REQUIREMENTS SPECIFICATION for Modification Proposal P217
'Revised Tagging Process and Calculation of Cash Out Prices'

Prepared by: P217 Modification Group

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Proposed Modification P217 seeks to improve the main Energy Imbalance Price calculation by introducing a new set of rules to replace the existing tagging rules and by using disaggregated BSAD. The intention of the new rules is to remove or replace costs not considered suitable for inclusion in a pure energy price. Proposed Modification P217 also seeks to reduce the Price Average Reference (PAR) value to 100MWh.

Alternative Modification P217 seeks to retain the value of PAR as 500MWh, but is otherwise identical with Proposed Modification P217.

BACKGROUND AND PURPOSE OF IMPACT ASSESSMENT

The BSC Panel considered P217 at its meeting in November 2007 and submitted the proposal to the Definition and Assessment Procedures by the P217 Modification Group (formed from members of the Pricing Standing Modification Group). The P217 Modification Group ('the Group') has now met on 8 occasions and agreed the requirements for the Proposed Modification and a potential Alternative Modification. This document sets out the requirements agreed by the Group, and supports Impact Assessment by BSC Agents, BSC Parties, the Transmission Company and BSCCo.[1]

Any queries regarding the Impact Assessment requirements should be addressed to Andrew Wright (020 7380 4217), e-mail address andrew.wright@elexon.co.uk.

[1] The Balancing and Settlement Code Company (ELEXON).

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SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

As far as the Modification Group has been able to assess, the following parties/documents would be impacted by P217.

Please note that this table represents a summary of the full initial impact assessment contained in Section 4.

Parties	
Distribution System Operators	☐
Generators	☒
Interconnectors	☒
Licence Exemptable Generators	☒
Non-Physical Traders	☒
Suppliers	☒
Transmission Company	☒
Party Agents	
Data Aggregators	☐
Data Collectors	☐
Meter Administrators	☐
Meter Operator Agents	☐
ECVNA	☐
MVRNA	☐
BSC Agents	
SAA	☒
FAA	☐
BMRA	☒
ECVAA	☐
CDCA	☐
TAA	☐
CRA	☐
SVAA	☐
Teleswitch Agent	☐
BSC Auditor	☐
Profile Administrator	☐
Certification Agent	☐
Other Agents	
Supplier Meter Registration Agent	☐
Unmetered Supplies Operator	☐
Data Transfer BSC Service Provider	☐

Sections of the BSC	
A	☐
B	☐
C	☐
D	☐
E	☐
F	☐
G	☐
H	☐
I	☐
J	☐
K	☐
L	☐
M	☐
N	☐
O	☐
P	☐
Q	☒
R	☐
S	☐
T	☒
U	☐
V	☒
W	☐
X	☒

Code Subsidiary Documents	
BSC Procedures	☒
Codes of Practice	☐
BSC Service Descriptions	☒
Party Service Lines	☐
Data Catalogues	☒
Communication Requirements Documents	☐
Reporting Catalogue	☒
Core Industry Documents	
Ancillary Services Agreement	☐
British Grid Systems Agreement	☐
Data Transfer Services Agreement	☐
Distribution Code	☐
Distribution Connection and Use of System Agreement	☐
Grid Code	☐
Master Registration Agreement	☐
Supplemental Agreements	☐
Use of Interconnector Agreement	☐
BSCCo	
Internal Working Procedures	☒
BSC Panel/Panel Committees	
Working Practices	☐
Other	
Market Index Data Provider	☐
Market Index Definition Statement	☐
System Operator-Transmission Owner Code	☒
Transmission Licence	☒

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1 SUMMARY OF PROPOSED MODIFICATION SOLUTION

Modification Proposal P217 was raised on 19 October 2007 by RWE Npower ('the Proposer').

Modification Proposal P217 seeks to improve the main Energy Imbalance Price calculation by introducing a new set of rules to replace the existing tagging rules and by using disaggregated BSAD. The intention of the new processes is to remove or replace costs not considered suitable for inclusion in a pure energy price. Proposed Modification P217 also seeks to reduce the Price Average Reference (PAR) value to 100MWh.

Alternative Modification P217 seeks to retain the current PAR value of 500 MWh; it is otherwise identical with the Proposed Modification.

For more details, please refer to Section 2.3 of this Requirements Specification or to the Definition Report for P217. Both documents are available on the BSC Website: ELEXON - Modification Proposal P217

2 DETAIL OF PROPOSED MODIFICATION SOLUTION REQUIREMENTS

2.1 The flagging of Bid Offer Acceptances by the System Operator

Changes are required to the BMRA-I002 "Balancing Mechanism Data" interface from the System Operator to the BSC Central Systems in order to enable the flagging of Bid Offer Acceptances by the System Operator. A new flow type shall be cloned from the existing `Bid Offer Acceptance Level (BOAL)` flow; this new flow shall be designated as the `Bid Offer Acceptance Level and Flag (BOALF)` file. The BOALF flow shall be populated by the System Operator with the following data[2].

Record Type	Field	Format	Units	Comments
BOALF	Bid Offer Acceptance Number	Numeric	-	The bid offer acceptance number is an incremental number ranging from 1 to ((2 to the power 31) minus 1), value reset to 1 after maximum is reached.
	Acceptance Time	Date Time	-	
	Deemed Bid Offer Flag	Alphanumeric	-	Either FALSE or TRUE.
	Time from	Date Time	-	
	Acceptance Level from	Numeric	MW	Between –9999 and +9999
	Time to	Date Time	-	
	Acceptance Level to	Numeric	MW	Between -9999 and +9999
	Reason Code Flag	Alphanumeric	-	Either FALSE or TRUE. Must not be NULL.

A TRUE value of the Reason Code Flag shall indicate an action that has been flagged by the System Operator as potentially having a non-energy component[3]. The details of the flagging process are outside the scope of this Impact Assessment. It is likely that a methodology statement will be drafted by the System Operator during the implementation of P217. It is also likely that the methodology will be subject to an

[2] The table indicates the likely file format. The format is subject to change as a result of this Impact Assessment. Please note that the BOALF file shall also include all of the header information that is currently in the BOAL file. The header information identifies the BM Unit to which the Acceptance relates. There are potentially a number of implementation options, and both files may be needed during a transition period. The old BOAL file will not be required for the enduring solution. If a BOAL file is mistakenly sent for a post-P217 Settlement Period after the transition, it will normally be rejected by BSC Central Systems because it does not contain the information required to calculate the main Energy Imbalance Price. However, if a BOALF file is sent for a pre-P217 Settlement Period, it will be accepted and processed in accordance with the appropriate set of rules. This is because any redundant information contained in it can be safely ignored.

[3] NULL will not be an allowed value for the Reason Code flag. BSC Central Systems shall validate this.

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industry consultation and included either within the BSAD Methodology Statement or in another document under the governance of the Transmission Licence[4].

2.2 Disaggregated BSAD and the flagging of BSAD by the System Operator

P217 proposes to disaggregate BSAD and to treat disaggregated BSAD items and Bid Offer Acceptances uniformly in the calculation of the main Energy Imbalance Price, wherever this is feasible. This section describes changes to the provision of BSAD by the System Operator to the BSC Central Systems.

A new flow type from the System Operator to the BSC Central Systems shall be created for disaggregated BSAD. The new flow shall be populated by the System Operator with the following data[5].

Record Type	Field	Format	Units	Comments
BSADDIS	Settlement Day	Text(10)		Format: YYYY-MM-DD
	Settlement Period	Numeric		Between 1 and 50
	Number of Disaggregated BSAD records	Numeric	Integer	The number of disaggregated BSAD items included below[6]
Repeating Group	Identifier	Alphanumeric	-	A unique parameter to identify each BSAD item within the Settlement Period, whilst retaining the anonymity of the parties involved.
	Cost	Numeric	£	Format (10.2), can be NULL. This is the amount of money paid to the Party by the System Operator. The value may be zero, positive, negative or NULL.
	Volume	Numeric	MWh	Format (10.3). Buy volumes are given a positive sign and Sell volumes are given a negative sign. The volume must be non-zero and non-NULL.
	Reason Code Flag	Alphanumeric	-	Either FALSE or TRUE. Must not be NULL.

For the purposes of this Impact Assessment, it should be assumed that BSAD will continue to be submitted at the day-ahead stage as well as after the Settlement Period. When a revision to BSAD is required, a new file shall be submitted by the System Operator. Each file shall contain a full set of disaggregated BSAD and shall supercede (i.e., overwrite) the existing BSAD for the relevant Settlement Period.

A TRUE value of the Reason Code Flag shall indicate an action that is flagged by the System Operator as potentially having a non-energy[7] component. The details of the System Operator's flagging process are outside the scope of this Impact Assessment, but shall be documented in the BSAD Methodology Statement.

NULL shall be an allowed value for the cost of disaggregated BSAD items. This is intended to enable the System Operator to submit disaggregated BSAD volumes for certain exceptional actions (e.g., certain types

[4] Therefore, any subsequent changes to the flagging process will also be subject to industry consultation.
[5] The table indicates the likely file format. The format is subject to change as a result of this Impact Assessment.
[6] The number of disaggregated BSAD records will be used by BSC Central Systems in validating the flow, but there is no requirement to store it in BSC Central Systems.
[7] Note that this distinction is currently made by the System Operator according to the BSAD Methodology Statement. It is envisaged that the System Operator would continue to flag all "non-energy" BSAD items. Please also note that NULL will not be an allowed value for the Reason Code flag. BSC Central Systems shall validate this.

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of intertrip[8]) where no cost can be allocated at the time of data submission. As part of the Impact Assessment, the System Operator is requested to confirm that this functionality will be used rarely. NULL-priced disaggregated BSAD shall always be flagged by the System Operator. The BSC Central Systems shall validate this.

The existing BSAD flow shall continue to be maintained. However, both the Proposed and Alternative Modifications will render six of the eight BSAD variables redundant. The following six redundant variables shall be populated with zero values by the System Operator. The BSC Central Systems shall validate this.

i. $EBCA_j$ (Net Buy-Price Cost Adjustment)(Energy)
ii. $EBVA_j$ (Net Buy-Price Volume Adjustment)(Energy)
iii. $SBVA_j$ (Net Buy-Price Volume Adjustment)(System)
iv. $ESCA_j$ (Net Sell-Price Cost Adjustment)(Energy)
v. $ESVA_j$ (Net Sell-Price Volume Adjustment)(Energy)
vi. $SSVA_j$ (Net Sell-Price Volume Adjustment)(System)

For the avoidance of doubt, the remaining two BSAD variables shall continue to be populated and used in the pricing calculations, as they are under the current baseline[9].

i. BPA_j (Buy-Price Price Adjustment)
ii. SPA_j (Sell-Price Price Adjustment)

2.3 Changes to the Main Energy Imbalance Calculation

The main Energy Imbalance Price is calculated from actions taken by the System Operator to maintain the energy balance on the Transmission System in respect of each Settlement Period. These can relate to Bids and Offers accepted in the Balancing Mechanism or other trades included in BSAD. P217 seeks to improve the main Energy Imbalance Price calculation by introducing a new set of rules to replace the existing tagging rules and by disaggregating BSAD.

This section describes a specific way of implementing the P217 rules. Please see Section 2.5 "Implementation Options" for a discussion of different ways of achieving the same result. As part of this Impact Assessment, the BSC Service Provider is requested to assess the cost-effectiveness of different implementation options.

In this section of the document, the term "action" will refer collectively to the volumes of BSAD items, Period Accepted Offer Volumes (QAO^{kn}_{ij}) and Period Accepted Bid Volumes (QAB^{kn}_{ij}), together with the associated prices. P217 proposes that each disaggregated BSAD item and Bid Offer Acceptance should be subject to a set of rules to determine how it will be used in the calculation of the main Energy Imbalance Price. Certain distinct types of rule-based process are characterised as 'Flagging', 'Classification' and 'Tagging' under P217. In broad outline, these are defined as follows.

i. **Flagging.** System Operator flagging and CADL flagging shall identify disaggregated BSAD items and Bid Offer Acceptances that may have a non-energy component and therefore may potentially be subject to a Replacement Price process.

ii. **Classification.** Classification is the process by which the BSC Central Systems determine whether flagged actions should retain their price or whether they should be initially unpriced and possibly re-priced within the Energy Imbalance calculation. Flagged actions shall be

[8] An intertrip automatically disconnects a generator or demand from the System when a specific event occurs. There are two types of intertrip service: Commercial Intertrip and System to Generator Operational Intertrip. These intertrip services are required as an automatic control arrangement where generation or demand may be reduced or disconnected following a system fault event to relieve localised network overloads, maintain system stability, manage system voltages and/or ensure quick restoration of the Transmission System. A feature of intertrip-derived BSAD is that it may not have a price assigned. This is due to the price's not being available in the required timescales. Intertrip derived disaggregated BSAD shall always be flagged by the System Operator.
[9] These two variables incorporate information about option fees incurred as part of energy balancing activities. Their costs shall continue to be reflected in the Energy Imbalance Price calculations under P217.

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compared with the most expensively priced unflagged action[10] on the same stack to determine whether they should retain their price.

iii. **Tagging.** Tagging shall remove actions, or parts of actions, from the price calculation so that the associated costs and volumes will not be reflected in the pricing calculations.

For the avoidance of doubt, it should be noted that although these particular terms were used by the P217 Modification Group to describe the relevant P217 processes, the descriptions should not be interpreted as constraining the most efficient implementation of the intended solution. The intention of these P217 flagging, classification and tagging processes is to determine how the cost of balancing actions should be reflected in the main Energy Imbalance Price. The efficient implementation of the algorithms is a matter for the BSC Service Provider to assess.

Before any rules are applied, all actions shall be ranked in price order in two separate stacks[11]. One stack shall comprise all actions that reduce generation on the System or increase demand (the Sell Stack). The other stack shall comprise all actions that increase generation on the System or reduce demand (the Buy Stack).

NULL-priced Disaggregated BSAD items on the Sell Stack shall be deemed to have a price that is lower than any other action in the stack. NULL-priced BSAD on the Buy stack shall be deemed to have a price that is higher than any other action in the stack.

The flagging, classification and tagging processes shall be applied to each stack as follows[12]:

1. Flagging (System Operator flagging and CADL flagging)
2. Emergency Instruction Processing
3. De Minimis tagging
4. Arbitrage tagging
5. Classification
6. NIV tagging
7. Replacement Price process (if required)
8. PAR tagging

These process are explained in greater detail below.

2.3.1 Flagging

Flagging is a process that identifies Bid Offer Acceptances and disaggregated BSAD items that are considered as potentially having a non-energy component. If a Bid Offer Acceptance is flagged, the Period Accepted Offer Volume (QAO^{kn}_{ij}) and the Period Accepted Bid Volume (QAB^{kn}_{ij}) volumes derived from that Acceptance are also referred to as being flagged.

[10] In this context, the term “the most expensively priced” will be considered in relation to the benefit of the System. (Please refer to Section 2.3.5 for detailed rules about the case where such an action does not exist or is not unique.) Offers are bought by the System for an increase in energy; hence the most expensive unflagged Offers shall be the highest priced unflagged Offers. On the other hand, Bids are taken for a reduction in energy so the most expensive unflagged Bids shall be the least priced unflagged Bids. It should be noted that Bids may have negative or positive prices. The sign convention here is that a positive price indicates money being paid by the Party and a negative price indicates money being paid to the Party as a result of the Bid Acceptance.

[11] The ranking of equally-priced actions shall be achieved in accordance with the current algorithm. If equally-priced actions are tagged partially by Arbitrage, NIV or PAR tagging, each action shall be tagged in proportion to its volume, as under the existing baseline.

[12] This is slightly different from the description given in the P217 Definition Report although the final result will be the same. The process ordering given here is consistent with the treatment of CADL under the current baseline and is expected to be cost effective. This is because the CADL process applies to BOAs, whereas the other processes apply to volumes and prices derived from BOAs.

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Flagging does not necessarily prevent the cost of flagged actions from being reflected in the main Energy Imbalance Price; however, flagged and unflagged actions are processed differently.

Under P217, there shall be two types of flagging:

i. CADL flagging

ii. System Operator flagging

2.3.1.1 Continuous Duration Acceptance Limit (CADL) flagging

CADL shall be used for flagging (and not tagging) Bid Offer Acceptances of short duration. If a Bid Offer Acceptance is part of a series of Acceptances of continuous duration less than CADL, it shall be flagged by the BSC Central Systems. CADL shall remain 15 minutes. For the avoidance of doubt, the volume and price of the action shall not be affected at this stage.

The revised CADL flagging algorithm shall also resolve a known anomaly in the current CADL process. If more than one Acceptance is taken on a given BM Unit, the current process impacts all Acceptances on the BM Unit provided that at least one of them is part of a short duration series. Under P217, only Acceptances that are actually part of a short duration series shall be flagged. Other Acceptances on the same BM Unit shall not be flagged. For the avoidance of doubt, the BSC Service Provider shall continue to calculate the main Energy Imbalance price within the timescales determined by the current Service Lines.

2.3.1.2 System Operator flagging

The System Operator shall identify and flag certain Bid Offer Acceptances and disaggregated BSAD items that may potentially have a non-energy component[13].

As noted above, the details of the flagging process are likely to be outside the scope of the BSC. It is expected that a methodology statement will be drafted by the System Operator during the implementation of P217. It is also expected that the System Operator will develop a pragmatic methodology that will seek to flag Bid Offer Acceptances in areas where Transmission Constraints are active. The Classification and Tagging processes will then distinguish such actions in the determination of the main Energy Imbalance calculation.

Please note that if Option B in Section 2.3.2 “Emergency Instruction Processing” is chosen, the System Operator shall also be required to flag Bid Offer Acceptances that result from certain types of Emergency Instruction[14].

2.3.2 Emergency Instruction Processing

There are two options for the treatment of Emergency Instructions, which are being assessed as part of this Impact Assessment. These options apply equally to the Proposed Modification and the Alternative Modification.

> **Option A:** The existing process for Emergency Instructions shall continue to operate under P217. However, unpriced volumes resulting from Excluded Emergency Instructions shall be treated as if they were NULL-priced BSAD items. In other words, unpriced Emergency Bids in the Sell Stack shall be deemed to have a price that is lower than any other action in the stack. Unpriced Emergency Offers in the Buy stack shall be deemed to have a price that is higher than any other action in the

[13] During the implementation of P217, there will be a short transition period when some Acceptances may affect both pre-P217 and post-P217 Settlement Periods. The System Operator and BSC Central Systems shall work together to find a pragmatic way to deal with such Acceptances. One option is to start the flagging process before the implementation of P217. Please note that this is a transient implementation issue and will not affect the enduring solution.

[14] The System Operator may choose to flag Emergency Acceptances regardless of whether Option A or B is chosen.

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stack. Such volumes shall be considered as being flagged and may be subject to the Replacement Price where appropriate.

Option B: Emergency Instructions shall be flagged or not flagged by the System Operator as to whether they were taken purely for energy reasons. The resulting actions shall be treated like any other action. Manual data submission by the System Operator will continue in accordance with the current baseline but will also include the flagging information.

2.3.3 De Minimis Tagging

Period Accepted Offer Volumes (QAO^{kn}_{ij}), Period Accepted Bid Volumes (QAB^{kn}_{ij}) and disaggregated BSAD volumes shall be subject to De Minimis Tagging. Both flagged and unflagged actions may be tagged. DMAT shall remain as 1MWh. The following rules shall apply:

i. If the volume of a BSAD item is less than DMAT, it shall be tagged and excluded from the Energy Imbalance Price calculation.

ii. For actions relating to Bid Offer Acceptances, De Minimis tagging shall continue to be based on the Period BM Unit Total Accepted Offer Volume (QAO^{n}_{ij}) and the Period BM Unit Total Accepted Bid Volume (QAB^{n}_{ij}). These are given by:

$$QAO^{n}{}_{ij} = \sum_{k} QAO^{kn}{}_{ij}$$

$$QAB^{n}{}_{ij} = \sum_{k} QAB^{kn}{}_{ij} \ .$$

If QAO^{n}_{ij} or QAB^{n}_{ij} is less than DMAT, then each constituent action[15] shall be excluded from the Energy Imbalance Price calculation.

For the purposes of this Impact Assessment, it should be assumed that De Minimis Tagged volumes are removed from the relevant stack so that they do not participate in the subsequent processes. The efficient implementation of this algorithm is for the BSC Service Provider to assess.

2.3.4 Arbitrage Tagging

Period Accepted Offer Volumes (QAO^{kn}_{ij}), Period Accepted Bid Volumes (QAB^{kn}_{ij}) and disaggregated BSAD items shall be subject to Arbitrage Tagging. Arbitrage volumes shall be excluded from the Imbalance Price calculation.

It should be noted that Arbitrage Tagging may lead to part of an action's being tagged. If equally-priced actions are tagged by Arbitrage Tagging, each action shall be tagged in proportion to its volume.

For the purposes of this Impact Assessment, it should be assumed that Arbitrage Tagged volumes are removed from the relevant stack so that they do not participate in the subsequent processes. The efficient implementation of this requirement is for the BSC Service Provider to assess.

2.3.5 Classification

Once Arbitrage Tagging is completed, the next stage is to determine the set of actions that will have their costs reflected in the main Energy Imbalance calculation. This is referred to as "Classification". Classification shall be undertaken for the Buy Stack and the Sell Stack independently. For the purposes of this Impact Assessment, it should be assumed that all De Minimis Tagged and Arbitrage Tagged volumes have been

[15] I.e., each of the Period Accepted Offer Volumes (QAO^{kn}_{ij}) or Period Accepted Bid Volumes (QAB^{kn}_{ij}) within the scope of summation.

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excluded from the stacks so that Classification applies only to the remaining actions[16]. The following rules shall apply:

i. Unflagged actions shall always remain priced and classified as 'Unflagged (priced)'.

ii. If there are no unflagged actions in a given stack, all actions in that stack shall be classified as 'Flagged (unpriced)'. Otherwise, each flagged action shall be compared with the most expensive unflagged action in the same stack[17].

a) If a flagged Offer or BSAD Buy action has a price higher than the highest-priced unflagged Offer or BSAD Buy action in the Buy Stack, then it shall become temporarily unpriced and classified as 'Flagged (unpriced)'.

b) If a flagged Bid or BSAD Sell action has a price lower than the lowest-priced unflagged Bid or BSAD Sell action in the Sell Stack, then it shall become temporarily unpriced and classified as 'Flagged (unpriced)'.

c) If a flagged Offer or BSAD Buy action has a price equal to or lower than the highest priced unflagged Offer or BSAD Buy action in its stack, then it shall remain priced and classified as 'Flagged (priced)'.

d) If a flagged Bid or BSAD Sell action has a price equal to or higher than the lowest priced unflagged Bid or BSAD Sell action in its stack, then it shall remain priced and classified as 'Flagged (priced)'.

It should be noted that NULL-priced BSAD items will always be classified as 'Flagged (unpriced)'.

An example of classification is shown below:

[16] Legal drafting may revise or replace these variables and introduce new variables to describe the same process. This Requirement Specification does not seek unduly to constrain the legal drafting.

[17] In this case the set of unflagged actions in the stack is non-empty and finite, so there is at least one unflagged action with the most expensive price. There may be one or more such actions, but the result is not affected by this ambiguity.

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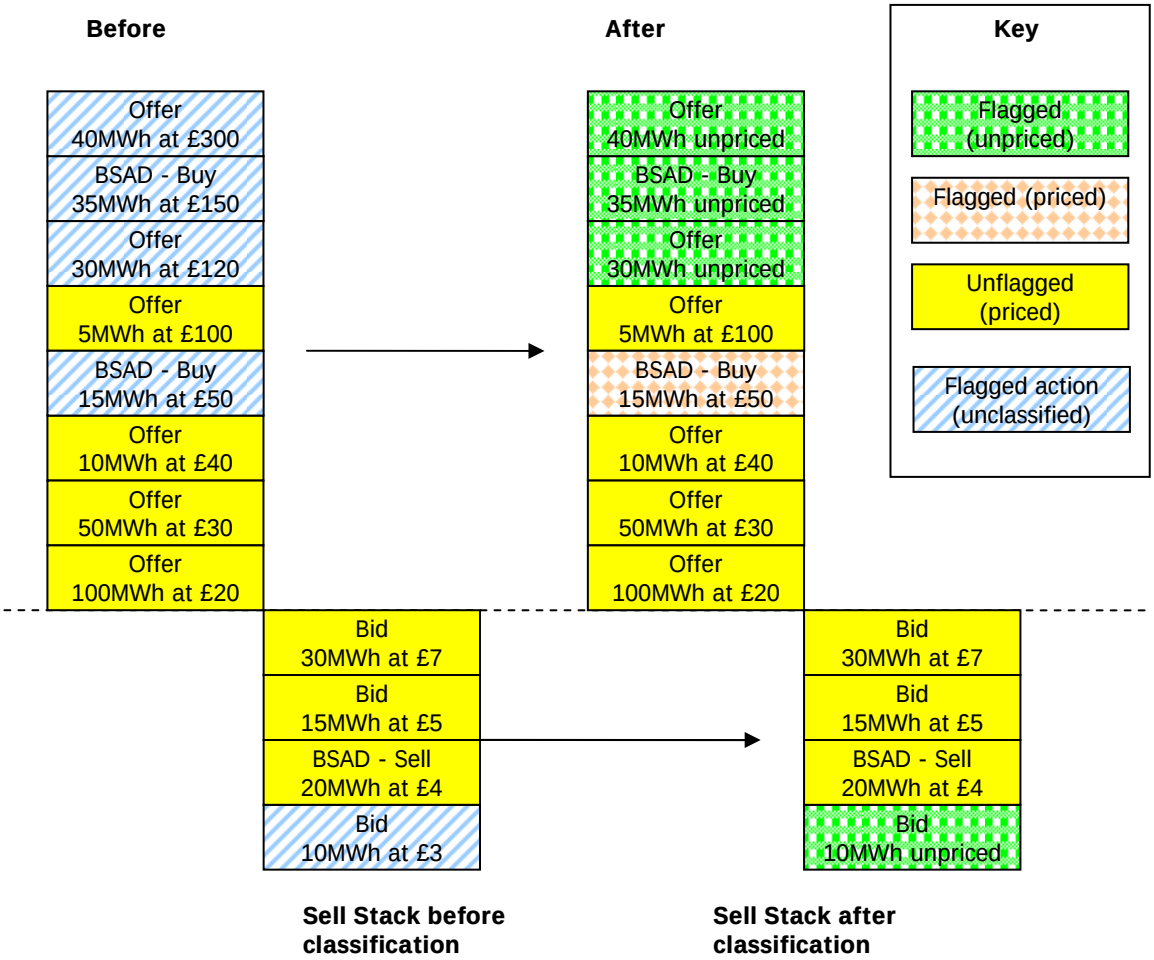
Figure 1: An Example of Classification



2.3.6 Net Imbalance Volume (NIV) tagging

Period Accepted Offer Volumes (QAO^{kn}_{ij}), Period Accepted Bid Volumes (QAB^{kn}_{ij}) and disaggregated BSAD items shall be subject to NIV Tagging. No other changes are proposed to current Net Imbalance Volume (NIV) Tagging process. NIV tagging shall occur after all actions have been classified. If the NIV is zero, defaulting rules shall apply as described in Section 2.3.10 of this document. Otherwise, NIV Tagging shall result in either a net volume of Offer volumes and BSAD purchases, or a net volume of Bid volumes and BSAD sales. Items in this net volume shall be referred to as being in the NIV.

2.3.7 Replacement Price process

There will potentially be situations where some of the volume in the NIV may not have a price associated with it. An example is shown below:

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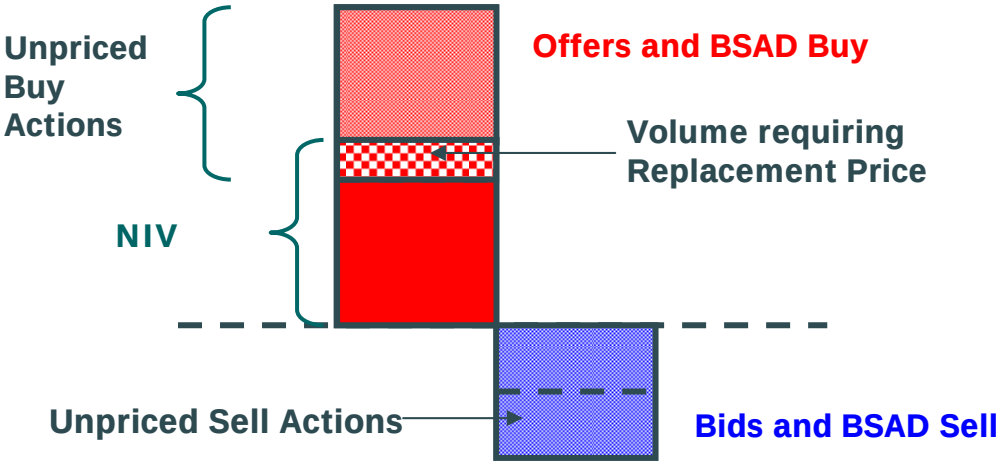
Figure 2: An example where a Replacement Price is required

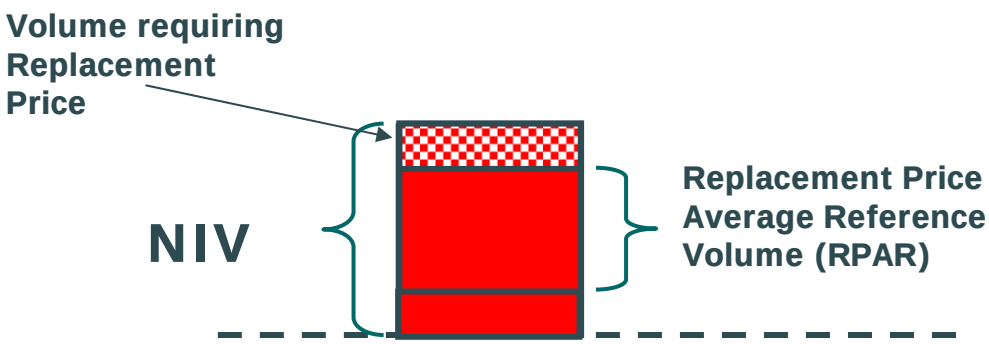


Where such unpriced volume exists in the NIV, it shall be assigned a Replacement Price. A new parameter, called the Replacement Price Average Reference Volume (RPAR), shall be used in the determination of the Replacement Price. Both Proposed Modification P217 and Alternative Modification P217 suggest that RPAR should be 100MWh. Please note that RPAR shall be a changeable parameter[18].

The Replacement Price shall be calculated from a volume-weighted average of the most expensively priced actions remaining in the NIV. The average shall be taken over the largest available volume of expensively priced "priced" actions[19] in the NIV such that their cumulative volume is greater than zero but is less than or equal to RPAR. If the NIV consists only of unpriced actions, the Replacement Price shall be the Reverse Price (Market Price)[20].

An example is shown below:

Figure 3: Example of the Replacement Price Average Reference Volume



For the avoidance of doubt, a Replacement Price shall be calculated separately in respect of each Settlement Period for which a Replacement Price is required. The Replacement Price shall be assigned to all unpriced actions remaining in the NIV for the relevant Settlement Period. Once the Replacement Price has been

[18] It is envisaged that the RPAR value may be changed only as a result of a BSC Modification. For the purposes of this Impact Assessment, it should be assumed that any changes to RPAR would be implemented on a Settlement Day boundary.
[19] These include Flagged (priced) and Unflagged (priced) actions.
[20] This rule may not be required in practice. An alternative is to default the main Energy Imbalance Price immediately to the reverse price. The result will be the same. However, the reporting requirements in Section 4 assume that when the calculation terminates there is no unpriced volume in the NIV. This may need to be revised if the defaulting rule is not implemented as described here.

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assigned, the stack shall be rearranged (where necessary) to rank the actions again in price order (i.e., using the Replacement Price where appropriate).

2.3.8 Price Average Reference (PAR) tagging

Period Accepted Offer Volumes (QAO^{kn}_{ij}), Period Accepted Bid Volumes (QAB^{kn}_{ij}) and disaggregated BSAD items shall be subject to PAR Tagging. No other changes are proposed to the existing PAR tagging process.

Proposed Modification P217 seeks to amend the PAR value to 100MWh. The Alternative Modification P217 seeks to retain PAR as 500 MWh.

2.3.9 The Final Stages of the Calculation of the main Energy Imbalance Price

No other changes are proposed to final stages of the main Energy Imbalance Price calculation. For the avoidance of doubt, the treatment of BSAD variables and Transmission Losses shall continue as under the current baseline. However, it is worth emphasising that the following six BSAD variables shall be submitted as zero by the System Operator[21].

i. $EBCA_j$ (Net Buy-Price Cost Adjustment)(Energy)
ii. $EBVA_j$ (Net Buy-Price Volume Adjustment)(Energy)
iii. $SBVA_j$ (Net Buy-Price Volume Adjustment)(System)
iv. $ESCA_j$ (Net Sell-Price Cost Adjustment)(Energy)
v. $ESVA_j$ (Net Sell-Price Volume Adjustment)(Energy)
vi. $SSVA_j$ (Net Sell-Price Volume Adjustment)(System)

2.3.10 Defaulting rules

The following defaulting rules shall apply in exceptional circumstances as defined below:

2.3.10.1 Replacement Price

If the volume of priced actions in the NIV is less than RPAR but greater than zero, a volume weighted average of these priced actions (whatever their volume may be) shall be used to determine the Replacement Price. If the NIV consists only of unpriced actions, the Replacement Price shall be the Reverse Price (Market Price)[22].

2.3.10.2 NIV and PAR

No changes are proposed. If the volume of NIV is less than PAR but greater than zero, a volume weighted average of these priced actions (whatever their volume) shall be used to determine the main Energy Imbalance price. If the NIV is zero, the main Energy Imbalance Price shall be the Reverse Price (Market Price).

2.3.10.3 System Buy Price (SBP) cannot be lower than System Sell Price (SSP)

No changes are proposed. If the calculation of System Buy Price (SBP) (as either the main or the reverse Energy Imbalance Price) would result in a lower price than the calculation of System Sell Price (SSP), then both SBP and SSP shall be set equal to the result of the main Energy Imbalance Price calculation.

2.4 Changes to Reporting Requirements

2.4.1 Changes to the SAA I-014 flow

A new version of the SAA I-014 “Settlement Reports” flow shall be created for each variant of the flow. The following changes shall be implemented in the new version:

[21] It may be appropriate to strip out the six BSAD variables in the legal text but leave them as zero in the systems. This Requirements Specification does not seek unduly to constrain the legal drafting.
[22] As noted before, this specific rule may not be needed if the defaulting rules are implemented in a different way that ensures the same Energy Imbalance Price.

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1. There shall be a new record type for disaggregated BSAD (including an indicator showing whether or not the BSAD item was flagged by the System Operator). This new record type shall be reported in a new section of the file and shall be kept separate from existing data items. This is required to minimise the impact of P217 on market participant systems, including the System Operator's systems.

   The new record type shall also include, for each item of disaggregated BSAD, the following four types of volume: the volume that was provided by the System Operator, the Tagged Volume, the Re-priced Volume and the volume that remains Priced as Original.

   a. The Tagged volume shall comprise all volumes that were tagged out by De Minimis Tagging, Arbitrage Tagging, NIV tagging and PAR tagging[23].

   b. The Repriced Volume shall comprise the volume that remains within the NIV, has not been PAR tagged and has been subjected to the Replacement Price process.

   c. The Priced as Original volume shall comprise the volume that remains within the NIV, has not been PAR tagged and has not been subjected to the Replacement Price.

2. The BM Unit Period Bid Offer Acceptance record (BO3) shall indicate whether or not the BOA was flagged (either by the System Operator or by the BSC Central Systems).

3. The BM Unit Period Bid Offer Data record (BO4) shall include the following eight types of BOA volume for each Bid Offer pair: the Period BM Unit Total Accepted Bid Volume, Period BM Unit Total Accepted Offer Volume, Period BM Unit Tagged Bid Volume, Period BM Unit Tagged Offer Volume, Period BM Unit Re-priced Offer Volume, the Period BM Unit Bid volume that remains Priced as Original and the Period BM Unit Offer Volume that remains Priced as Original.

   a. The Tagged volume shall comprise all volumes that were tagged out by De Minimis Tagging, Arbitrage Tagging, NIV tagging and PAR tagging.

   b. The Repriced Volume shall comprise the volume that remains within the NIV, has not been PAR tagged and has been subjected to the Replacement Price process.

   c. The Priced as Original volume shall comprise the volume that remains within the NIV, has not been PAR tagged and has not been subjected to the Replacement Price.

4. Settlement Period Information (System Period Data) record (SPI) shall include: the Total System Accepted Bid Volume, Total System Accepted Offer Volume, Total System Tagged Bid Volume, Total System Tagged Offer Volume, Total System Re-priced Offer Volume, Total System Re-priced Bid Volume the Total System Bid volume that remains Priced as Original and the Total System Offer Volume that remains Priced as Original. The equivalent of this information shall also be reported for disaggregated BSAD items.

   a. The Total System Tagged Volume shall comprise all volumes that were removed by De Minimis Tagging, Arbitrage Tagging, NIV tagging and PAR tagging.

   b. The Total System Re-priced Volume shall comprise all volumes (BOA and BSAD together) that remain within NIV, have not been PAR tagged and have been subjected to the Replacement Price.

[23] If a BSAD item or BOA volume is split between Tagged and non-Tagged, then only the Tagged portion shall be allocated to the relevant Tagged volume. The remaining volume shall be allocated to the Re-priced or Priced as Original volume as the case may be. The same principle applies throughout this Section.

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c. The Total System Priced as Original Volume shall comprise all volumes (BOA and BSAD together) that remains within the NIV, have not been PAR tagged and have not been subject to the Replacement Price.

5. The Replacement Price for each Settlement Period shall be reported in the Settlement Period Information (System Period Data) record (SPI). If there was no Replacement Price for a Settlement Period, a NULL value shall be reported.

6. The RPAR value shall be reported in the Settlement Period Information (System Period Data) record (SPI). RPAR shall be reported for each Settlement Period.

For the avoidance of doubt, the six redundant BSAD variables shall continue to be populated in line with current practice.

2.4.2 Changes to the Balancing Mechanism Reporting Service (BMRS)

The BMRS website shall include the same additional information as in the new version of the SAA I-014. The BSC Service Provider shall seek to minimise changes to the structure of the website. BOA volumes and disaggregated BSAD items will be treated uniformly when this is practicable; however, it may be appropriate to report disaggregated BSAD items on a new web-page if this would reduce implementation costs. This is a matter for the BSC Service Provider to assess as part of the Impact Assessment.

Changes will also be required to reporting via TibCo. New message types shall be created to report the new information whenever possible. The new TibCo messages shall include the same additional information as in the new version of the SAA I-014. The BSC Service Provider shall seek to maintain existing message types and content in order to minimise the implementation costs of market participants.

2.5 Implementation Options

The previous section of this document describes a process in which the Buy Stack and the Sell Stack are constructed using BSAD, Period Accepted Offer Volumes (QAO^{kn}_{ij}) and Period Accepted Bid Volumes (QAB^{kn}_{ij}). This is different from the current baseline. Under the current baseline, the stacks are constructed using BSAD, Period BM Unit Total Accepted Offer Volumes (QAO^{n}_{ij}) and the Period BM Unit Total Accepted Bid Volumes (QAB^{n}_{ij}).

There are alternative implementation options for P217 whereby the price would be calculated using the quantities QAO^{n}_{ij} or QAB^{n}_{ij} as under the existing baseline. However the classification and reporting processes would still depend on information relating to individual Bid Offer Acceptances. This is because System Operator flagging and CADL flagging apply to Acceptances.

The BSC Service Provider is requested to assess the most cost-effective way of implementing the intended solution within the BSC Central Systems. The Requirements Specification does not seek unduly to constrain the BSC Service Provider or the legal drafting. This applies equally to the Proposed and Alternative Modifications.

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3 SUMMARY OF ALTERNATIVE MODIFICATION SOLUTION

Alternative Modification P217 seeks to retain the current PAR value of 500 MWh; it is otherwise identical with the Proposed Modification. For the avoidance of doubt, the value of RPAR shall be the same (i.e., 100MWh) under the Alternative Modification and the Proposed Modification.

4 ESTIMATED IMPACT OF MODIFICATION ON SYSTEMS, PROCESSES AND DOCUMENTATION

a) Impact on BSC Systems and Processes

System / Process	Impact of Proposed/Alternative Modification
Settlement Administration Agent (SAA) systems	The SAA system will be impacted. P217 seeks to change the derivation of the main Energy Imbalance Price. A new version of the SAA-I014 flow will also be required.
Balancing Mechanism Reporting Agent (BMRA) systems	Both the BMRS website and the TibCo Service will be impacted.

b) Impact on BSC Agent Contractual Arrangements

BSC Agent Contract	Impact of Proposed/Alternative Modification
LogicaCMG (BMRA, SAA)	The changes to BMRA and SAA will be reflected in the relevant agreements.
Cap Gemini (SVAAO)	None identified to date.
PwC (BSC Auditor, Certification Agent)	None identified to date. The BSC Auditor shall note the change.
IMSERV (Profile Administrator)	None identified to date.
EASL (Teleswitch Agent)	None identified to date.

c) Impact on BSC Parties and Party Agents

Some BSC Parties may be impacted by changes to the SAA I-014 flow and the BMRS systems. BSC Parties are requested to assess the consequential impact on their systems and processes as part of this Impact Assessment.

No impacts on Party Agents have been identified to date. Party Agents are requested to assess whether there will be any consequential impact on their systems and processes as part of this Impact Assessment.

d) Impact on Transmission Company / Transmission System Operator

The System Operator shall submit disaggregated BSAD to BSC Central Systems.

The System Operator shall flag Bid Offer Acceptances and disaggregated BSAD items in accordance with the methodology that is being developed in consultation with the P217 Modification Group. This is likely to have an impact on the System Operator's systems and processes.

There may be further impacts on the System Operator's systems as a consequence of the changes to the SAA I-014 flow and the BMRS.

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The System Operator is requested to assess all impacts as part of this Impact Assessment. The Transmission Company is also requested to assess if there is any impact on its ability to effectively discharge its Transmission License obligations.

e) Impact on BSCCo

BSC System / Process	Potential Impact of Proposed Modification
Market Monitoring	ELEXON's market monitoring processes and systems (including the TOMAS system) will be impacted.
Gatekeeper Software	The changes to SAA-I014 may impact ELEXON's Gatekeeper software.
ELEXON documentation	Industry Guidance Notes and internal documentation will require revision to reflect changes to the calculation of main Energy Imbalance Prices.

f) Impact on Code

Code Section	Impact of Proposed/Alternative Modification
Section Q 'Balancing Mechanism Activities'	Section Q will require amendment to detail the changes to BSAD and BOAs.
Section T 'Settlement and Trading Charges'	Section T will require amendment to detail the changes to the Energy Imbalance Price calculation.
Section V 'Reporting'	Section V will require amendment to detail the Reporting changes.
Annex X	Annex X will require amendment to revise existing definitions and to introduce new definitions.

g) Impact on Code Subsidiary Documents

Document	Impact of Proposed/Alternative Modification
BSCP01 'Overview of Trading Arrangements'	BSCP01 will reflect the new process.
BSCP18 'Corrections to Bid-Offer Acceptance Related data'	BSCP18 will reflect the new process. This may include an impact on Sections 3.3.12 – 3.3.18 in relation to the treatment of Emergency Instructions.
CVA Data Catalogue	The CVA Data Catalogue will reflect the new process.
Interface Definition Document (IDD)	The IDD will reflect the new process.
SAA Service Description	The SAA Service Description will reflect the new process.
BMRA Service Description	The BMRA Service Description will reflect the new process.
Reporting Catalogue	The Reporting Catalogue will reflect the new process.

h) Impact on Core Industry Documents/System Operator-Transmission Owner Code

Document	Impact of Proposed/Alternative Modification

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Document	Impact of Proposed/Alternative Modification
Ancillary Services Agreements	None identified to date.
British Grid Systems Agreement	None identified to date.
Connection and Use of System Code	None identified to date.
Data Transfer Services Agreement	None identified to date.
Distribution Code	None identified to date.
Distribution Connection and Use of System Agreement	None identified to date.
Grid Code	None identified to date.
Master Registration Agreement	None identified to date.
Supplemental Agreements	None identified to date.
System Operator-Transmission Owner Code	None identified to date.
Transmission Licence	The System Operator's flagging methodology is likely to be under the governance of the Transmission Licence. The BSAD Methodology Statement will also be impacted.
Use of Interconnector Agreement	None identified to date.

i) Impact on Other Configurable Items

Document	Impact of Proposed/Alternative Modification
SAA User Requirements Specification and other system documentation	SAA documentation will require amendment.
BMRA User Requirements Specification and system documentation	BMRA documentation will require amendment.
BSC Business Process Model	The ELEXON Business Process Model will require amendment.

j) Impact on BSCCo Memorandum and Articles of Association

None identified to date.

k) Impact on Governance and Regulatory Framework

None identified to date.

5 DEVELOPMENT PROCESS

For the purposes of the Impact Assessment, respondents should assume that P217 would be implemented as a stand-alone development project managed by ELEXON. The estimated cost of implementing P217 may subsequently be revised if P217 becomes part of a scheduled BSC Release.

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6 TERMS USED IN THIS DOCUMENT

Other acronyms and defined terms take the meanings defined in Section X of the Code. Additional terms may be introduced by the legal drafting for P217.

Acronym/Term	Definition
RPAR	Replacement Price Average Reference

7 DOCUMENT CONTROL

7.1 Authorities

Version	Date	Authors	Reviewer	Reason for Review
0.1	14/04/08	Emrah Cevik, Andrew Wright	Elexon	For technical review
0.2	16/04/08	Emrah Cevik, Andrew Wright	P217 Group, Elexon	For Modification Group review
1.0	18/04/08	P217 Modification Group	Final version	For Impact Assessment

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