

All other volumes have priced acceptance volumes equal to acceptance volumes:

$QAPO^{n}_{ij} = QAO^{n}_{ij}$
$QAPB^{n}_{ij}0 = QAB^{n}_{ij}$

***2*:** Compute total volumes:

a. Total Volume of Offers

$TQAO_j = \Sigma_i \Sigma^n QAO^{n}_{ij}$

Σ_i represents the sum over all BM Units;
Σ^n represents the sum over **all** accepted Offers

b. Total Unpriced Volume of Offers

$TQUAO_j = \Sigma_i \Sigma^n QAO^{n}_{ij} - \Sigma_i \Sigma^n QAPO^{n}_{ij}$

Σ_i represents the sum over all BM Units;
Σ^n represents the sum over **all** priced accepted Offers;

c. Total Volume of Bids

$TQAB_j = \Sigma_i \Sigma^n QAB^{n}_{ij}$

Σ_i represents the sum over all BM Units;
Σ^n represents the sum over **all** accepted Bids

d. Total Unpriced Volume of Bids

$TQUAB_j = \Sigma_i \Sigma^n QAB^{n}_{ij} - \Sigma_i \Sigma^n QAPB^{n}_{ij}$

Σ_i represents the sum over all BM Units;
Σ^n represents the sum over **all** priced accepted Bids.

e. Total Period Applicable Balancing Services Volume

$TQAS_j = \Sigma_i QAS_{ij}$

Σ_i represents the sum over all BM Units.

3**:** Identify "De Minimis Acceptance Volumes".

Acceptances with a volume less than the De Minimis Acceptance Threshold (i.e. where values of $QAO^n_{ij} < DMAT_d$ or $QAB^n_{ij} > -DMAT_d$) are "De Minimis Acceptance Volumes" and are excluded from the price calculations as they may distort the results.

If $DMAT_d$ is set to 0, then no bid or offer volumes will be excluded in this way. $DMAT_d$ will always be a positive number or 0.

4: For each settlement period, all accepted offers and bids for all BM units are listed in order of offer price (PO^n_{ij}) and bid price (PB^n_{ij}) respectively, as illustrated in the following example:

	Offers			Bids	
BM unit	Vol($QAPO^n_{ij}$)	Price(PO^n_{ij})	BM unit	Vol($QAPB^n_{ij}$)	Price(PB^n_{ij})
1	12	50	6	10	25
2	24	45	7	15	8
3	15	43	8	5	7
4	50	40	9	5	4
5	20	10	10	10	2

5: Starting from the most expensive bid and least expensive offer, each offer and bid is inspected for arbitrage, i.e. where the bid price exceeds or is equal to the offer price. Any arbitrage volume (whole or part) is removed, with the following changes to the example:

	Offers			Bids	
BM unit	Vol($QAPO^n_{ij}$)	Price(PO^n_{ij})	BM unit	Vol($QAPB^n_{ij}$)	Price (PB^n_{ij})
1	12	50	~~6~~	~~10~~	~~25~~
2	24	45	7	15	8
3	15	43	8	5	7
4	50	40	9	5	4
5	~~20~~10	10	10	10	2

If, for a particular price, only a subset of the entire set of Bids (or Offers) can be matched, then every Bid (or Offer) in that price is tagged to the same degree (a fraction equal to amount matched, for that price, over the total volume available, for that price), rather than tagging some of the Bids (or Offers) entirely, and others not at all.

The removal (or not) of arbitrage offer and bid volumes shall be controlled by the Arbitrage Flag, a system parameter.

6: For Settlement Days before the P78 effective date apply Trade Tagging, as defined in SAA-F009a.

For Settlement Days before the P136 effective date but after, and including the P78 effective date apply NIV Tagging, as defined in SAA-F009b.

For Settlement Days after, and including the P136 effective date, apply NIV tagging as defined in SAA-F009c

Non-Functional Requirement:

5.9.3 SAA-~~F009b~~F009c: Apply Net Imbalance Volume Tagging

Requirement ID:	Status:	Title:	ITT reference:
SAA-F009~~b~~c	M	Apply Net Imbalance Volume Tagging	~~P78~~P136
Man/auto: Automatic	Frequency: Once, on each settlement run.	Volumes:	

Functional Requirements:

1: For each settlement period, purchase and sale ~~the offer and bid~~ stacks are created ~~for all BM units are then updated~~ by applying the following algorithms:

The Purchase ~~Offer (and purchase)~~ stack:

1. Derive the Purchase Price (PP_{ij}) and Purchase Volume (PV_{ij}) for each Priced Offer acceptance that is not a De-Minimis Offer Acceptance and which remains after Arbitrage by adding the price adjustment for the BM Unit (if any) to the offer price.
   $PP^{n}_{ij} = PO^{n}_{ij} + BPA_{ij}$
   $PV^{n}_{ij} = QPAO^{n}_{ij}$ (non-Arbitrage volume)
   $BPA_{ij} = 0$ where no value has been received via SAA-I033

2. Derive the Purchase Price and Purchase Volume for each Energy Buy (non-BMU) BSAD trade.
   $PP_{tj} = EBCA_{tj}/EBVA_{tj}$
   $PV_{tj} = EBVA_{tj}$

3. Derive the Purchase Price and Purchase Volume for each Energy Buy (BMU) BSAD trade.
   $PP_{tij} = BEBCA_{tij}/BEBVA_{tij}$
   $PV_{tij} = BEBVA_{tij}$

4. Stack all purchases in order of PP, highest price at the top.

~~1.The non-zero (net) Buy Price Volume Adjustment (Energy) ($EBVA_j$) is inserted into the Offer stack in order of price (derived from $EBCA_j/EBVA_j$, i.e. a £/MWh price).~~

~~2.~~5. The non-zero Total System Un-priced Accepted Offer Volume ($TQUAO_j$) is placed at the top of the ~~Offer~~ Purchase stack.

~~3.~~6. The non-zero (net) Buy Price Adjustment (System)($SBVA_j$) is then inserted into the ~~Offer~~ Purchase stack below the Total System Un-priced Accepted Offer Volume.

For example: <need to amend examples throughout>

Offer Stack

Offer Type	Price(£/MWh)	Volume (MWh)
$TQUAO_j$	-	10
$SBVA_j$	-	0

$QAPO_j$	25	5
$QAPO_j$	20	20
$EBVA_j$	15	5
$QAPO_j$	10	35

The ~~Bid (and sale)~~Sale stack:

1. Derive the Sale Price (SP_{ij}) and Sale Volume (SV_{ij}) for each Priced Bid acceptance that is not a De-Minimis Bid Acceptance and which remains after Arbitrage by adding the price adjustment for the BM Unit (if any) to the bid price.
   $SP^n_{ij} = PB^n_{ij} + SPA_{ij}$
   $SV^n_{ij} = QPAB^n_{ij}$ (non-Arbitrage volume)
   $SPA_{ij} = 0$ where no value has been received via SAA-I033

2. Derive the Sale Price and Sale Volume for each Energy Sell (non-BMU) BSAD trade.
   $SP_{tj} = ESCA_{tj}/ESVA_{tj}$
   $SV_{tj} = ESVA_{tj}$

3. Derive the Purchase Price and Purchase Volume for each Energy Sell (BMU) BSAD trade.
   $SP_{tij} = BESCA_{tij}/BESVA_{tij}$
   $SV_{tij} = BESVA_{tij}$

~~1.~~4. Stack all purchases in order of SP, lowest price at the top.
~~The non-zero (net) Sell Price Volume Adjustment (Energy) ($ESVA_j$) is inserted into the Offer stack in order of price (derived from $ESCA_j/ESVA_j$, i.e. a £/MWh price).~~

~~2.~~5. The non-zero Total System Un-priced Accepted Bid Volume ($TQUAB_j$) is placed at the bottom of the ~~Bid~~ Sale stack.

~~3.~~6. The non-zero (net) Sell Price Adjustment (System)($SSVA_j$) is then inserted into the ~~Bid~~ Sale stack above the Total System Un-priced Accepted Bid Volume.

For example:

Bid Stack

Bid Type	Price(£/MWh)	Volume (MWh)
$ESVA_j$	15	15
$QAPB_j$	10	44
$QAPB_j$	5	5

$QAPB_j$	-10	7
$SSVA_j$	-	25
$TQUAB_j$	-	4

2: ~~Referencing the remaining offers and bids, and s~~Starting from the bottom of the Sale stack and the top of the Purchase stack~~least expensive bid and most expensive offer~~, Sales~~bids~~ and Purchases~~offers~~ are matched and tagged until the smaller (in total volume) of the two stacks is completely tagged.

If, for a particular price, only a subset of the entire set of ~~Bids~~ Sales (or Purchases~~Offers~~) can be matched, then an arbitrary choice is made as to which sales (or purchases), or parts of sales (or purchases) are tagged - the algorithm is only interested in establishing the marginal price~~every Bid (or Offer) in that price is tagged to the same degree (a fraction equal to amount matched, for that price, over the total volume available, for that price), rather than tagging some of the Bids (or Offers) entirely, and others not at all. If the Energy Volume Adjustment is at the same price, then this is treated as if it were another Bid (or Offer) at that same price - i.e. it is partially tagged in the same proportion~~.

In the example from above the Offer stack is the smaller (having only 70 MWh of total volume, as opposed to 100 MWh on the Bid Stack).The result of this process is that there will be, across the two stacks, a mixture of Tagged and Untagged NIV volumes. Continuing the example:

	Offer Stack				**Bid Stack**		
Tagged Status	**Offer Type**	**Price**	**Vol**	**Tagged Status**	**Bid Type**	**Price**	**Vol**
T	$TQUAO_j$	-	10	U	$ESVA_j$	15	15
T	$SBVA_j$	-	0	U	$QAPB_j$	10	15
T	$QAPO_j$	25	5	T	$QAPB_j$	10	29
T	$QAPO_j$	20	20	T	$QAPB_j$	5	5
T	$EBVA_j$	15	5	T	$QAPB_j$	-10	7
T	$QAPO_j$	10	30	T	$SSVA_j$	-	25
				T	$TQUAB_j$	-	4

Note that for the £10 price range only 29 out of the 44 available MWh of Bids at that price can be tagged. Therefore each Bid in that price range would have tagged by an amount equal to 29/44 of their entire volumes. Expanding the example, and assuming that there are three Bids that make up the 44 MWh:

Bid Item	**Volume**	**Tagged Volume**	**Untagged Volume**
1	20	20 x 29/44 = 13.182	20 x 15/44 = 6.818
2	10	10 x 29/44 = 6.591	10 x 15/44 = 3.409
3	14	14 x 29/44 = 9.227	14 x 15/44 = 4.773

3. It is now possible to calculate tagged elements of $TQUAB_j$, $ESVA_j$, $SSVA_j$, $TQUAO_j$, ~~$EBVA_j$,~~ and $SBVA_j$ ($TTQUAB_j$, $TESVA_j$,$TSSVA_j$, $TTQUAO_j$, ~~$TEBVA_j$,~~ $TSBVA_j$ respectively)~~, as well as the untagged elements of $EBCA_j$ and~~

~~$ESCA_j$ ($UEBCA_j$ and $UESCA_j$ respectively)~~.

System BSAD (System Buy Price Volume Adjustment ($SBVA_j$) and System Sell Price Volume Adjustment ($SSVA_j$)):

Where none of the system BSAD volume is tagged out by the NIV Tagging, then the NIV Tagged volume is equal to zero (i.e. $TSBVA_j = 0$ or $TSSVA_j = 0$).

Where all of the system BSAD volume is tagged out by the NIV Tagging, then the NIV Tagged volume is equal to the original notified volume (i.e. $TSBVA_j = SBVA_j$ or $TSSVA_j = SSVA_j$).

System (un-priced) Bid – Offer Acceptances (Total System Un-priced Bid Acceptance Volume ($TQUAB_j$) and Total System Un-priced Offer Acceptance Volume ($TQUOB_j$)):

Where none of the (CADL'ed) Un-priced Acceptance volume is tagged out by the NIV Tagging, then the NIV Tagged volume is equal to zero (i.e. $TTQUAB_j = 0$ or $TTQUAO_j = 0$).

Where all of the (CADL'ed) Un-priced Acceptance volume is tagged out by the NIV Tagging, then the NIV Tagged volume is equal to the original calculated volume (i.e. $TTQUAB_j = TQUAB_j$ or $TTQUAO_j = TQUAO_j$).

~~Energy BSAD (Energy Buy Price Volume Adjustment ($EBVA_j$) and Energy Sell Price Volume Adjustment ($ESVA_j$)):~~

~~Where all of the energy BSAD volume is tagged out by the NIV Tagging, then the NIV Untagged volume is equal to zero (i.e. $UEBVA_j = 0$ or $UESVA_j = 0$). The NIV Untagged price (i.e. $UEBCA_j$ and $UESCA_j$) is also equal to zero.~~

~~Where none of the energy BSAD volume is tagged out by the NIV Tagging, then the NIV Untagged volume is equal to the original notified volume (i.e. $UEBVA_j = EBVA_j$ or $UESVA_j = ESVA_j$). The NIV Untagged price (i.e. $UEBCA_j$ and $UESCA_j$) is also equal to the originally notified price.~~

~~Where a part of the volume is tagged out by the NIV Tagging, then the price associated with the untagged volume is to be derived as follows:~~

~~$UEBCA_j = (EBCA_j / EBVA_j) * UEBVA_j$;~~
~~$UESCA_j = (ESCA_j / ESVA_j) * UESVA_j$.~~

~~If for that Settlement Period $EBVA_j$ is zero, then $UEBCA_j = 0$;~~

~~If for that Settlement Period $ESVA_j$ is zero, then $UESCA_j = 0$.~~

4. The Total NIV Tagged Volume for a Settlement Period can now be calculated as:

$$TCQ_{ij} = \{\{(\Sigma_i \Sigma^{n'} SV^n_{ij} ~~QAPB^n_{ij}~~) + (\Sigma_{t'} SV_{tj}) + (\Sigma_i \Sigma_{t'} SV_{tij}) + TTQUAB_i + ~~TESVA_i +~~ TSSVA_i\} - \{(\Sigma_i \Sigma^{n*} PV^n_i ~~QAPO^n_{ij}~~) + (\Sigma_{t*} PV_{tj}) + (\Sigma_i \Sigma_{t*} PV_{tij}) + TTQUAO_i + ~~TEBVA_i +~~ TSBVA_i\}\} / 2$$

where

Σ_i represents the sum over all BM Units;

$\Sigma^{n'}$ represents the sum over all Sales ~~Priced Acceptance Bids~~ which are NIV Tagged Bids;

Σ^{n*} represents the sum over all Purchases ~~Priced Acceptance Offers~~ which are NIV Tagged Offers;

$\Sigma_{t'}$ represents the sum over all Sales which are not NIV Tagged Sales;

Σ_{t*} represents the sum over all Purchases which are not NIV Tagged Purchases;

$TTQUAB_j$ is the NIV Tagged $TQUAB_j$;

$TESVA_j$ is the NIV Tagged $ESVA_j$;

$TSSVA_j$ is the NIV Tagged $SSVA_j$;

$TTQUAO_j$ is the NIV Tagged $TQUAO_j$;

$TEBVA_j$ is the NIV Tagged $EBVA_j$, and;

$TSBVA_j$ is the NIV Tagged $SBVA_j$.

5. The actual Net Imbalance Volume (NIV) for each Settlement Period can then be calculated as follows:

$$NIV_{ij} = \{\Sigma_i \Sigma^n PV^n_{ij} ~~QAPO^n_{ij}~~ + \Sigma_t (-PV_{tj}) + \Sigma_i \Sigma_t (-PV_{tij}) ~~+ EBVA_i~~ + SBVA_i + TQUAO_i\} - \{\Sigma_i \Sigma^n (-SV^n_i ~~QAPB^n_{ij}~~) + \Sigma_t (-PV_{tj}) + \Sigma_i \Sigma_t (-SV_{tij}) ~~+ (-ESVA_i)~~ + (-SSVA_i) + (-TQUAB_i)\}$$

where

Σ_i represents the sum over all BM Units~~, and~~;

Σ^n represents the sum over all Bid-Offer Pair Numbers for the BM Unit~~, that are not De Minimis Accepted Bid Offer Pairs, and not Arbitrage Accepted Bid Offer Pairs~~; and

Σ_t represents the sum over all BSAD trades.

6. The remaining offers and bid volumes shall be used in the calculation of the System Buy Price (SBP_j) as follows:

In respect of each Settlement Period, if the Net Imbalance Volume is **positive** and there is at least one Priced Offer or BSAD purchase in the Purchase Stack then

SBP_j = highest purchase price of any Priced Accepted Offer or BSAD purchase which is not NIV tagged.

If no such Purchase remains, then

SBP_j = lowest effective price of any Priced Accepted Offer or BSAD purchase which is NIV tagged.

~~, and the value of $\{\Sigma_i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is non-zero, then the System Buy Price will be determined as follows:~~

~~$$SBP_j = \frac{\{\Sigma_i\Sigma^n\{QAPO^n_{ij} * PO^n_{ij} * TLM_{ij}\} + UEBCA_j\} + \{BPA_j\}}{\{\Sigma_i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}}$$~~ [1]

~~where~~

~~Σ_i represents the sum over all BM Units;~~

~~Σ^n represents the sum over those accepted Priced Accepted Offers, that are not De Minimis Acceptance volumes and not Arbitrage Accepted Offers and not NIV Tagged Offers;~~

~~PO^n_{ij} is the Offer Price for the Offer acceptance n, BM Unit i and Settlement Period j;~~

~~$UEBCA_j$ is the NIV Untagged Buy Price Cost Adjustment (Energy);~~

~~$UEBVA_j$ is the NIV Untagged Buy Price Volume Adjustment (Energy); and~~

~~BPA_j is the Buy Price Price Adjustment.~~

If, for any Settlement Period, the Net Imbalance Volume is **negative**, then the System Buy Price will be determined as:

$$SBP_j = \Sigma_s\{PXP_{sj} * QXP_{sj}\} / \Sigma_s QXP_{sj}$$ [2]

where

Σ_s represents the sum over all Index Providers;

PXP_{sj} is the Market Index Price for Index Provider s and Settlement Period j;

QXP_{sj} is the Market Index Volume for Index Provider s and Settlement Period j.

(a) If for that Settlement Period $\Sigma_s QXP_{sj}$ is equal to zero, then $SBP_j = SSP_j$ [3];
(b) If for that Settlement Period SBP < SSP, i.e. there is a negative spread, then $SBP_j = SSP_j$ [4].

If, for any Settlement Period, the Net Imbalance Volume is **zero**[5], or there is no Priced Offer or BSAD purchase in the purchase Stack ~~or the value of $\{\Sigma_i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is zero~~[6], then the System Buy Price will be determined as:

[1] Price derivation codes A, B, C
[2] Price derivation codes F, I
[3] Price derivation codes H, J
[4] Price derivation codes G
[5] Price derivation codes K, L
[6] Price derivation codes D, E

$SBP_j = \Sigma_s\{PXP_{sj} * QXP_{sj}\} / \Sigma_s QXP_{sj}$ [7]

where

Σ_s represents the sum over all Index Providers;

PXP_{sj} is the Market Index Price for Index Provider s and Settlement Period j;

QXP_{sj} is the Market Index Volume for Index Provider s and Settlement Period j.

If for that Settlement Period $\Sigma_s QXP_{sj}$ is equal to zero, then $SBP_j = 0$ [8].

7. The remaining offers and bid volumes shall be used in the calculation of the System Sell Price (SSP_j) as follows:

In respect of each Settlement Period, if the Net Imbalance Volume is **negative** and there is at least one Priced Bid or BSAD sale in the Sale Stack then

SSP_j = lowest effective price of any Priced Accepted Bid or BSAD sale which is not NIV tagged.

If no such Sale remains, then

SSP_j = highest effective price of any Priced Accepted Bid or BSAD sale which is NIV tagged.

~~, and the value of $\{\Sigma_i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is non-zero, then the System Sell Price will be determined as follows:~~

~~$$SSP_j = \frac{\{\Sigma_i\Sigma^n\{QAPB^n_{ij} * PB^n_{ij} * TLM_{ij}\} + UESCA_j\} + \{SPA_j\}}{\{\Sigma_i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}}$$~~ [9]

~~where~~

~~Σ_i represents the sum over all BM Units;~~

~~Σ^n represents the sum over those accepted Priced Accepted Bids, that are not De Minimis Acceptance volumes and not Arbitrage Accepted Bids and not NIV Tagged Bids;~~

~~PB^n_{ij} is the Bid Price for the Bid acceptance n, BM Unit I and Settlement Period j;~~

~~$UESCA_j$ is the NIV Untagged Sell-Price Cost Adjustment (Energy);~~

~~$UESVA_j$ is the NIV Untagged Sell-Price Volume Adjustment (Energy); and~~

~~SPA_j is the Sell-Price Price Adjustment.~~

If for any Settlement Period the Net Imbalance Volume is **positive**, then the System Sell Price will be determined as follows:

$SSP_j = \Sigma_s\{PXP_{sj} * QXP_{sj}\} / \Sigma_s QXP_{sj}$ [10]

where

Σ_s represents the sum over all Index Providers;

PXP_{sj} is the Market Index Price for Index Provider s and Settlement Period j;

QXP_{sj} is the Market Index Volume for Index Provider s and Settlement Period j.

[7] Price derivation codes D, K
[8] Price derivation codes E, L
[9] Price derivation codes F, G, H
[10] Price derivation codes A, D

(a) If for that Settlement Period Σ_s QXP_{sj} is equal to zero, then $SSP_j = SBP_j$ [11].
(b) If for that Settlement Period SSP > SBP, i.e. there is a negative spread, then $SSP_j = SBP_j$ [12].

If for any Settlement Period the Net Imbalance Volume is **zero**[13], or there is no Priced Bid or BSAD sale in the Sale Stack ~~the value of $\{\Sigma_i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is zero~~[14], then the System Sell Price will be determined as:

$$SSP_j = \Sigma_s\{PXP_{sj} * QXP_{sj}\} / \Sigma_s QXP_{sj}$$ [15]

where

Σ_s represents the sum over all Index Providers;

PXP_{sj} is the Market Index Price for Index Provider s and Settlement Period j;

QXP_{sj} is the Market Index Volume for Index Provider s and Settlement Period j.

If for that Settlement Period Σ_s QXP_{sj} is equal to zero, then $SSP_j = 0$ [16].

8: In respect of each Settlement Period, the Total Priced Volume of Offers will be determined as follows:

$$TQPAO_j = \Sigma_i\Sigma^n QAPO^n_{ij}$$

where

Σ_i represents the sum over all BM Units;
Σ^n represents the sum over those accepted Offers that are not De Minimis Acceptance volumes and not Arbitrage Accepted Offers and not NIV Tagged Offers;

In respect of each Settlement Period then the Total Priced Volume of Bids will be determined as follows:

$$TQPAB_j = \Sigma_i\Sigma^n QAPB^n_{ij}$$

where

Σ_i represents the sum over all BM Units;

Σ^n represents the sum over those accepted Bids that are not De Minimis Acceptance volumes and not Arbitrage Accepted Bids and not NIV Tagged Bids;

9. The BSAD ~~price adjustment~~ parameters shall be set through the automatic interface SAA-I026, as directed by SO. Note that if no adjustment data has been provided for Settlement Period j then a value of zero will be used for all ~~eight~~ parameters.

Price adjustment data shall be received through the automatic interface SAA-I033.

[11] Price derivation codes C, E
[12] Price derivation codes B
[13] Price derivation codes K, L
[14] Price derivation codes I, J
[15] Price derivation codes I, K
[16] Price derivation codes J, L

Note that if no data is received in respect of BM Unit i for Settlement Period j then the adjustment for that BM Unit in that period shall be zero. The system parameters like Arbitrage Flag, $DMAT_d$, and $CADL_d$ are received from BSCC Ltd through the manual flow SAA-I023. Market Index Data is received from Market Index Data Providers through the automatic flow SAA-I030. The SAA shall, for the purposes of performance reporting, record details of those cases where: 3.1. A value of zero was used for Market Index Price and Volume are used for a Settlement Period, for the purposes of the Initial Interim Settlement Calculation 4.2. A Market Index Provider has failed to supply Market Index Data for any given Settlement Period, such that a default price and volume of zero are used for that Settlement Period, for the purposes of the Initial Interim Settlement Calculation. The SAA shall for the purposes of reporting, record a Price Derivation Code (PDC_j) for each Settlement Period. This code will describe how the SBP and SSP were calculated. The possible values for the code, and their associated meaning, are defined in Appendix E.
Non-Functional Requirement:

6.26 SAA-I026: Receive Adjustment Data

Requirement ID: SAA-I026	**Status:** Mandatory	**Title:** Receive Adjustment Data	**ITT reference:** MP008, P78, P136
Mechanism: Automatic	**Frequency:** continuous	**Volumes:** Each file will typically contain the data for one Settlement Date (a file may contain a data for a single period, or covering multiple dates). Data for each Settlement Period will normally appear in 2-4 files.	
Interface Requirement: The SAA Service shall receive the following system parameter data from the SO via an automatic interface. For Settlement Days prior to the P78 effective date, this flow shall include:			

Requirement ID: SAA-I026	**Status:** Mandatory	**Title:** Receive Adjustment Data	**ITT reference:** MP008, P78, P136

Settlement Date
Settlement Period (1-50)
BCA_j (Buy-Price Cost Adjustment)
BVA_j (Buy-Price Volume Adjustment)
BPA_j (Buy-Price Price Adjustment)
SCA_j (Sell-Price Cost Adjustment)
SVA_j (Sell-Price Volume Adjustment)
SPA_j (Sell-Price Price Adjustment)

For Settlement Days which are both before the P136 effective date and after, and including the P78 effective date, this flow shall include the following:

Settlement Date
Settlement Period (1-50)
$EBCA_j$ (Net Buy-Price Cost Adjustment)(Energy)
$EBVA_j$ (Net Buy-Price Volume Adjustment)(Energy)
$SBVA_j$ (Net Buy-Price Volume Adjustment)(System)
BPA_j (Buy-Price Price Adjustment)
$ESCA_j$ (Net Sell-Price Cost Adjustment)(Energy)
$ESVA_j$ (Net Sell-Price Volume Adjustment)(Energy)
$SSVA_j$ (Net Sell-Price Volume Adjustment)(System)
SPA_j (Sell-Price Price Adjustment)

For Settlement Days after, and including the P136 effective date, this flow shall include the following:

Settlement Date
Settlement Period (1-50)
$SBVA_j$ (Net Buy-Price Volume Adjustment)(System)
$SSVA_j$ (Net Sell-Price Volume Adjustment)(System)

Energy Buy BSAD (non BMU)
t BSAD Trade number
$EBCA_{tj}$ Energy Buy price Cost adjustment (£)
$EBVA_{tj}$ Energy Buy price Volume adjustment (MWh)

Energy Buy BSAD (BMU)
t BSAD Trade number
i BM Unit
$BEBCA_{tij}$ BM Unit Energy Buy price Cost adjustment (£)
$BEBVA_{tij}$ BM Unit Energy Buy price Volume adjustment (MWh)

Energy Sell BSAD (non BMU)
t BSAD Trade number

Requirement ID: SAA-I026	Status: Mandatory	Title: Receive Adjustment Data	ITT reference: MP008, P78, P136
$ESCA_{tj}$ Energy Sell Price Cost adjustment (£) $ESVA_{tj}$ Energy Sell Price Volume adjustment (MWh) Energy Sell BSAD (BMU) t BSAD Trade number i BM Unit $BESCA_{tij}$ BM Unit Energy Sell Price Cost adjustment (£) $BESVA_{tij}$ BM Unit Energy Sell Price Volume adjustment (MWh)			

6.33 SAA-I033: Receive Price Adjustment Data

Requirement ID: SAA-I033	Status: Mandatory	Title: Receive Price Adjustment Data	ITT reference: P136
Mechanism: Automatic	Frequency: continuous	Volumes: Each file will typically contain the data for one Settlement Date (a file may contain a data for a single period, or covering multiple dates). Data for each Settlement Period will normally appear in 2-4 files.	
Interface Requirement: The SAA Service shall receive the following system parameter data from the SO via an automatic interface for Settlement Days after, and including the P136 effective date, this flow shall include the following: Buy BM Unit BPA_{ij} Buy Price Price Adjustment (£/MWh) effective ranges effective from settlement date effective from settlement period effective to settlement date effective to settlement period Sell BM Unit SPA_{ij} Sell Price Price Adjustment (£/MWh) effective ranges effective from settlement date effective from settlement period effective to settlement date			

Requirement ID: SAA-I033	**Status:** Mandatory	**Title:** Receive Price Adjustment Data	**ITT reference:** P136
effective to settlement period			