Assessment Report

P323 'Enabling inclusion and treatment of SBR in the Imbalance Price'

P323 proposes to enable the value of Supplemental Balancing Reserve (SBR) to be included in the imbalance price calculation without affecting Balancing Mechanism (BM) Cashflows. The Proposer seeks to have this in place by 5 November 2015 in line with the implementation of approved Modification Proposal P305 'Electricity Balancing Significant Code Review Developments'. This is because it is necessary that other elements of P305 are in place (e.g. the Value of Lost Load (VoLL) price) and to avoid delays so that the market receives the appropriate signals.

The P323 Workgroup recommends **approval** of P323

This Modification is expected to impact:

- Transmission Company
- ELEXON
- SAA
- Trading Parties

Contents

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About This Document

This document is the P323 Workgroup's Assessment Report to the BSC Panel. ELEXON will present this report to the Panel at its meeting on 10 September 2015. The Panel will consider the Workgroup's recommendations, and will agree an initial view on whether this change should be made. It will then consult on this view before making its final recommendation to the Authority on 8 October 2015.

There are four parts to this document:

- This is the main document. It provides details of the solution, impacts, costs, benefits/drawbacks and proposed implementation approach. It also summarises the Workgroup's key views on the areas set by the Panel in its Terms of Reference, and contains details of the Workgroup's membership and full Terms of Reference.

- Attachment A contains the draft redlined changes to the BSC for P323.

- Attachment B - E contain the draft redlined changes to the Code Subsidiary Documents (CSDs) for P323.

- Attachment F contains the full responses received to the Workgroup's Assessment Procedure Consultation.

1   Summary

Why Change?

The Transmission Company (TC) is amending the Transmission Licence Standard Condition C16 'Statements of the Transmission Licence' to allow Supplemental Balancing Reserve (SBR) to feed into the calculation of energy imbalance prices. The intent is to reflect SBR actions as Value of Lost Load (VoLL) in the imbalance price. VoLL will be set at £3,000 from 5 November 2015.

Whilst the TC considers that the imbalance price calculations should reflect the value of SBR, they do not wish the value of SBR actions to impact the Balancing Mechanism (BM) Cashflow.

This is because the TC uses the BM Cashflow to pay SBR providers according to the contractually agreed price (i.e. the utilisation price). Since SBR actions will be priced at VoLL, it would mean that some Parties providing SBR services could benefit from larger pay-outs than they had expected as part of their SBR contracts.

Solution

P323 will enable the value of SBR to be included in the imbalance price calculation without affecting BM Cashflows, by allowing the TC to identify BOAs it takes for SBR purposes.

System Actions derived from these SBR BOAs will be known as SBR Actions and for the purposes of calculating energy imbalance prices will be priced at VoLL. For the purposes of the Settlement Administration Agent (SAA) calculating BM Cashflows the SBR BOAs original Offer Price (PO) will remain in place.

Impacts & Costs

P323 will impact the TC, BSCCo and the SAA.

Parties will be impacted to the extent that imbalance prices will more accurately reflect the value of the actions taken by the TC to balance the system and may need to source additional information for their risk management processes.

Implementation

The Workgroup recommends an Implementation Date for P323 of:

- 5 November 2015, if a decision is received on or before 29 October 2015; or

- 10 Working Days (WDs) following the Authority decision, if a decision is received after the 29 October 2015.

Recommendation

The Workgroup's final majority view is that P323 **better** facilitates Applicable BSC Objective (a), (c) and (d) and therefore recommends that P323 should be **approved**.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 3 of 37

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2 Why Change?

Background

Balancing services are used by the Transmission Company (TC) in its role as System Operator (SO) to balance supply and demand in real time. These are also used in the calculation of imbalance prices (also known as cash-out prices).

In December 2013, Ofgem published its decision to accept an application by the TC to introduce two new balancing services: Supplemental Balancing Reserve (SBR) and Demand Side Balancing Reserve (DSBR).

SBR

The SBR service makes available generation that would otherwise be unavailable in the market. This generation is held in reserve and will only be used in the event that there is insufficient generation capacity available in the market to meet demand. SBR provides a means for generators operating outside the wholesale market to contribute to balancing the system in winter periods of high demand.

DSBR

The DSBR service is aimed at non-domestic consumers with the ability to reduce demand/load shift or run small embedded/on-site generation for at least an hour during a winter evening peak period. At the highest level, this will enable the SO to ask large energy users to reduce their demand in exceptional circumstances, and would remunerate them for doing so.

Current Arrangements

Under the current BSC arrangements, if either SBR or DSBR are used then the relevant actions taken by the SO will not be accurately reflected in the imbalance price.

DSBR actions are excluded from the imbalance price calculations as they are not permitted to be included in the Balancing Service Adjustment Data (BSAD), as per the BSAD Methodology Statement.

SBR actions are included in the calculation of imbalance prices since the SO dispatches SBR through the BM like other Balancing Mechanism Units (BMUs). However, BOAs taken for SBR providers are SO-Flagged, as per the System Management Action Flagging (SMAF) Methodology Statement. The SMAF Methodology Statement classes SBR actions as being 'System Management'. This means that the price of the action will not be higher than the most expensive energy balancing action in that Settlement Period.

Since SBR and DSBR were designed as last resort services to be called upon at times of severe system scarcity, factoring these services' actions into imbalance prices is necessary in order to accurately reflect all actions the TC may take to balance the system in a Settlement Period.

Issue 56

On 8 May 2014, the TC raised [Issue 56 'Treatment of the new SBR and DSBR services in the imbalance price'.](#) They wanted to find an appropriate way to reflect DSBR and SBR in the calculation of imbalance prices in case the services were used over winter 2014/15.

The Issue 56 Group concluded that:

- DSBR and SBR actions should be reflected in the imbalance price.

- Any solution for pricing DSBR actions should also apply to SBR actions. Although the DSBR solution to be implemented ahead of winter 2014/15.

- DSBR and SBR actions should be priced at VoLL, which should be set at £3,000 to be consistent with Ofgem's EBSCR Policy.

ELEXON advised the TC and the Issue Group that the recommended solution would not require a change to the BSC. However, it would require a change to the BSAD Methodology Statement.

Open Letters and workshops

On 14 July 2014 the TC issued an open letter to the industry regarding the next steps to be taken for the treatment of DSBR and SBR actions in the imbalance price. Following responses to the open letter, the TC decided that it would be more appropriate to reflect DSBR and SBR actions in the imbalance price at a later date. Potentially, this would be in line with the progression of P305 'Electricity Balancing Significant Code Review Developments'.

On 10 February 2015, the TC held a workshop to revisit the issue of including DSBR and SBR in the imbalance price with respect to winter 2015/16. The attendees largely agreed with the views expressed by the Issue 56 Group and the respondents to the July Open Letter.

On 15 June 2015, the TC sent a further [open letter](#) to the industry to seek views on how to include SBR in the imbalance price.

In this open letter the TC makes it clear that although SBR actions should be reflected in the main energy imbalance price, they should not impact the BM cashflow. This is because the TC would price an SBR action at the value of VoLL for that Settlement Period, which will be set at £3,000 from 5 November 2015. This means that some Parties providing SBR services could benefit from larger pay-outs than they had expected as part of their SBR contracts.

The letter also sets out an approach for the treatment of SBR in regards to 'ramping'. Physical constraints of an SBR unit may require a period of ramping up to, and down from, their minimum generation levels (Stable Export Limit (SEL)) before they can be dispatched for SBR purposes.

The TC note that it does not seem appropriate for a VoLL price to be applied to an SBR unit unless it is for a Settlement Period when its generation is actually required, i.e. output above SEL. Therefore, the TC proposes that ramping periods (where generation volume is greater than '0' and less than SEL) should not be priced at VoLL, but treated in a different manner in the imbalance price.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 5 of 37

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The Transmission Company's open letter to the industry can be found on the [National Grid website](#).

What is the issue?

Whilst Issue 56 did not recommend the need for a BSC Modification to include the value of SBR in the calculation of imbalance prices, the TC invited ELEXON to review its second open letter before publishing it.

At this point ELEXON identified that it would not be possible to re-price a BOA for the purposes of calculating imbalance prices without there being consequential impacts on BM Cashflow.

ELEXON advised the TC that a Modification would be required to allow SBR actions to be priced at one value in the main imbalance price calculation (i.e. at VoLL) and at another value in the BM cashflow (i.e. the original BOA's utilisation price).

Related Changes

Change to C16 methodologies

It should be noted that in order to enable the TC to reflect SBR and DSBR actions in the imbalance price calculation it must modify its SMAF Methodology Statement and BSAD Methodology Statement.

These are statements required by Standard Condition C16 of the TC's Licence. The extent of these necessary changes is set out in the TC's open letter published on 15 June 2015. P323 is conditional on the outcome of the C16 review.

Full details of the TC's consultation on the C16 statement amendments can be found on the [National Grid webpage](#).

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 6 of 37

3 Solution

Proposed solution

P323 proposes to enable the calculation of imbalance prices to include the value of SBR whilst not affecting the calculation of BM Cashflows. P323 will achieve this by enabling the TC to identify specific BOAs taken for SBR purposes[1] and for resulting System Actions to be priced at VoLL for imbalance price calculations only.

ELEXON will implement a manual solution so that no changes to Central Systems are necessary (at least initially). This will be achieved by amending the BSC so that an enduring solution (that will rely on changes to Central Systems) is clearly defined. However, in the absence of system changes, an obligation will require ELEXON to ensure imbalance prices calculated for Settlement Periods reflect the value of SBR Actions where they are taken.

In the absence of changes to Central Systems, ELEXON will meet this obligation by operating a manual process outside of Central Systems that ultimately has the effect of adjusting any price produced by the SAA.

The remainder of this section explains the solution in more detail. The assumptions and detailed requirements for the proposed solution are set out in Section 4.

The P323 solution is split in two parts. The first part describes how SBR would be reflected in the calculation of imbalance prices using the BSC Central Systems. The second part describes SBR would be reflected in the calculation of imbalance prices using a manual process outside of the BSC Central Systems.

An enduring solution

In practice the Balancing Mechanism Reporting Agent (BMRA) and SAA deliver the BSC requirements for calculating and publishing imbalance prices by using automated processes. Ideally any change to the calculation of imbalance prices should be incorporated with the existing systems and processes. This ensures integrity and simplicity.

Additionally, whilst the TC initially procured SBR services as a temporary Balancing Service, there is a growing expectation that the TC may procure SBR for several years yet.

The enduring solution proposed by P323 requires the following:

- Whenever the TC dispatches a BMU for SBR purposes, it will identify those SBR BOAs with an SBR Flag in a similar way to how it SO-Flags and STOR-Flags BOAs.

- The BMRA and SAA will treat BOAs with an SBR Flag so that, for the purposes of calculating imbalance prices only, any derived System Actions will be known as SBR Actions and will have an SBR Action Price, which is set equal to VoLL.

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[1] 'Taken for SBR purposes' in the context of the BSC means to accept an action offered by an SBR provider where the provider's generation output would exceed its SEL for a period of time. For the avoidance of doubt, any accepted action offered by an SBR provider where its output is below, at, or is 'ramped up' or 'ramped down' from SEL are not considered to have been taken for SBR purposes. It also excludes actions taken for purposes other than SBR, such as actions taken for constraints.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 7 of 37

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- SBR Actions will be treated like any other System Action in the existing imbalance price calculation.

- Irrespective of whether the TC takes a BOA for SBR purposes, the SAA will continue to use the original PO for SBR BOAs for calculating BM Cashflows.

The intention of P323 is for the proposed solution to be similar to the approach to re-pricing System Actions from STOR Providers (as set out by P305). Under P305, System Actions determined to be STOR Actions, are re-priced to equal the RSP for the purposes of the imbalance price calculation only, and the original PO(s) are used for BM cashflow.

Manual process solution

In order to ensure that P323 can be implemented in time for the November 2015 BSC Release (as requested by the TC), no BSC System changes are proposed under this Modification, for the reasons provided below:

- SBR and DSBR are last resort activities and in general are unlikely to be dispatched regularly[2];

- SBR and DSBR are intended as temporary measures available to the TC whilst the Electricity Market Reform (EMR) is implemented[3], which means that the benefits of system changes would be time-limited;

- there is limited time left to make changes to BSC Systems; and

- the scheduled November 2015 Release already contains a large number of significant changes to BSC Systems, e.g. P305, therefore any additional BSC System changes would pose a risk to implementation.

Consequently P323 proposes that a temporary manual process be implemented to ensure that the intent of the 'enduring' solution as described above is delivered.

The P323 manual process relies on the following steps:

- The TC sends an SBR Notice to ELEXON of BOAs taken for SBR purposes. This notice is sent after the event.

- ELEXON uses its own systems to calculate imbalance prices in accordance with the requirements of Section T, without the use of BSC Systems. Specifically, for an impacted Settlement Period, ELEXON will produce an imbalance price that re-prices SBR Actions at VoLL and an imbalance price that does not re-price SBR Actions at VoLL (i.e. the price that BMRA and SAA would calculate in the absence of system changes).

- By comparing the re-calculated imbalance prices the difference determines an adjustment to the Buy Price Adjuster (BPA). By adjusting the BPA originally provided by the TC and resubmitting it to BSC Systems, the price calculated by BSC Systems will be corrected to reflect the price BSC Systems should have calculated if it had re-priced the SBR Action.

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[2] SBR and DSBR were procured for the first time for use during the 2014/15 winter but were not called on.
[3] The EMR arrangements are intended to be in place by 2019.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 8 of 37

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In order that the revised BPA is included in the SAA's price calculation, ELEXON will advise the TC of the BPA it should submit to the SAA so the TC can include this revised BPA in its submission of BSAD to the SAA.

- ELEXON will send details of the imbalance price it expects the SAA to produce. Should the SAA produce a price that is different to the expected price, the SAA will notify ELEXON who will investigate and determine an appropriate way forward.

- The TC will send details of changes to Bid Offer Data, Acceptance Data and BSAD to ELEXON ahead of each Settlement Run to ensure that ELEXON is able to calculate an accurate adjustment to the BPA.

- ELEXON will publish details of any SBR Notice it receives and the calculations it completes as part of this manual process.

- ELEXON will maintain clear and robust controls and audit records.

There is precedence for this approach to manually adjusting imbalance prices at the time of market opening. In particular, Modifications P10 'Eliminating Imbalance Price Spikes Caused By Truncating Effects' and P18 'Removing / Mitigating The Effect of System Balancing Actions in The Imbalance Price'.

Because the TC will notify ELEXON of SBR BOAs after the end of a Settlement Period, the re-calculation of the imbalance price will take effect after the Balancing Mechanism Reporting Agent (BMRA) has produced its indicative prices and published these on the Balancing Mechanism Reporting Service (BMRS) (i.e. within 15 minutes of the end of the Settlement Period). Whilst the BMRA's indicative price calculation would not reflect any SBR Action, it is expected that any re-calculation and adjustment (as described above) would take place in time for the SAA's Interim Information (II) Run price calculation and all subsequent Reconciliation Runs.

If the Workgroup, the Panel or the Authority believe that system changes will be required in the future, a Change Proposal can be raised to progress them.

Legal text

Attachments A to E contain the proposed changes to the BSC and CSDs respectively.

Alternative solution

The Workgroup considered several potential alternative solutions to P323, but has not put forward an Alternative Modification. You can find the Workgroup's detailed discussions on potential options in Section 7.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 9 of 37

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4　Detailed Requirements and Assumptions

This Section details the solution requirements, including the assumptions, for the P323 solution.

Assumptions

Assumptions	
The following assumptions relate to the P323 solution.	
A1	The TC dispatches SBR providers for SBR purposes using a specific (unique) BOA (an SBR BOA). These are BOAs to take an SBR provider's BMU's agreed output above its SEL.
A2	Any BOAs taken to instruct an SBR provider's output up to or down from SEL (but not above SEL) are not for SBR purposes. The TC will dispatch ramping or testing activity by an SBR provider using a separate BOA to those taken for SBR purposes (see A1). These BOAs are not SBR BOAs and resulting System Actions will not be repriced at VoLL. BOAs taken from SBR providers for constraint purposes or other than SBR purposes will not be an SBR BOA. In addition BOAs taken for ramping or testing purposes will be SO-flagged.
A3	ELEXON will implement P323 without changing Central Systems. This means that ELEXON will also need to implement a manual process that enables it to ensure imbalance prices are calculated accurately.
A4	Enduring solution - TC notification is before the event (i.e. by using SBR Flag) Manual solution – TC notification is after the event (i.e. by using SBR Notice)
A5	TC will provide ELEXON with prior notice of changes to Main Price inputs prior to the II Run and in between Settlement Runs. This is to allow ELEXON to produce the BPA adjuster that takes account of these changes. Otherwise, adjustment to Main Price will be incorrect.

Detailed requirements

Requirement 1	
The BSC Panel is responsible for determining whether the BMRA and SAA are capable of processing SBR BOAs without manual intervention.	
1.1	As and when appropriate, the BSC Panel will confirm that the BMRA and SAA are capable of processing SBR BOAs by receiving BOAs with an SBR Flag and determining SBR Actions and SBR Action Prices.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 10 of 37

Requirement 2	
Subject to Requirement 1, TC sends notice of BOAs taken for SBR purposes (i.e. not ramping, testing or for constraint purposes) – either as an SBR Flag or via an SBR Notice.	
2.1	Upon accepting an Offer for SBR purposes, the TC will ensure the (SBR) BOA it submits to BMRA (or updates for SAA) is SBR Flagged. The submission of SBR BOAs will be subject to the existing rules for submitting BOAs more generally.
2.2	The SBR Offer will exclude acceptances for ramping, testing or constraint purposes.

Requirement 3
All System Actions derived from an SBR BOA will be called SBR Actions for the purpose of the imbalance price calculation. Any BOAs accepted for ramping, testing or constraint purposes will be tagged out.

Requirement 4
The System Action Price for any SBR Action will be set equal to the VoLL for the purpose of the imbalance price calculation.

Requirement 5
The PO for any accepted Offer Volume derived from an SBR BOA will NOT be repriced equal to VoLL.

Requirement 6
In the absence of confirmation from the BSC Panel per Requirement 1, Requirements 7-15 will also apply.

Requirement 7	
Subject to Requirement 6, TC sends notice to BSCCo of BOAs taken for SBR purposes.	
7.1	Following the acceptance of an Offer for SBR purposes, the TC will send an SBR Notice to BSCCo by email.
7.2	SBR Notices will contain the BOA Number and BM Unit identifier for the relevant SBR BOA(s). The SBR Notice will be defined in BSCP18 as a new P flow.
7.3	The TC will send the SBR Notice to ELEXON no later than noon the next WD of accepting an Offer for SBR purposes. This is so that ELEXON can publish details of the SBR Notice in a timely manner and that imbalance prices can be calculated accurately (i.e. to include SBR) in time for II Run.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 11 of 37

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Requirement 8	
Subject to Requirement 6, BSCCo will ensure that imbalance prices produced by the SAA (as part of any Settlement Run) reflect the inclusion of SBR.	
8.1	BSCCo to calculate the imbalance price(s) using its own internal systems.
8.1.1	Using most up to date Bid Offer Data, Acceptance data and BSAD, BSCCo will calculate imbalance price(s) for SBR impacted Settlement Period(s) as though BSCCo had not received an SBR Notice (P^{norm}).
8.1.2	Using SBR Notice, BSCCo identifies SBR BOA(s), corresponding System Action(s) (i.e. SBR Actions) and SBR impacted Settlement Period(s).
8.1.3	BSCCo recalculates imbalance price(s) for SBR impacted Settlement Period(s) setting the price of SBR Actions equal to the SBR Action Price (P^{sbr}).
8.2	BSCCo calculates a revised BPA.
8.2.1	Determine adjustment to original BPA by comparing imbalance prices including and excluding value of SBR, as follows: $$D = P^{sbr} - P^{norm}.$$
8.2.2	Determine revised BPA as follows: $$BPA^{rev} = BPA^{TC} + D$$ Where BPA^{TC} is the up to date BPA reported to the BMRA/SAA/BSCCo by the TC.
8.3	BSCCo sends the TC the revised BPA using new P-flow by email (this will be set out in BSCP18).

Requirement 9	
Subject to Requirement 6, BSCCo will produce an estimate of imbalance price including SBR as soon as reasonably practicable following BMRA indicative price calculation.	
9.1	As soon as reasonably practicable following receipt of an SBR Notice, using the processes pursuant to Requirements 8.1.2 and 8.1.3, BSCCo will produce an estimate of the imbalance price including the value of SBR.
9.2	BSCCo will publish details of this price on the BSC Website and draw attention to the price, e.g. using an ELEXON Circular or Newscast.

Requirement 10	
Subject to Requirement 6, the TC will provide details to BSCCo of any corrections to Bid Offer Data, Acceptance Data or BSAD for SBR impacted Settlement Periods ahead of scheduled Settlement Runs.	
10.1	The TC will send BSCCO details of any corrections to Bid Offer Data, Acceptance Data or BSAD by noon, two Working Days ahead of any given Settlement Run affected by an SBR Action.
10.2	New P-flow to enable communication of data by TC to BSCCo (this will be defined in the BSCP18)

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 12 of 37

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Requirement 11
Subject to Requirement 6 and 10, the BSCCo will (re)calculate a revised BPA upon receipt from TC of revised Bid Offer Data, Acceptance Data or BSAD for SBR impacted Settlement Periods.

11.1	Upon receipt of revised data pursuant to Requirement 11, BSCCo will re-run Requirement 8 to produce a revised BPA, which it sends to the TC.

Requirement 12
Subject to Requirement 6, TC will send revised BPA to the SAA as part of updated BSAD file

12.1	The TC will include any revised BPA sent to it by BSCCo in a BSAD submission in time for it to be included in the next relevant Settlement Run.

Requirement 13
Subject to Requirement 6, SAA will report any difference between the price it produces and a price expected by BSCCo (i.e. per its calculation of an imbalance price including SBR) for SBR impacted Settlement Periods.

13.1	Following the calculation of an imbalance price including SBR and sending a revised BPA to the TC, BSCCo will send a new SAA interface flow to the SAA containing details of the imbalance price(s) it expects to be calculated for specific Settlement Periods subject to specific Settlement Runs.
13.2	SAA will compare the price(s) its systems produce with the price(s) expected by BSCCo.
13.3	If the SAA price(s) are not equal to the BSCCo price(s) to three decimal places, the SAA will report this to the BSCCo as soon as possible according to existing agreed processes.
13.4	As soon as possible, BSCCo to notify industry of any discrepancy with expected reason(s) and proposed mitigating action (ELEXON Circular).
13.5	The two new SAA interface flows will be defined in the NETA Interface Definition and Design (IDD) Part 2 document.

Requirement 14
Subject to Requirement 6, BSCCo to put in place appropriate controls for ensuring imbalance prices are calculated correctly and actions taken are monitored and recorded for audit purposes.

14.1	ELEXON to retain records, notes and workings with respect to its calculations for determining revised BPAs and generally ensuring that imbalance prices are calculated to correctly reflect the value of SBR.
14.3	ELEXON to report to the BSC Panel, or its delegated authority, on the steps taken to amend the energy imbalance price.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 13 of 37

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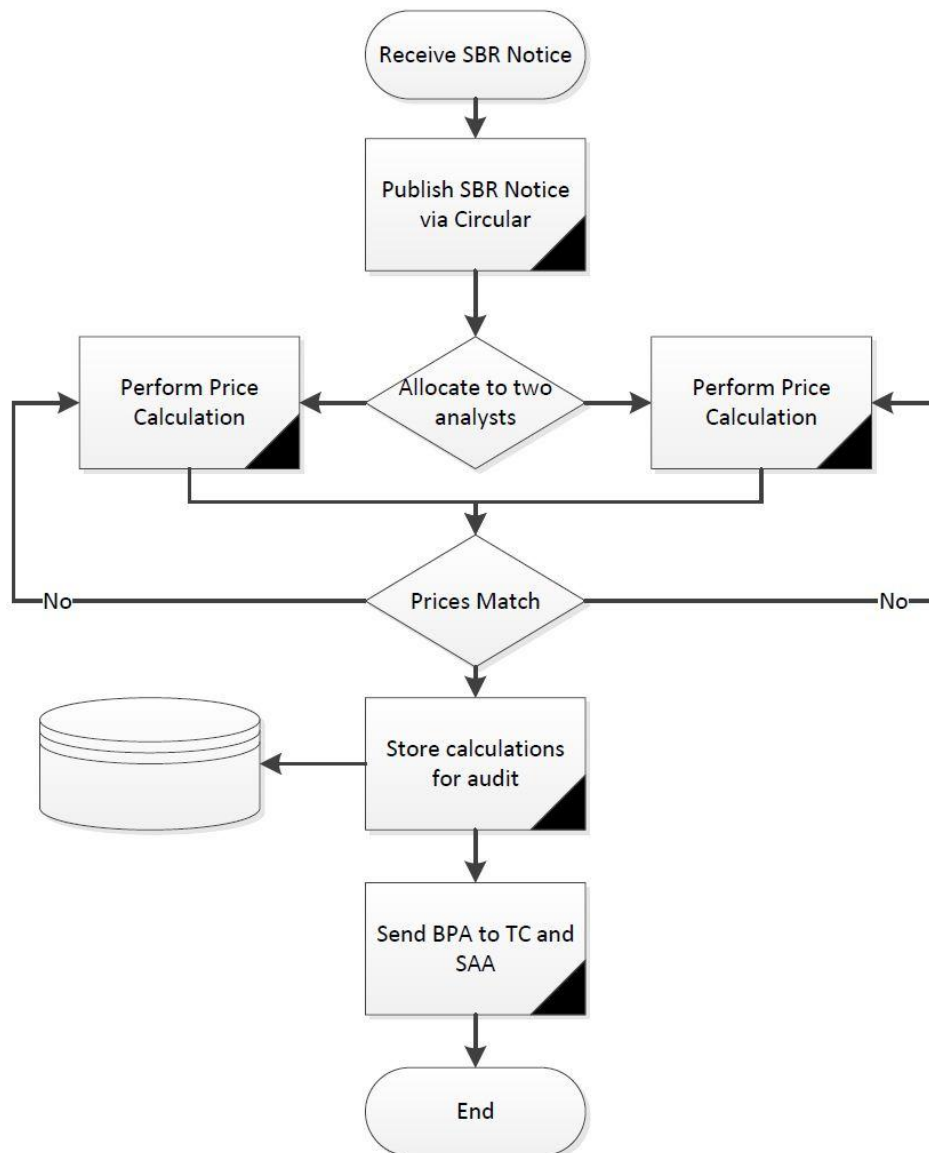| Requirement 15	
Subject to Requirement 6, as soon as reasonably practicable BSCCo will publish details of any actions it takes to ensure imbalance prices accurately reflect the value of SBR.	
15.1	ELEXON will, inter alia, use the BSC Website, ELEXON Portal, Newscast and ELEXON Circulars to publish details of the actions it takes to ensure imbalance prices accurately reflect the value of SBR
15.2	Any notice in 15.1 will contain at least the following details: • SBR impacted Settlement Dates and Settlement Period(s) • P^{norm} • P^{sbr} • BPA^{TC} • D • BPA^{rev}

ELEXON's processes for calculating BPA

For each SBR Impacted Settlement Period, BSCCo will calculate a revised BPA to ensure that Imbalance Prices reflect the value of SBR Actions using the following method. BSCCo will use all available and up to date Bid Offer Data, Acceptance data and BSAD.

- Calculate Energy Imbalance Price (P^{norm}) as though no SBR Notice had been received using BPA^{TC}.

- Calculate Energy Imbalance Price (P^{SBR}) by determining SBR Actions in accordance with SBR Notice and using BPA^{TC}.

- Determine the difference between the imbalance prices calculated including and excluding SBR Action(s): $D = P^{SBR} - P^{norm}$.

- Determine the revised BPA (BPA^{rev}): $BPA^{rev} = BPA^{TC} + D$.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 14 of 37

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Process diagram

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 15 of 37

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Estimated central implementation costs of P323

The central implementation costs of P323 are approximately £480, which reflect the costs of the BSC and CSD changes and updating internal process documents. Any ongoing costs will be absorbed due to the expected infrequency of the events.

Indicative industry costs of P323

The expectation is that P323, along with the C16 changes, will have an impact on Trading Parties' risk management and monitoring functions. The implementation of P323 should not require any significant effort from any BSC Party, with any changes to Party systems likely to be marginally incremental to those introduced by P305. There should be no direct impact on Party Agents.

P323 impacts

Impact on BSC Parties and Party Agents	
Party/Party Agent	Potential Impact
Impact on Trading Parties' risk management and monitoring functions due to the increase in price uncertainty and delay in the publication of the price.	

Impact on Transmission Company
The TC will notify ELEXON or the SAA when SBR is dispatched and send revised file to SAA once amendments received from BSCCo.

Impact on BSCCo
ELEXON or the SAA will receive the notification of SBR dispatch and manually process the changes to the imbalance price calculations.

Impact on BSC Systems and processes	
BSC System	Potential Impact
SAA	ELEXON or the SAA will receive the notification of SBR dispatch and manually process the changes to the imbalance price calculations.

Impact on Code	
Code Section	Potential Impact
Section Q and Section T	Changes would be required to implement this Modification.
Section X Annex X-1/X-2	Add definitions

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 16 of 37

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Impact on Code Subsidiary Documents	
CSD	Potential Impact
BSCP18	Changes will be required to implement this Modification.
NETA IDD Part 2	Changes will be required to capture flows sent between BSCCo and the SAA.
SAA Service Description	Changes will be required to reflect that BSCCo will send details of expected prices for SAA to check as and when SBR dispatched.
SAA User Requirements Specification	

Other Impacts	
Item impacted	Potential Impact
BSAD Methodologies Statement	The changes to the treatment of SBR will be captured via the Transmission Licence: C16 change processes, which will include changes to the BSAD and SMAF methodologies. P323 will need to be consistent with changes made via this process.
SMAF Methodologies Statement	

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 17 of 37

6   Implementation

Recommended Implementation Date

The Workgroup recommends an Implementation Date for P323 of:

- 5 November 2015 (November 2015 Release), if a decision is received on or before 29 October 2015; or

- 10 WDs following the Authority decision, if a decision is received after the 29 October 2015.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 18 of 37

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Interactions with C16 changes

The Workgroup noted that P323 is conditional on the approval of changes to C16 statements, the SMAF Methodology Statement and the BSAD Methodology Statement. Changes are necessary to enable the TC to submit BOAs for SBR energy balancing actions (rather than system balancing, i.e. SO-Flagged) and to include DSBR actions as Balancing Services Adjustment Actions in BSAD.

The Workgroup noted that the TC had consulted on the issue of including SBR in the imbalance price on two occasions and had held a workshop earlier this year. The Proposer noted that respondents to its consultations had generally offered their support to including the value of SBR and DSBR in the calculation of imbalance prices.

The TC issued a further [consultation](#) in parallel to the Assessment Procedure Consultation, which set out its final proposals for amending its C16 statements. The Workgroup noted that if the Authority does not approve the C16 statement changes then P323 would not be needed. Any delay or failure in the C16 changes will mean that any provisions enabled in the BSC may not be used to their full extent. Details of the TC's consultation on the C16 statement amendments can be found on the [National Grid webpage](#).

Potential amendments to the proposed C16 changes

A Workgroup member enquired as to what would happen if there were revisions to the C16 changes that would conflict or require further changes to the BSC. ELEXON advised that this could be addressed through a Fast Track Self Governance Modification, to align with any amendments to the C16 changes.

Sunset clause

Noting that the expected need for SBR is limited to before the Capacity Mechanism is due to be operational, a Workgroup member suggested that the Workgroup consider whether P323 should include a sunset clause. This they believed would force a limitation on the use of SBR. The Workgroup concluded that it shouldn't as i) this would not prevent procurement of SBR in the future and; ii) if it was needed beyond the sunset clause, then another Modification would be needed to define how that was treated. As such, the Workgroup believed that any future use of SBR should be left to the C16 licence processes.

The Workgroup noted ELEXON's comment that the BSC includes clauses that are no longer relevant to the existing arrangements and do not cause any issues operationally. Should the clauses in the BSC introduced by P323 no longer be required, then if there is a sufficient case to remove them, then this could be achieved through a Fast Track Self Governance Modification.

Consideration of when imbalance prices should be provided

One Workgroup member felt it was more important to have timely cashout prices that weren't necessarily accurate than to have accurate prices later, as it was the signal that was more important. However, the majority of the Workgroup disagreed with that and believed that the prices needed to be accurate, even if this meant these were provided

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 19 of 37

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later, so as long as there was a notification that SBR Actions had been taken. They believed that any notification should also include the period covered by the SBR action and the applicable BM Units.

All agreed that the cashout prices should be available by the II Run.

Best View Prices

Although ELEXON's Best View Prices (BVP) is a value added service, so there is no obligation for ELEXON to update this as part of P323, the Workgroup agreed that if possible the SBR Actions should be included. As BVP may need ELEXON systems to be amended, this was assessed at the same time as this consultation.,.

It was concluded that there will be no impact BVP production. However, as ELEXON will not receive the TC sent SBR Notice until the next operational day, this will not have entered in to the BVP. Instead, it is expected that this will be updated on the following operation day.

Consideration of including DSBR in the Imbalance Price

A Workgroup member suggested that if DBSR was included in the imbalance price in a timely manner (i.e. as part of the BMRA indicative price calculation) using existing systems and processes, then this should result in an Imbalance Price equal to or close to £3k/MWh. The Workgroup agreed that this would provide a timely signal to the market and lessens the need for an automated and timely solution under P323, thereby making P323 as currently drafted more acceptable. However, the Proposer advised that it would not be able to provide details of dispatched DSBR in BSAD until WD+1, at 11:00, as this is when the TC's system submit a revised BSAD file. The Proposer also noted that the submission of DSBR details in BSAD is outside the scope of P323.

Considerations over manual and enduring solutions

The TC raised P323 with the intention of ensuring imbalance prices reflected the value of SBR using a manual process, rather than an automated one that relies on changes to Central Systems. A manual process was proposed as an interim measure to allow the calculation of imbalance prices to reflect SBR if it was dispatched this winter.

In light of this the BSC Panel set the terms of reference for the Workgroup to require it to consider whether an enduring solution is required, e.g. for use in 2016/17, 2017/18 and possibly beyond.

The Workgroup noted that:

- The expected frequency of use of the SBR balancing service is very low, if ever used. However, whilst the probability may be very low, the impact is very high if there is no process in place for dealing with when the TC takes an SBR Action.

- A solution may only be required until the Capacity Mechanism is active in 2019, so is therefore likely to be an interim one.

- Making changes to BSC System for P323 as part of the November 2015 Release would likely expose that release to a very high level of risk due to an already busy

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 20 of 37

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programme of work, the very short timescales to develop system changes and the limited availability of resources.

- Considering these factors, to ensure that a solution is implemented in time for winter 2015/16, a manual solution is a pragmatic way forward. Although it was noted that even if a manual solution is implemented initially, any change should be implemented in such a way to enable an enduring, automated solution that would produce timely imbalance prices to be activated at some point in the future.

- Any enduring solution involving BSC System changes would need to be progressed through a separate Change Proposal if P323 gets approval. This would be targeted at a later BSC Release in time for the winter 2016/17.

ELEXON did enquire in to the potential costs and lead times for implementing an automated enduring solution. ELEXON advised that an indicative cost to make system changes to the BMRS, Energy Contract Volume Aggregation Agent (ECVAA) and SAA systems of c.£180k taking approximately 30 weeks to develop, test and implement, based on an implementation in November 2016.

Risk and mitigating actions

A Workgroup member was concerned that a manual process could increase the chance of errors. The Workgroup agreed that:

- There should be appropriate controls put in place to ensure that imbalance prices are calculated correctly and that actions taken by BSCCo in accordance with the manual process are recorded and auditable.

- There should be clear and timely communications that SBR has been dispatched.

- Any calculations should be able to be replicated by any Party, so ELEXON should make available details of calculated imbalance prices including and excluding the value of SBR, and the original BPA and revised BPA. This information should be published on the ELEXON Portal to enable this.

- Any error would be a Settlement Error and therefore subject to the Trading Disputes process to reconcile any errors.

ELEXON proposed that the manual process include a 'safe guard' mechanism that ensured that the SAA checked any price it produced for an SBR impacted Settlement Period with the price ELEXON expect it to produce. Any discrepancies could then be raised quickly and mitigating actions taken in a timely manner.

Interactions with TCs consultations

A Workgroup member noted that the TC was due to send out a consultation on continuing the use of additional Balancing Services for winters 2016/17 and 2017/18. The Proposer confirmed that the consultation was issued on 17 July 2015 and which closes on Friday 14 August 2015. The Workgroup believed that this strengthened the case for a more enduring and robust solution. The Workgroup noted that an assessment of an enduring, automated solution has not yet been carried out, so therefore could not yet make a recommendation as to whether a CP should be raised to automate the process later.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 21 of 37

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With respect to how any non-relevant actions, such as Testing Actions, should be treated, the Proposer advised that these would be SO-Flagged. This, however, sits outside of the BSC.

Treatment of energy volumes of SBR Offer acceptances to reach or maintain SEL

The Proposer advised that energy volumes of SBR Offer acceptances to reach or maintain SEL would be SO-Flagged. A Workgroup member had concerns these would be removed from cashout through an automatic flag as a system action. They thought that it would be better for the volumes to appear in cash out at the PO.

The Workgroup agreed to include a question in the Assessment Process Consultation. The majority of respondents agreed that the energy volumes instructed under an SBR Offer acceptance to reach or maintain SEL related to it should be removed from cashout through an automated flag as a system action.

A Workgroup member thought that these shouldn't be removed as the volumes held at SEL could be contributing to avoiding Demand Control actions. However, the majority of the Workgroup disagreed with this, arguing that the below SEL volumes will get a replacement price as there are likely to be high-priced actions in the offer stack. In addition, the expectation is that the costs of warming and ramping will be covered by the contracted price (PO).

The potential to make use of the RSP was also discussed following consultation responses but there was no strong view from the Workgroup. The Proposer highlighted some related comments noted in the C16 consultation and also confirmed that SBR and DSBR volumes are not included in the capacity figures in the Loss of Load Probability (LoLP) calculations forming the RSP.

Treatment of system constraint actions

The Workgroup noted that there was a concern in the consultation responses that the TC will use SBR actions for managing constraints on the network. The Proposer advised that there are limitations in the terms of service that should prevent this occurring. The Workgroup agreed that whilst it was unlikely that the SMAF will be amended in the future to allow for SBR actions for constraints, P323 should not assume that SBR actions will never be SO-flagged.

Treatment of SBR actions of less than 15 minutes

The Workgroup considered the consultation respondents concern that there may be SBR actions of less than 15 minutes, which may then over influence the imbalance price of the whole Settlement Period. ELEXON advised that any SBR Action would be subject to existing 'tagging' and 'flagging' processes and in particular any SBR BOA less than 15 minutes (and therefore any resulting SBR Actions) would be subject to Continuous Acceptance Duration Limit (CADL) Flagging. Therefore the effect of a short duration SBR Action would be treated like any other short duration action and would have a limited impact on the imbalance price. A Workgroup member did suggest that perhaps there should be a consideration as to whether the less than 15 minutes parameter for CADL was

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 22 of 37

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appropriate, however, the group noted that the definition of CADL was outside the scope of P323.

Appendix 3 contains a series of examples that illustrate how BOAs (including SBR BOAs) may be CADL flagged and how, if CADL Flagged, resulting System Actions are treated in the calculation of an imbalance price.

Notifications of SBR Actions

Beyond imbalance prices reflecting the value of SBR and DSBR in a timely manner, the Workgroup considered how else the industry is notified of SBR being dispatched.

The Proposer advised that the TC uses four warning messages, which the BMRS publishes on BM Reports and via the TIBCO service:

- "DSBR dispatched today";

- "SBR plant warmed today";

- "SBR dispatched today";

- "SBR plant being tested today".

They also advised that the warning messages would refer reader to a new National Grid Contingency Balancing Reserve Operational Information webpage, showing:

- DSBR spreadsheet detailing dispatch events for the season, updated after each event, including volume per Settlement Period and max price per MWh; and

- a list of contracted SBR BM Units to correlate to BM Reports messages re SBR unit tests, warming or dispatch

The Workgroup considered that ELEXON should provide timely notification of any SBR Notices it receives from the TC and of any actions it takes to ensure that imbalance prices accurately reflect the value of SBR.

The Workgroup also noted that NGET's System Operator Notification and Reporting System (SONAR) was free and available from its website. Parties could use this to monitor when any given plant is warming up etc. A Workgroup member asked if ELEXON could set up an Rich Site Summary (RSS) or Tibco feed, which it agreed to investigate.

DSBR

The Group considered an ex ante approach in relation to reporting DSBR. In that the TC could, for the DSBR it had dispatched, forecast the volume of DSBR it reasonably expected to be delivered and report this as part of the BSAD file used for the BMRA's indicative price calculation. This forecast of DSBR would be used in place of actual volumes dispatched/delivered.

The Group considered whether the volumes of DSBR reported in subsequent BSAD files should be updated to reflect actual volumes dispatched/delivered. It was considered that in order to maintain certainty it would be more appropriate to retain the forecast volumes in the imbalance price calculation, rather than to update these with actual volumes dispatched or delivered.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 23 of 37

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The Proposer considered if a forecast DSBR volume could be reflected into the indicative price Disaggregated BSAD (DISBSAD) file (as a means of mitigating the 15 minute issue). However, the Proposer confirmed that this would not be possible due to risks associated with making manual interventions to what is an existing automated process in short timescales (including potentially out of normal working hours).

Potential alternative solutions

The Proposer and ELEXON advised that without exposing the planned November Release to a high level of risk they could not implement a solution that would require BSC or TC system changes for November 2015. This therefore ruled out any solution that would require revised prices in real time, as these would require either require:

- system changes and therefore could not be implemented for winter 2015/16; or

- a manual process run outside of working out of hours to:

    o   be made available to monitor BOAs; and then

    o   accurately calculate the price, any adjustment to the BPA and communicate these details between ELEXON, the TC and BMRA.

    The time constraint would put significant strain on human resources and increase the risk of errors being made. It would also likely need corrective post event actions as per P323 solution.

Therefore, as the scope of P323 is to ensure that a workable solution is in place for winter 2015-16, only a solution using a manual process can reasonably be delivered.

Notwithstanding the Group's desire that an automated solution be considered in the future, the Workgroup explored alternative solutions that might be implemented this November.

SBR Window

The TC to identify all SBR Actions in a window, with those outside the window SO-flagged, and those inside the window priced at VoLL. The closing of the SBR window would be achieved with demand control actions.

A variation of this considered was for the SBR window to have those volumes priced at VoLL if it was above SEL; otherwise, it should be SO-flagged and RSP applied to the volumes below SEL.

The Proposer noted that the details from DSBR, and which BOA volumes had achieved SEL, would not be available in real time. They also noted that when the TC dispatches SBR, there would be a period of warming up of the generators. This would involve the use of separate BOAs to get SEL and then BOAs for SBR actions.

Ex ante

SBR

This option would require the TC to notify ELEXON that it is expecting to dispatch SBR at some point in the near future. ELEXON would then need to monitor BOAs to determine when a BMU was dispatched above SEL and therefore for SBR purposes. Once SBR had

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 24 of 37

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been dispatched ELEXON would then need to ensure the imbalance price calculated by the BMRA (and subsequently by the SAA) reflected the value of the dispatched SBR.

It was noted that whilst this option might enable imbalance prices to be produced as part of the BMRS's indicative price calculation, it would still require either a manual or automated process similar to those described above for the Proposed Solution.

An automated ex-ante process would require system changes and a manual one would not be practicable in real time without significant risk as described above.

Default SBR actions at £3k

A simple option was proposed whereby the imbalance price would be automatically set at £3k/MWh for Settlement Periods that included SBR Actions and when the system is short. This would be a straightforward drafting of the BSC and would avoid the need to determine how the normal imbalance price calculation would process SBR Actions (e.g. whether SBR actions would be NIV or PAR tagged). However, this option would still require system changes to include the defaulting rule and to enable SBR BOAs to be identified in Central Systems. Alternatively a manual intervention would essentially mimic the process described in the Proposed.

The Proposer advised that it was possible for the price to go above £3k if an offer of over £3k was accepted. A Workgroup member was concerned that it is possible that prices could be more than VoLL. ELEXON explained that P305 did not introduce capping and that P323 doesn't make it worse.

In considering a respondents suggestion that P323 provides an opportunity to set a cap for VoLL, the Workgroup noted that P305 had already considered this and ruled it out. As nothing had changed, it did not deem it appropriate to revisit capping. In addition, this would need a further Modification to the cap once VoLL went to £6k/MWh.

The Proposer advised that ELEXON and the TC had considered this option of defaulting SBR actions at £3k prior to raising P323 and noted the need for system changes.

Report SBR as STOR

The BSC could treat SBR actions as though they were STOR actions. This option would enable the TC to use the process for reporting STOR actions due to be implemented as part of Approved Modification P305. That is, the TC could submit SBR BOAs with a STOR Flag, with the intention that Central Systems price resulting System Actions using the Reserve Scarcity Price (the product of the Loss of Load Probability and VoLL).

However, the Workgroup noted that Central Systems only consider System Actions to be STOR Actions if they occur during specified STOR Availability Windows. Availability Windows do not fully align with the periods in which the TC may dispatch SBR. Consequently genuine SBR actions may be excluded from being priced using the RSP.

Also, the Workgroup noted that even if System Actions derived from an SBR BOA were within a STOR Availability Window, they would be priced according to the prevailing RSP rather than the full VoLL. The Group noted that should SBR be dispatched then the likelihood is that the LoLP and therefore RSP for that Settlement Period would strongly reflect the level of reserve scarcity at the time.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 25 of 37

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The Proposer advised that ELEXON and the TC had considered this option prior to raising P323 and had noted the same points raised by the Group.

TC submits a default BPA

The TC could submit a default BPA, for example set at £3k/MWh or a lower value to take account of the expected imbalance price. This would not require any change to the BSC. It would only require a change to the BSAD Methodology Statement to allow the TC to submit a default value of BPA.

Whilst this option would be simple to implement, the Group noted that there is a risk that the final imbalance price exceeds the VoLL. This is because this option is dependent on the TC estimating the imbalance price before a BPA is added and submitting a BPA that takes account of this estimate. Depending on how accurately the TC estimates the imbalance price excluding the BPA will determine by how much the inclusion of its default BPA causes the final imbalance price to exceed VoLL. A Workgroup member noted that it would be difficult to forecast this, even if using existing data, so it would unlikely be accurate. The Proposer agreed.

A Workgroup member noted that the focus of the control room when SBR is dispatched would not be on cashout, so it would not be reasonable to expect that NGET staff could carry out manual processes within 15 minutes.

The Proposer advised that ELEXON and the TC had considered this option prior to raising P323 and noted the risk for the BPA to cause the imbalance price to exceed VoLL. Nonetheless, this would require system changes, so was not feasible under the implementation approach.

Reconcile BM Cashflow windfall payments after the event

The Group considered whether the TC should simply reprice BOA's to £3000/MWh, allow BM Cashflow to be set according to the inflated PO and then reconcile the difference between what the TC had contractually agreed to pay the SBR provider and what they had incorrectly been paid through BM Cashflow. The Proposer advised that ELEXON and the TC had considered this option prior to raising P323.

This option would be unlikely to require any changes to the BSC or Central Systems, as it would rely on existing BSC processes for submitting revised/corrected Bid Offer Data.

However, the TC noted that it had considered this option and highlighted contractual difficulties associated with reconciling overpayments through BM Cashflow outside of the BSC arrangements.

In addition, the Proposer and Workgroup were concerned that there would be unforeseen consequences on Residual Cashflow Reallocation Cashflow (RCRC) and Balancing Services Use of System (BSUoS) charges, which would need further reconciliations and potentially resolutions through Trading Disputes. There may also be impacts on SO incentives.

The Workgroup also noted that this would mean opening up the contract between the TC and the SBR providers.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 26 of 37

Potential DSBR windfall gains

The Workgroup noted that there may be windfall gains as a consequence of DSBR being dispatched. This would not be as a consequence of P323; nonetheless the Workgroup agreed that it should consider it.

ELEXON advised that the P323 solution is intended to prevent SBR providers receiving a windfall gain when System Actions associated with them providing SBR are repriced at VoLL. SBR actions will be reflected in SBR provider parties' imbalance volume calculations.

As DSBR is paid for outside of the BM, repricing BSAAs at VoLL has no effect on how DSBR providers are paid. But as DSBR is not dispatched via the BM, any reduction in demand by DSBR providers will push them long compared to their contractual position. It is likely that the system will be short when DSBR is dispatched so DSBR providers may have a long position and therefore be paid at the prevailing price, which is most likely to be at or near £3000/MWh.

The Workgroup noted that this is not limited to DSBR as it could apply to any demand side action.

The Workgroup agreed that it is an issue and recommended that an Issue Group consider it. In addition, it recommended that ELEXON raise this with Ofgem.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 27 of 37

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8   Workgroup's Conclusions

The majority of the Workgroup agreed that P323 would overall better facilitate the Applicable BSC Objectives compared with the existing baseline, should the C16 changes gain approval.

One Workgroup member didn't think the solution should be approved.

The following table contains the Workgroup's final views against each of the Applicable BSC Objectives.

Does P323 better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views[4]
(a)	• Yes – as it will enable proposed changes to C16 methodology statements to have practical effect. The changes proposed under the C16 process as per the Transmission Licence cannot be efficiently discharged in relation to SBR without P323. Therefore the Proposer believes P323 enables the discharge of TC's duties under C16 of the Licence.	• Yes (majority – five) – as Proposer. • Neutral (minority – two) – as the C16 changes are yet to be approved.
(b)	• Neutral – No impact.	• Neutral (unanimous) – as Proposer.
(c)	• Neutral – No impact.	• Yes (majority – four) – as provides appropriate signals to the market on pricing. • No (minority – one) – due to the timeliness of the publication of revised price, there would be a greater impact on smaller players, which would not be in a position to monitor BMRS 24/7 and therefore it would distort competition. • Neutral (minority – two).
(d)	• Yes – as pragmatic and proportionate solution to allow the TC to efficiently discharge its obligations in what is expected to be an infrequent occurrence and within the time allowed.	• Yes (majority – six) –as Proposer. • Neutral (minority – one) – whilst recognising the time constraints to implement a solution, the Workgroup member was concerned that as a manual process it would be more complicated to administer.
(e)	• Neutral – No impact.	• Neutral (unanimous) – as Proposer
(f)	• Neutral – No impact.	• Neutral (unanimous) – as Proposer.

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[4] Shows the different views expressed by the other Workgroup members – not all members necessarily agree with all of these views.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 28 of 37

9   Recommendations

The P323 Workgroup invites the Panel to:

- **AGREE** that P323:

    - o **DOES** better facilitate Applicable BSC Objective (a);

    - o **DOES** better facilitate Applicable BSC Objective (c); and

    - o **DOES** better facilitate Applicable BSC Objective (d);

- **AGREE** an initial recommendation that P323 should be **approved**;

- **AGREE** an initial Implementation Date of:

    - o 5 November 2015 if an Authority decision is received on or before 29 October 2015; or

    - o 10 WDs following the Authority decision, if a decision is received after the 29 October 2015;

- **AGREE** the draft legal text and CSDs;

- **AGREE** that P323 is submitted to the Report Phase; and

- **NOTE** that ELEXON will issue the P323 draft Modification Report (including the draft BSC legal text and CSD changes) for an 11 Working Day consultation and will present the results to the Panel at its meeting on 8 October 2015.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 29 of 37

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Appendix 1: Workgroup Details

Workgroup's Terms of Reference

Specific areas set by the BSC Panel in the P323 Terms of Reference
Is the proposed solution the most appropriate way to implement the change?
Should ELEXON submit the adjustment value directly to the SAA to adjust the BPA it will have received from the TC or should ELEXON submit the adjustment to the TC so it can update the BPA and resubmit it to the SAA?
What controls should be put in place to ensure that any non-relevant actions, such as Testing Actions, are not flagged as SBR Actions?
In light of the nature and timing of any recalculation for SBR, how should details of the event and subsequent calculations be provided to Parties?
Are the risks associated to the proposed manual process acceptable for dealing with what is likely to be a rare event until an enduring solution to reserve scarcity is put in place (i.e. the point at which EMR proposals are fully implemented in 2019)?
Consider whether a separate Change Proposal be raised to implement BSC System changes for the 2016/17 winter period.
What impacts are associated with this change?
What changes are needed to BSC documents, systems and processes to support P323 and what are the related costs and lead times?
Are there any Alternative Modifications?
Does P323 better facilitate the Applicable BSC Objectives than the current baseline?

Assessment Procedure timetable

P323 Assessment Timetable	
Event	Date
Panel submits P323 to Assessment Procedure	09 Jul 15
Workgroup Meeting 1	17 Jul 15
Workgroup Meeting 2 *(via teleconference)*	24 Jul 15
Assessment Procedure Consultation	31 Jul – 17 Aug 15
Workgroup Meeting 3	19 Aug 15
Panel considers Workgroup's Assessment Report	10 Sep 15

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 30 of 37

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Workgroup membership and attendance

P323 Workgroup Attendance				
Name	Organisation	17 Jul 15	24 Jul 15	19 Aug 15
Members				
Adam Lattimore	ELEXON *(Chair)*	✗	✓	✓
Talia Addy	ELEXON *(Chair)*	✓	✗	✗
Simon Fox-Mella	ELEXON *(Lead Analyst)*	✓	✓	✓
Alex Haffner	NGET *(Proposer)*	✓	☎	✓
Sarah Owen	Centrica Energy	✓	✗	✓
Tom Edwards	Cornwall Energy	☎	✗	✗
Peter Bolitho	Energy Market Solutions Ltd	✓	☎	✓
Gary Henderson	ScottishPower	✓	✗	✓
Libby Glazebrook	GDF SUEZ	✓	☎	✗
Bill Reed	RWE npower	✓	☎	✗
Andy Colley	SSE	✓	☎	✓
Guy Phillips	E.ON	✓	☎	✓
Keith Munday	First Utility	☎	☎	✓
Attendees				
Nick Rubin	ELEXON *(Design Authority)*	✓	✓	✓
Heather Milne	ELEXON *(Design Authority)*	✓	✓	✓
Nick Brown	ELEXON *(Lead Lawyer)*	✓	✓	✓
Dominic Scott	Ofgem	✓	✗	✗
Francesca Scucces	NGET	✓	✗	✗

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 31 of 37

Appendix 2: Glossary & References

Acronyms

Acronyms used in this document are listed in the table below.

Acronyms	
Acronym	Definition
BM	Balancing Mechanism
BMRA	Balancing Mechanism Reporting Agent *(BSC Agent)*
BMRS	Balancing Mechanism Reporting Service *(BSC System)*
BOA	Bid-Offer Acceptance
BPA	Buy Price Adjuster
BSAA	Balancing Service Adjustment Action
BSAD	Balancing Services Adjustment Data
BSC	Balancing and Settlement Code *(Industry Code)*
BSCP	Balancing and Settlement Code Procedure *(Code Subsidiary Document)*
BSUoS	Balancing Services Use of System
BVP	Best View Price *(ELEXON's value added service)*
CADL	Continuous Acceptance Duration Limit
CSD	Code Subsidiary Document
DISBSAD	Disaggregated BSAD
DBSR	Demand Side Balancing Reserve
DMAT	De Minimis Acceptance Threshold
ECVAA	Energy Contract Volume Aggregation Agent *(BSC Agent)*
EBSCR	Electricity Balancing Significant Code Review
EMR	Electricity Market Reform
II	Interim Information *(Settlement Run)*
LoLP	Loss of Load Probability
NETA IDD	NETA Interface Definition and Design *(Code Subsidiary Document)*
PAR	Price Average Reference Volume
PO	Offer Price
PVT	Price Verification Tool *(ELEXON's internal system)*
RCRC	Residual Cashflow Reallocation Cashflow
RSP	Reserve Scarcity Price
SAA	Settlement Administration Agent *(BSC Agent)*
SBR	Supplemental Balancing Reserve
SEL	Stable Export Limit
SMAF	System Management Action Flagging

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 32 of 37

Acronyms	
Acronym	Definition
SO	System Operator
SONAR	System Operator Notification and Reporting System
STOR	Short Term Operating Reserve
TC	Transmission Company
VoLL	Value of Lost of Load
WD	Working Day

External links

A summary of all hyperlinks used in this document are listed in the table below.

All external documents and URL links listed are correct as of the date of this document.

External Links		
Page(s)	Description	URL
1	P305 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p305/
3	Transmission Licence: Standard Licence Conditions on the Ofgem website	https://www.ofgem.gov.uk/licences-codes-and-standards/licences/licence-conditions
3, 5, 6, 19	TC's consultations on the C16 statement amendments	http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Balancing-framework/C16-Consultations/
4	SMAF Methodology Statement on the TC website	http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Codes-principles-methodologies/Methodologies/
4	BSAD Methodology Statement on the TC website	Bhttp://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Codes-principles-methodologies/Methodologies/
5	Issue 56 page on the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-56/
9	P10 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p010-eliminating-imbalance-price-spikes-caused-by-truncating-effects/
9	P18 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p018-removing-mitigating-the-effect-of-system-balancing-actions-in-the-imbalance-price/

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 33 of 37

External Links		
Page(s)	Description	URL
23	National Grid's Contingency Balancing Reserve Operational Information webpage	http://www2.nationalgrid.com/UK/Services/Balancing-services/System-security/Contingency-balancing-reserve/Operational-Information/
23	SONAR system on the National Grid's webpage	https://www.nationalgrid.com/sonar/

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 34 of 37

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Appendix 3: CADL Flagging examples

The following examples illustrate how BOAs (including SBR BOAs) may be CADL flagged and how, if CADL Flagged, resulting System Actions are treated in the calculation of an imbalance price.

The examples are based on the requirements for calculating Imbalance Prices in Section T and in particular for CADL Flagging in Annex T-1 paragraphs three and 12.

Example 1   Example 2

```
+-------------------------+         +-------------------+
|        BOA 1            |         |      BOA 2        |
|      BMUID 'Y'          |         |    BMUID 'X'      |
|                         |         |   CADL Flagged    |
|                         |         +-------------------+
|           |             |                  |
|           v             |                  v
|      Action 1-1         |         +-------------------+
|                         |         |    Action 2-1     |
|                         |         |   CADL Flagged    |
+-------------------------+         +-------------------+
```

            SP1   SP2
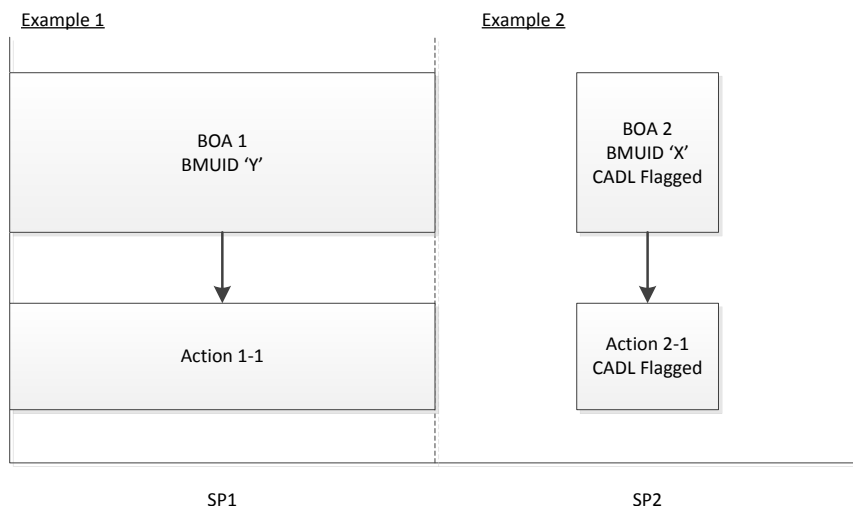
Example 1 Commentary
BOA 1 is provided by BMU ID 'Y' and lasts 30 minutes in SP1 only. Therefore one System Action (Action 1-1) is derived from the BOA.

Because BOA 1 is greater than CADL (15mins) it is **NOT** CADL Flagged. Therefore, any System Actions derived from BOA 1 are also **NOT** CADL Flagged.

Example 2 Commentary
BOA 2 is provided by BMU ID 'X' and lasts 10 minutes in SP2 only. Therefore one System Action (Action 2-1) is derived from the BOA.

Because BOA 2 is less than CADL (15mins) it is CADL Flagged. Furthermore, any System Actions derived from BOA 2 are also CADL Flagged, i.e. Action 2-1.

Example 3

```
+-------------------------------+
|           BOA 3               |
|         BMUID 'X'             |
|                               |
+-------------------------------+
      |                 |
      v                 v
+-----------+     +------------+
| Action 3-1|     | Action 3-2 |
+-----------+     +------------+
```

            SP1   SP2
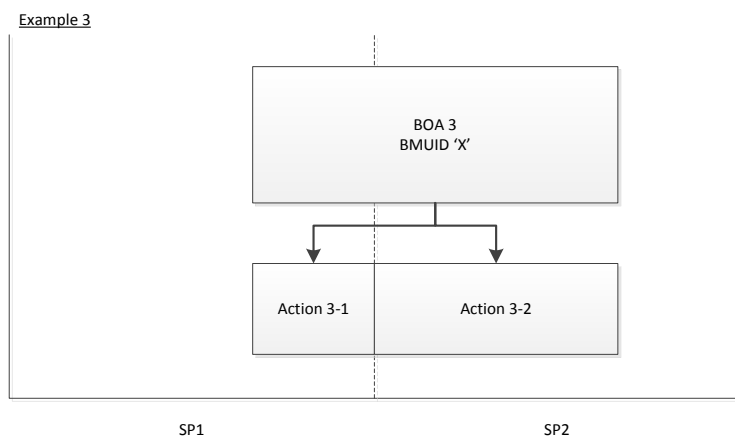
Example 3 Commentary
BOA 3 lasts 30 minutes and is spread across Settlement Periods 1 and 2. Therefore two System Actions can be derived from the BOA – Action 3-1 in SP1 and Action 3-2 in SP2.

Because the BOA is greater than CADL (15mins) it is not CADL Flagged.

Even though Action 3-1 is 10 minutes and therefore less than CADL, it is not CADL flagged because CADL Flagging is determined at BOA level, and filters down to System Actions.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 35 of 37

Example 4

```
┌─────────────────────────────┐      ┌──────────────────┐
│                             │      │     BOA 5        │
│         BOA 4               │      │    BMUID 'Y'     │
│        BMUID 'Y'            │      │   CADL Flagged   │
│                             │      │                  │
├─────────────────────────────┤      └────────┬─────────┘
│            │                │               │
│            ▼                │               ▼
│        Action 4-1           │      ┌──────────────────┐
│                             │      │   Action 5-1     │
├─────────────────────────────┤      │   CADL Flagged   │
│                             │      └──────────────────┘
└─────────────────────────────┘

          SP1                             SP2
```
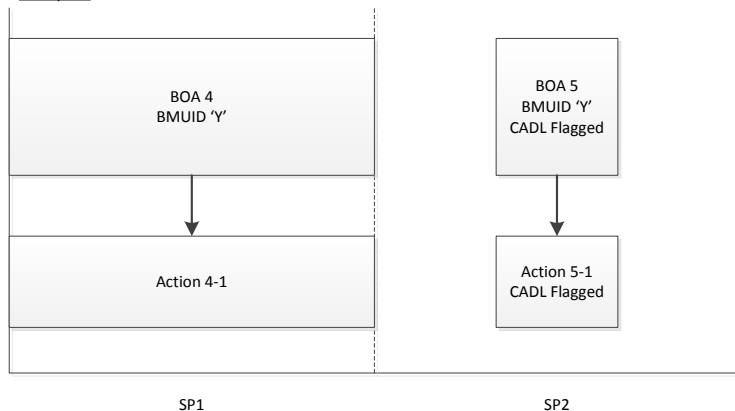
Example 4 Commentary
BOA 4 and BOA 5 are 'related' BOAs because both are provided by BMU ID 'Y' and are within three SPs of each other, that is BOA 5 occurs within 1.5 hours of BOA 4..

BOA 4 lasts 30 minutes in SP1 and BOA 5 lasts 10 minutes in SP2. Therefore BOA 4 and Action 4-1 are NOT CADL Flagged but BOA 5 and Action 5-1 are CADL Flagged.

Nb BOA 5 is not considered 'continuous' of BOA 4 because it doesn't start before or at the same time as the end of BOA 4.

Example 5

```
┌───────────────────┬──────────────┐
│                   │              │
│      BOA 6        │    BOA 7     │
│     BMUID 'Y'     │   BMUID 'Y'  │
│                   │              │
├───────────────────┼──────────────┤
│        │          │      │       │
│        ▼          │      ▼       │
│     Action 6-1    │  Action 7-1  │
│                   │              │
├───────────────────┴──────────────┤
│                                  │
└──────────────────────────────────┘

          SP1                SP2
```
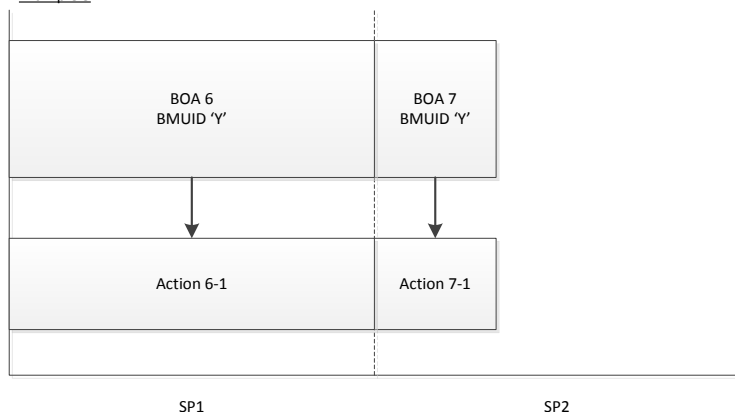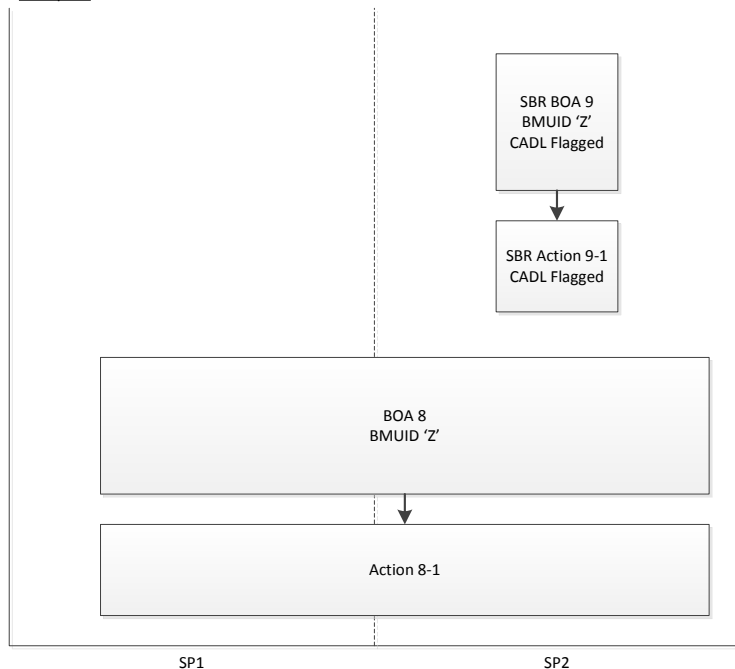
Example 5 Commentary
BOA 6 and BOA 7 are 'related' BOAs because both are provided by BMU ID 'Y' and are within three SPs of each other.

BOA 6 lasts 30 minutes in SP1 and BOA7 lasts 10 minutes in SP2.

In this example, BOA 7 is considered to be 'continuous' of BOA 6 because both BOAs are provided by BMU Y and BOA 7 begins as BOA 6 ends. Therefore their durations are combined when determining whether they are CADL Flagged.

This means that whilst BOA 7 only lasts 10 minutes, neither BOAs or the related actions are CADL Flagged.

Example 6

```
                         ┌──────────────────┐
                         │   SBR BOA 9      │
                         │    BMUID 'Z'     │
                         │   CADL Flagged   │
                         ├────────┬─────────┤
                         │        ▼         │
                         │  SBR Action 9-1  │
                         │   CADL Flagged   │
                         └──────────────────┘

     ┌───────────────────────────────────────┐
     │                                       │
     │            BOA 8                      │
     │           BMUID 'Z'                   │
     │                                       │
     ├───────────────────────────────────────┤
     │               │                       │
     │               ▼                       │
     │           Action 8-1                  │
     │                                       │
     └───────────────────────────────────────┘

          SP1                SP2
```

Example 6 Commentary
BMU ID 'Z' is an SBR Provider. BOA 8 is accepted by Grid to take the BMU up to it's Stable Export Limit (SEL). SBR BOA 9 is accepted by Grid to take the BMU above SEL and therefore provide SBR services.

BOA 8 and SBR BOA 9 are 'related' BOAs because both are provided by BMU ID 'Z' and are within three SPs of each other.

BOA 8 lasts 50 minutes across SP1 and SP2, whilst SBR BOA 9 lasts 10 minutes in SP2.

Whilst both BOAs are 'related', in this example, SBR BOA 9 is NOT considered to be 'continuous' of BOA 8 because SBR BOA 9 begins and ends before the beginning and end of BOA 8.

This means that the related BOAs are considered separately against the CADL so that BOA 8 and action 8-1 are NOT CADL flagged and SBR BOA 9 and SBR Action 9-1 are CADL Flagged.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 36 of 37

Example 7

Initial Stack	Post Classification	Post NIV Tagging and Replacement Price	Post PAR Tagging
SBR Action 2 100MWh @ £3000/MWh CADL Flagged	SBR Action 2 100MWh @ Unpriced CADL Flagged	SBR Action 2 100MWh @ £150/MWh CADL Flagged	
Offer A 100MWh @ £150/MWh	Offer A 100MWh @ £150/MWh	Offer A 100MWh @ £150/MWh	
Offer B 100MWh @ £65/MWh	Offer B 100MWh @ £65/MWh	Offer B 100MWh @ £65/MWh	SBR Action 2 25MWh @ £150/MWh CADL Flagged
Offer C 100MWh @ £58/MWh	Offer C 100MWh @ £58/MWh	Offer C 100MWh @ £58/MWh	Offer A 25MWh @ £150/MWh

Example 7 Commentary

In this example we illustrate how a combination of SBR and normal System Actions interact in a simplified price stack.

Initial Stack - All actions are ranked from most expensive to least expensive to form an initial price stack.

Classification - Any 'first stage flagged' actions (which includes CADL flagged actions) that are more expensive than the most expensive unflagged action have their prices removed. In this case the SBR Action is CADL Flagged and is more expensive than the most expensive unflagged action (Offer A).

NIV Tagging and Replacement Pricing – in this example there are no Bids to subtract from the Offer Stack as part of NIV Tagging. Therefore all Offers remain and the unpriced SBR Action is repriced using the Replacement Price, which in this case is £150/MWh. The Replacement Price is the volume weighted average of the most expensive 1MWh of unflagged actions.

PAR Tagging – The Price Average Reference from 5 November will be 50MWh. PAR Tagging means that all but the most expensive 50MWh of action(s) are untagged and remain to set the final Imbalance Price. In this example SBR Action 2 and Offer A are the most expensive actions and are both priced at £150/MWh. PAR Tagging leaves a proportionate volume from each of SBR Action 2 and Offer A to achieve the PAR, and 'tags' out the remainder and all other cheaper actions.

The final Imbalance Price is the volume weighted average of the remaining actions, which in this case is £150/MWh.

Example 8

Initial Stack	Post Classification	Post NIV Tagging and Replacement Price	Post PAR Tagging
SBR Action 2 100MWh @ £3000/MWh CADL Flagged	SBR Action 2 100MWh @ £3000/MWh CADL Flagged	SBR Action 2 100MWh @ £3000/MWh CADL Flagged	
SBR Action 1 100MWh @ £3000/MWh	SBR Action 1 100MWh @ £3000/MWh	SBR Action 1 100MWh @ £3000/MWh	
Offer A 100MWh @ £150/MWh	Offer A 100MWh @ £150/MWh	Offer A 100MWh @ £150/MWh	SBR Action 2 25MWh @ £3000/MWh CADL Flagged
Offer B 100MWh @ £65/MWh	Offer B 100MWh @ £65/MWh	Offer B 100MWh @ £65/MWh	SBR Action 1 25MWh @ £3000/MWh

Example 8 Commentary

This is another example that illustrates how a combination of SBR and normal System Actions interact in a simplified price stack.

Initial Stack - All actions are ranked from most expensive to least expensive to form an initial price stack.

Classification - Any 'first stage flagged' actions (which includes CADL flagged actions) that are more expensive than the most expensive unflagged action have their prices removed. In this case SBR Action 2 is CADL Flagged and SBR Action 1 is not. Even though SBR Action 2 is CADL Flagged it is the same price as the most expensive unflagged action (SBR Action 1). Therefore SBR Action 2 retains its price.

NIV Tagging and Replacement Pricing – in this example there are no Bids to subtract from the Offer Stack as part of NIV Tagging. Therefore all Offers remain. Furthermore there are no unpriced actions to apply the replacement price to.

PAR Tagging – The Price Average Reference from 5 November will be 50MWh. In this example SBR Actions 1 and 2 are the most expensive actions and are both priced at £3000/MWh. PAR Tagging leaves a proportionate volume from each of SBR Action 1 and 2 to achieve the PAR, and 'tags' out the remainder and all other cheaper actions.

The final Imbalance Price is the volume weighted average of the remaining actions, which in this case is £3000/MWh.

244/09

P323
Assessment Report

3 September 2015

Version 1.0

Page 37 of 37

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