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MODIFICATION REPORT

MODIFICATION PROPOSAL P78 – Revised Definition of System Buy Price and System Sell Price

Prepared by ELEXON on behalf of the Balancing and Settlement Code Panel

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c Related Documents

Reference	Document
Reference 1	Modification Proposal P78 'Revised Definition of System Buy Price and System Sell Price' Assessment Report (P078AR10, 18 July 2002)
Reference 2	'Proposed Revisions to Balancing Services Adjustment Data (BSAD) Methodology Statement – Consultation by National Grid July 2002' (23 July 2002)

d Intellectual Property Rights and Copyright

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1 SUMMARY AND RECOMMENDATIONS

1.1 Recommendation

On the basis of the analysis, consultation and assessment undertaken in respect of this Modification Proposal during the Assessment Procedure, and the resultant findings of this report, the BSC Panel recommends that:

Alternative Modification P78 should be made, with an Implementation Date of 25 February 2003 where an Authority decision is received by 6 September 2002. Where an Authority decision is received after this date, but before 19 February 2003, the Implementation Date should be 24 June 2003.

Proposed Modification P78 should not be made. However, if the Authority determine that the Proposed Modification should be made, the Implementation Date should be 25 February 2003, where an Authority decision is received by 6 September 2002. Where an Authority decision is received after this date, but before 8 January 2003, the Implementation Date should be 24 June 2003.

1.2 Background

The Assessment Report for Modification Proposal P78 (Reference 1) contains the detailed background and history of Modification Proposal P78, and this report can be found on the BSC Website, as follows:

ftp://www.elexon.co.uk/ta/modifications/modsprops/P078/P78_AR.pdf

Modification Proposal P78 'Revised Definition of System Buy Price and System Sell Price' was raised by National Grid (the Transmission Company) on 5 April 2002. The Modification requires that the definition of the Energy Imbalance Prices be revised such that there is a main and reverse price. The Modification Proposal requires that the main price be calculated from those balancing actions (including net BSAD) taken to alleviate the Net Imbalance Volume (NIV) of the overall system (as defined in section 4). Thus, for a Settlement Period:

– Where the larger stack is the Bid stack, then the main price will be the System Sell Price, and the reverse price will be the System Buy Price; and

– Where the larger stack is the Offer stack then the main price will be the System Buy Price and the reverse price will be the System Sell Price.

The reverse price is derived from a market price, based on trading on the forwards and spot markets.

The Initial Written Assessment for Modification P78 was considered by the Panel at its meeting of 18 April 2002. The Panel agreed to submit Modification Proposal P78 to the Assessment Procedure at that meeting, with the Assessment to be undertaken by the Pricing Issues Modification Group (PIMG). The Panel also tasked the PIMG with defining the Terms of Reference for Modification Proposal P78.

The Panel also agreed, at its meeting of 18 April 2002, that Modification Proposal P78 should be considered in parallel with Modification Proposal P74 'Single Cost – reflective Cash-out Price', as they both addressed similar perceived defect(s) in the BSC.

During the Assessment Procedure, the PIMG met ten times (on 25 April 2002, 1, 8, 15, 22 and 29 May 2002, 12 and 19 June 2002, and 3 and 10 July 2002). Two consultations were issued, the first on 27 May 2002 (responses due 11 June 2002) and the second on 4 July 2002 (responses due 11 July 2002).

One detailed level impact assessment was performed by the BSC Central Service Agent, BSC Parties and ELEXON on 21 June 2002 (CPC0196, responses due 8 July 2002).

The PIMG submitted the Terms of Reference for the Assessment Procedure to the Panel, which were endorsed by the Panel on 18 May 2002. The PIMG submitted an interim report for consideration by the Panel at its meeting of 13 June 2002. In this report, the PIMG requested an extension of one month to the Assessment Procedure in recognition of the complex issues raised by this Modification and the requirement for further analysis and assessment. The Panel agreed to an extension to the Assessment Procedure for Modification Proposal P78.

However, the Authority issued a notice pursuant to the BSC Section F 1.4.3, directing that the extension to the Assessment Procedure should not be made. The reasons for such direction were provided in the notice (dated 19 June 2002) as follows:

"*It has been acknowledged by NGC and the industry that the issues that the Modification Proposals* [P74 and P78] *seek to address are of great importance, which is demonstrated by the considerable amount of time the industry has already devoted to assessing the Modification Proposals to date.*

Having had regard to the relevance and importance of the outcome of these Modification Proposals in relation to a number of aspects of the regulatory regime, Ofgem considers that Modification Proposals P74 and P78 should be dealt with within the timeframes as set out within F2.2.9 of the BSC. Therefore Ofgem considers that it is essential for the 3-month Assessment Procedure to be adhered to."

The PIMG, (19 June 2002), in recognition of the time constraints, revised and agreed their work plan for the remainder of the Assessment Procedure, such that an Assessment Report for Modification Proposal P78 could be presented to the Panel meeting of 18 July 2002, thus adhering to the three months Assessment Procedure.

The PIMG noted that, as a consequence of the time constraints, they were unable to fulfil one of the Terms of Reference for the Assessment Procedure, namely a quantitative comparison of Modification Proposal P74 (and any Alternative) with Modification Proposal P78 (and any Alternative). However, the PIMG felt able to provide a qualitative comparison between the Modifications and their Alternatives and this was provided in the relevant Assessment Reports.

The PIMG agreed the provisional recommendations with regards to Modification Proposal P78 (3 July 2002). These were provided, in a draft of the Assessment Report, for industry consultation on 8 July 2002 (responses due 15 July 2002).

With due consideration to the second assessment consultation responses, the PIMG confirmed the provisional recommendations.

The Panel considered the Assessment Report at its meeting of 18 July 2002, and agreed to submit Modification Proposal P78 to the Report Phase. The Panel also unanimously agreed to provisionally endorse the recommendations of the PIMG, namely that:

- The Alternative Modification should be made, with an Implementation Date of 25 February 2003, where an Authority decision is received by 6 September 2002; and
- The Proposed Modification should not be made, but if an Authority decision to the contrary is received, the Implementation Date should be 25 February 2003, where such an Authority decision is received by 6 September 2002.

The draft Modification Report, containing the provisional recommendations of the Panel, was provided to Industry for consultation on 1 August 2002, allowing five (full) working days for consultation (responses due 7 August 2002).

It should be noted that the legal drafting provided in this draft Modification Report for both the Proposed and the Alternative Modification P78 is dependent upon the results of the Transmission Company Balancing Services Adjustment Data (BSAD) consultation (Reference 2), (see section 1.4).

The consultation responses, made in respect of this draft Modification Report, indicate that … pending receipt of such responses.

The Panel considered the consultation responses made in respect of this draft Modification Report at its meeting of 15 August 2002 and …

1.3 Rationale for Recommendations

1.3.1 Proposed and Alternative Modification

The Panel considered the rationale for the recommendations made by the PIMG with regards to the Proposed and the Alternative Modification P78, and the Panel supported the rationale of the PIMG regarding the recommendations made in respect of the Proposed and Alternative Modification P78.

The key difference between the Alternative and the Proposed Modification P78 is the reverse price. Proposed Modification P78 proposes using a market based reverse price, derived from trading on the forwards and spot markets, whereas Alternative Modification P78 proposes using a balancing action taken by the Transmission Company to set the reverse price.

The Assessment Report for Modification Proposal P78 (Reference 1) provides the detailed rationale for the recommendations made by the PIMG with regards to the reverse price utilised by the Proposed and the Alternative Modification (Section 1 and section 4 of the Assessment Report specifically refer to the rationale for the PIMG recommendations regarding the reverse price). The following presents a high level summary of the rationale.

The mechanism for calculating the Net Imbalance Volume and the resultant Energy Imbalance Price necessarily means that there is no reverse price calculated from the balancing actions on the reverse Bid - Offer Acceptance stack, as these are deemed to be attributable to system balancing. Therefore a reverse price is required to retain the dual cash-out regime. The Modification Proposal proposed a market based reverse price, i.e. one derived from the forwards and spot markets, and suggested a straw man of the Settlement Period Net Imbalance Reference Price (SPNIRP), which is a simple average of the APX and UKPX Reference Prices.

The PIMG considered the market based reverse price and agreed that a market based reverse price should, in principle, reflect the costs of short term energy, be representative of a liquid traded market and be available for publication / calculation close to real time. Therefore the PIMG considered the currently available market indices (section 4 of the Assessment Report for Modification Proposal P78 (Reference 1)) to determine if there were any that met this criteria. The PIMG determined that, in their opinion, none of the currently available indices were reflective of short term energy costs (as they are calculated from trades made some time out from the Settlement Period, and the PIMG believe that short term means only 24 to 48 hours out from the relevant Settlement Period), nor were they available for publication until some time after real time.

Therefore the PIMG agreed that it would be appropriate to request a new index from any source that trades within day (i.e. short term trading) and that has sufficient liquidity in the majority of Settlement Periods close to real time.

However, the PIMG, in considering the market based reverse price, determined that a number of issues made the use of a market based reverse price 'unwieldy' (as set out in section 4.4 of the Assessment Report for P78). The PIMG believe the key issue to be liquidity in the forwards and spot markets (index providers), as there are still periods where there is relatively low liquidity in the index providers, and it could be argued that it is inappropriate to use an illiquid index in the calculation of the Energy Imbalance Price, as it then becomes unrepresentative of the costs of short term energy.

The information on traded volumes currently available from the forwards and spot markets is based upon trading for a Settlement Period over long periods prior to the Settlement Period. Therefore it is difficult to determine the level of within day liquidity. It could be considered that if there are five Settlement Periods a day with insufficient liquidity based upon all trading, that this number may increase (perhaps significantly) if the window for trades being eligible to go forward into the Energy Imbalance Price is reduced. However, it is not possible to estimate the number of Settlement Periods for which the liquidity would be insufficient to set the reverse Energy Imbalance Price.

The PIMG also noted that there is the potential for manipulation of the index provided by trading on the index provider in order to influence the resulting index. However, the PIMG believe that there are probably sufficient safeguards are in place, and that there may be insufficient incentives / rewards to make such manipulation worthwhile.

The PIMG also considered the procurement process for obtaining the market index information from the forwards and spot markets. The PIMG noted that no information is available from the potential providers of the data at this time, despite requests for indicative costs and timescales. Therefore the PIMG believe there to be a relatively high risk associated with the procurement of the data, as the costs of such procurement are currently unquantifiable and have the potential to be substantial.

An additional risk resulting from the unquantifiable procurement costs is the requirement to go through Official Journal of the European Community (OJEC) procurement process if the costs of procuring the entire service exceed £100,000. It is expected that this would take in the region of five to six months to procure the service before any development and implementation of the interfaces to the BSC Central Service Agent can be undertaken.

Given that the procurement process has not been undertaken, it is not clear as to whether any Market Index Data Provider will be able to comply with the requirements and obligations placed on them by the proposed amendments to the Balancing and Settlement Code. Therefore there may be a material operational risk that procuring the services, as described in the proposed amendments to the Code, may either not be possible, or may incur significant costs and timescales. This has consequent risks in terms of the ongoing operation of this aspect of the trading arrangements in terms of ELEXON fulfilling its obligations under the proposed amendments to the Code.

As a consequence of the concerns raised by some members of the PIMG regarding liquidity levels close to real time, some members of the PIMG still believe that there would be significant risks associated with the implementation of Proposed Modification P78, even if the procurement risks could be satisfactorily addressed.

The PIMG therefore considered an alternative mechanism for deriving the reverse price.

The PIMG set out a number of criteria which any reverse price would be required to meet, but agreed that the three most important are:

– Ability for prompt price reporting;

– Robust against manipulation; and

– Reflective of the cost of short term energy.

The PIMG also considered the incentive properties of a reverse price, and in particular the Transmission Company's concerns that BSC Parties should not be inappropriately incentivised by any reverse price valuing uninstructed imbalances more highly than Bid – Offer Acceptances.

On this basis, the potential options were reduced to two:

1. Main price with a non arbitrary spread; and

2. First non Arbitrage Bid - Offer Acceptance in the main stack.

The PIMG considered option (1) and agreed that all spreads proposed, that could be applied, could be considered to be arbitrary (given the timescales for deriving the formulation of a non arbitrary spread). Therefore this option was disregarded.

The PIMG considered (2) and agreed that since this formulation of the reverse price will be:

– Robust against gaming / manipulation (although it should be noted that there is a converse (minority) view that this could be gamed by tacit collusion amongst BSC Parties);

– Derived from a balancing action taken to alleviate the energy imbalance for the Settlement Period;

– Derived from an action taken by the system operator in the Balancing Mechanism in the Settlement Period, or from a contract struck in the open market (BSAD); and

– Valuing BSC Party actions by rewarding spill at the smallest, in absolute terms, Bid / BSAD price in the Settlement Period, and charging top-up at the smallest, in absolute terms, Offer / BSAD in the Settlement Period. Thus offering no benefit over that Party having Bid – Offered into the Balancing Mechanism for that Settlement Period.

This formulation could be considered, by some, to be sufficiently cost-reflective of short term energy and to preserve appropriate incentives on BSC Parties.

This formulation of the reverse price also creates a smaller spread between the two Energy Imbalance Prices than the current baseline, which could be considered to be appropriate, as it reduces the risk of imbalance exposure, whilst retaining appropriate incentives. Where the first non Arbitrage Bid – Offer Acceptance (or BSAD) is used, then, given the formulation of the Net Imbalance Volume and resulting main price, the resulting reverse price must always be:

– In the case of a positive Net Imbalance Volume (where the main price is the SBP) less than (or equal to, depending upon the depth of Offers) the SBP; and

– In the case of a negative Net Imbalance Volume (where the main price is the SSP) more than (or equal to, depending upon the depth of Bids) the SSP.

The majority of the PIMG agreed that this is the most appropriate reverse price, and proposed that this option be taken forward in preference to the market based reverse price.

The Proposer of Modification P78 does not support the BOA based reverse price, as the Proposer believes that the Alternative Modification with the BOA based reverse price does not better facilitate the Applicable BSC Objectives than the Proposed Modification, with the market based reverse price, and, by definition, an Alternative Modification has to better facilitate Achievement of the Applicable BSC

Objectives than the Proposed Modification (it should be noted that the Proposer believes that the Alternative Modification better facilitates achievement of the Applicable BSC Objectives than the current baseline).

The rationale for this preference is that the Proposer believes that the price associated with a Balancing Mechanism action / BSAD will unduly over reward imbalances in the opposite direction to the overall system imbalances, i.e. 'helpful' imbalances. However, it should be noted that a number of PIMG members do not support this rationale.

The PIMG compared the cost-reflectivity of the two reverse price formulations, the market based reverse price and the reverse price derived from the first non Arbitrage Bid – Offer Acceptance / BSAD (BOA based reverse price).

The majority of the PIMG believe that defining any reverse price is complex, on the grounds that the costs (to the system) of imbalances in the opposite direction to the system imbalance cannot be accurately assessed / quantified. Therefore this should be taken into consideration when determining the reverse price to be applied, and when considering the cost-reflectivity of such reverse price.

Therefore applying a market based reverse price was considered by some to be appropriate on the grounds that it values 'helpful' imbalances at a 'neutral price', i.e. the 'get out of imbalance' price, offering no benefit over having traded out of imbalance prior to the Settlement Period.

On this basis, some members of the PIMG believe that the market based reverse price could be considered to be a more cost-reflective option than the BOA based reverse price, on the grounds that a BOA based reverse price is reflective only of the cost of one balancing action in the same direction to the overall system imbalance.

This therefore may not be considered to be reflective of the costs of energy balancing the system, nor may it be considered to be targeting the costs of the System Operator energy balancing the system, as it is based on one balancing action in the opposite direction to the imbalances it is being levied on.

The majority of the PIMG do not support this rationale for the market based reverse price, as they believe that the BOA based reverse price is more cost-reflective of the actions taken to energy balance the system, as a consequence of it being derived from a balancing action (BOA or BSAD) taken to alleviate the energy imbalance for the Settlement Period and is also valuing BSC Party actions by rewarding spill at the smallest, in absolute terms, Bid / BSAD price in the Settlement Period, and charging top-up at the smallest, in absolute terms, Offer / BSAD in the Settlement Period. Thus offering no benefit over that Party having Bid – Offered into the Balancing Mechanism for that Settlement Period.

In considering the cost-reflectivity and cost targeting of the BOA based reverse price, the PIMG indicated that they believe that the incentives that such a reverse price would place on BSC Parties (as a number of PIMG members believe that the BOA based reverse price will incentivise participation in the Balancing Mechanism, the balancing of individual positions and bilateral forward contracting, although it should be noted that some PIMG members believe that Proposed Modification P78 incentivises these things as well) are more important than the cost – reflectivity and cost targeting aspects.

Therefore, the majority of the PIMG prefer the use of the first non Arbitrage Bid - Offer Acceptance / BSAD from the main stack over the market based reverse price, for the reasons set out above.

It should be noted that on balance, the PIMG have concerns over the potentially significant procurement risk, robustness and practicality, as some members of the PIMG believe that there is a

significant risk that the market based reverse price is impracticable, or would be based on small, possibly zero, volumes which might not be adequately cost-reflective. The arguments as to why this is considered to be the case are set out in section 4.4 of the Assessment Report for P78. Therefore these aspects of the Proposed Modification have lead to the Alternative being the preferred option of the majority of the PIMG.

The Panel unanimously supported this rationale for recommending that the Proposed Modification should not be made, and that the Alternative Modification should be made.

1.3.2 Proposed and Alternative Modification: Applicable BSC Objectives

The Assessment Report for Modification Proposal P78 (Reference 1) contains the detailed rationale of the PIMG as to the recommendations made by the PIMG to the Panel.

However, with specific regards to the facilitation of the achievement of the Applicable BSC Objectives, the PIMG believe that both the Proposed and the Alternative Modification better facilitate achievement of the Applicable BSC Objectives for the following reasons:

On balance, the majority of the PIMG believe that the Alternative Modification is better than the Proposed in the overall facilitation of the Applicable BSC Objectives. The PIMG believe this to be the consequence of the utilisation of a market based reverse price, as the majority view is that such market based reverse price is not as cost-reflective of the energy balancing actions of the system operator as a Balancing Mechanism based reverse price (i.e. the Alternative Modification).

The majority of the PIMG agreed that in all other respects, the Proposed and the Alternative Modification were equal in better facilitating the Applicable BSC Objectives.

Reasons for better facilitating the Applicable BSC Objectives are:

- A proposed outcome of both the Proposed and the Alternative Modification is that the market will come closer to balance. On this basis, the system operator should be able to balance the market more efficiently and effectively;
- A proposed outcome of both the Proposed and the Alternative Modification is that the buy – sell spread of the Energy Imbalance Prices will be reduced, thus reducing the risks of exposure to imbalance, thus improving competition in the sale and purchase of electricity;
- The increased incentive for parties to balance their individual positions ahead of Gate Closure should result in increased accuracy of information provided to the system operator ahead of Gate Closure, thus enabling it to make informed decisions about balancing the system, improving efficiency and economic operation;
- Improving the cost-reflectivity of the Energy Imbalance Prices (assuming that the main price derived from the Net Imbalance Volume calculation is representative of the costs of energy balancing) should promote the efficient, economic and co-ordinated operation of the Transmission Network by providing more accurate signals to the system operator (and BSC Parties) of the costs of balancing the system;
- The Proposed and the Alternative Modification value ‘uninstructed assistance’ to the system (i.e. imbalances in the opposite direction to the overall system imbalance) at the same (Proposed Modification) or a less good price (Alternative Modification) than the current baseline, to reflect that they may be imposing costs on the system. Both could be considered to be more cost-reflective than the current baseline;

- Improving the cost-reflectivity of the Energy Imbalance Prices (again assuming that the main price derived from the Net Imbalance Volume calculation is representative of the costs of energy balancing) means that the cost of energy balancing is more correctly targeted at those causing the imbalance, and therefore this improves competition by preventing cross-subsidies;
- The implementation of a more cost-reflective dual cash-out price regime incentivises participants to balance their individual positions ahead of Gate Closure, therefore minimising the actions that the system operator has to take to correct the system energy imbalance. Thus, this assists in minimising the role of centrally administered mechanisms and facilitates the bilateral trading of energy; and
- Reduction in the risk of exposure to imbalance, whilst maintaining the incentives to balance, and therefore trade bilaterally, ahead of Gate Closure, may have the effect of encouraging participants to trade closer to real-time, with the associated effect of improving liquidity in the forwards and spot markets, thus increasing competition.

The Panel supported the rationale of the PIMG regarding the recommendations made in respect of the Proposed and Alternative Modification P78.

1.4 Balancing Services Adjustment Data (BSAD) Amendments

The implementation of both the Proposed and the Alternative Modification requires amendment to the Balancing Services Adjustment Data (set out in section 4), as follows.

Currently BSAD is formulated and reported on a gross basis, and includes only energy balancing actions taken ahead of Gate Closure by the Transmission Company. However, the mechanism for calculating the Net Imbalance Volume (as set out in Section 4 of this Modification Report) requires that all balancing actions, system and energy, be utilised in order to derive a true net imbalance (i.e. the energy imbalance of the system). Therefore, the Transmission Company propose to provide a system component for the BSAD, and to report the BSAD on a net basis.

During the Assessment Procedure for Modification Proposal P78, the Transmission Company indicated that they would provide either (as a consequence of the net reporting, explored in section 4 of this Modification Report, and in the Assessment Report for Modification Proposal P78 (Reference 1)):

- The (net) Buy Price Volume Adjustment and a Buy Price Cost Adjustment; or
- The (net) Sell Price Volume Adjustment and a Sell Price Cost Adjustment.

The volume adjustment was proposed to contain a MWh figure derived from both energy and system actions, whereas the cost adjustment would contain only the cost of energy balancing (in £), as it is deemed to be inappropriate to include the cost of the system balancing (as this could then pollute the Energy Imbalance Price). Therefore the net volume adjustment would include both system and energy volumes, whereas the cost adjustment would include only energy.

During the legal drafting to support the Alternative Modification, it was realised that this methodology would not be robust in terms of derivation of a £/MWh price (required for placing BSAD into the Bid – Offer stack for Net Imbalance Volume derivation, and for Net Imbalance Volume Tagging), the following (simple) example indicates why this is the case:

- Energy balancing ahead of Gate Closure was 100 MWh at a total cost of £1000; and
- System balancing ahead of Gate Closure was 150 MWh, no cost notified.

Therefore the price for inclusion in the Bid – Offer stack is price / volume to give a £/MWh price, which results in a price of:

– £1000 / (100 + 150) MWh = £4 / MWh.

However, the actual price should have been:

– £1000 / 100 MWh, i.e. the energy component, = £10 / MWh.

This has a material effect the placing of the BSAD in the Bid – Offer stack, and therefore to the amount to be tagged out, or not. This could lead to system volumes being included in the Energy Imbalance Price.

The Transmission Company provided this approach as an option (Option 1) in their BSAD consultation document, but indicated that they did not believe this option to be robust. However, the Transmission Company indicate that this option had been provided for consultation as a consequence of it being the approach explored in the Assessment Report for Modification Proposal P78.

The Transmission Company therefore defined Option 2 in their BSAD consultation in order to address the above deficiency in the BSAD reporting and usage, and indicated that this would be their preferred option as a consequence of the potential lack of robustness in their Option 1.

Option 2 splits the energy and system portion such that they are reported separately, as follows:

– (Net) Volume Adjustment (Energy) (MWh);

– (Net) Cost Adjustment (Energy) (£); and

– (Net) Volume Adjustment (System) (MWh).

It is believed that this is entirely consistent with the approach documented for Modification Proposal P78, i.e. the formulation and reporting of system BSAD volume with no associated price, and energy volumes with an associated price, but effected differently than originally proposed to ensure a robust and correct solution. Therefore it is believed that Option 2 is different only in effect to Option 1, but is the same in intent.

Therefore it should be noted that the legal drafting provided (for both the Proposed and the Alternative Modification) is based on and therefore consistent with, Option 2 set out in the BSAD consultation (Reference 2).

2 INTRODUCTION

This Report has been prepared by ELEXON Ltd., on behalf of the Balancing and Settlement Code Panel ('the Panel'), in accordance with the terms of the Balancing and Settlement Code ('BSC'). The BSC is the legal document containing the rules of the balancing mechanism and imbalance settlement process and related governance provisions. ELEXON is the company that performs the role and functions of the BSCCo, as defined in the BSC.

This Modification Report is addressed and furnished to the Gas and Electricity Markets Authority ('the Authority') and none of the facts, opinions or statements contained herein may be relied upon by any other person.

An electronic copy of this document can be found on the BSC website, at www.elexon.co.uk

3 HISTORY OF THE MODIFICATION

Modification Proposal P78 has been extensively assessed by the PIMG, and the detail of the assessment is provided in the Assessment Report for Modification Proposal P78 (Reference 1), and is therefore not repeated here.

4 DESCRIPTION OF PROPOSED AND ALTERNATIVE MODIFICATION

4.1 Overview of the Proposed and the Alternative Modification

4.1.1 Proposed Modification Overview

At a high level, Proposed Modification P78 will be effected as follows:

The dual Energy Imbalance Price regime will be maintained, but with the concept of a main price, set from balancing actions taken to alleviate the Net Imbalance Volume, i.e. all of the system and energy balancing actions (including pre-Gate Closure actions reported in BSAD), netted off to give the energy imbalance of the overall system. This main price will be levied on energy imbalance volumes in the same direction as the energy imbalance of the system.

The reverse price, i.e. the Energy Imbalance Price to be levied on energy imbalances in the opposite direction to the energy imbalance of the system, is then derived from trading on the forwards and spot markets, and will be a weighted average of the (short term energy) trades in these markets.

The Panel will be required to determine (with supporting analysis from ELEXON) the Market Data Index Providers to be utilised for the provision of a Traded Price and a Traded Volume. The Panel (again with support from ELEXON) will be required to define and maintain a 'Market Index Data Definition Statement' which will contain the principles behind the market based reverse price, the detailed definition of how it is calculated by each Market Index Data Provider (MIDP) and any liquidity thresholds that the MIDP are required to meet for the provision of data.

The MIDP will then be expected to provide a traded volume and price for each Settlement Period to the BMRA, for publication, no later than the end of the Settlement Period to which the data pertains. On the next Business Day following the Settlement Day, the MIDP is expected to provide a file to the SAA containing all the data for each Settlement Period on the relevant Settlement Day.

The Balancing Mechanism Reporting Agent (BMRA) receives Balancing Services Adjustment Data (BSAD) and Bid – Offer Acceptances for a Settlement Period. These are published on the BMRA (as for now, noting the requirement to report amended BSAD).

The BMRA will also receive the traded volume and traded price from each of the MIDPs. These are published on the BMRA (noting that this is a new requirement).

BMRA, at the end of the relevant Settlement Period, will calculate the (main) Energy Imbalance Price by deriving the Net Imbalance Volume and the associated Energy Imbalance Price. The BMRA will also calculate the (reverse) Energy Imbalance Price by deriving the weighted average price from the traded volume and traded prices provided by the MIDP's. It should be noted that where no data, or zeros (for all MIDPs) are received, the reverse price defaults to the main price.

These will be displayed on the BMRA (to the same service levels as currently), although it should be noted that there will be additional data (derived from the Net Imbalance Volume calculation and the market based reverse price determination) displayed.

The Settlement Administration Agent (SAA) will, when performing a Settlement Run, derive the Net Imbalance Volume and calculate the associated Energy Imbalance Price, and derive the reverse price from the Market Index Data using the same mechanism as the BMRA, but with the latest data. The SAA will report the results of the Settlement Run as currently, via the Settlement Report (SAA – I014, sub flows 1, 2 and 3).

The Settlement Report will contain the (relevant) new variables used for the calculation of the Net Imbalance Price, and a new group to support the reporting of the traded volume and traded price provided by the MIDPs.

The Assessment Report for Modification Proposal P78 (Reference 1) contains a description of the detailed amendments (system functionality and documentation) required to support the Proposed Modification Proposal P78.

The legal drafting to support Alternative Modification P78 is provided in Section 5 of this Modification Report.

4.1.2 Alternative Modification Overview

At a high level, Alternative Modification P78 will be effected as follows:

The Balancing Mechanism Reporting Agent (BMRA) receives Balancing Services Adjustment Data (BSAD) and Bid – Offer Acceptances for a Settlement Period. These are published on the BMRA (as for now, noting the requirement to report amended BSAD). BMRA, at the end of the relevant Settlement Period, will calculate the Energy Imbalance Prices by deriving the Net Imbalance Volume and the associated (main) Energy Imbalance Price. The (reverse) Energy Imbalance Price is then derived from either the BSAD or the first Non-arbitrage Bid – Offer Acceptance on the main stack, dependent upon price.

These will be displayed on the BMRA (to the same service levels as currently), although it should be noted that there will be additional data (derived from the Net Imbalance Volume calculation) displayed.

The Settlement Administration Agent (SAA) will, when performing a Settlement Run, derive the Net Imbalance Volume and calculate the associated Energy Imbalance Prices, using the same mechanism as the BMRA, but with the latest data. The SAA will report the results of the Settlement Run as currently, via the Settlement Report (SAA – I014, sub flows 1, 2 and 3).

The Settlement Report will contain the (relevant) new variables used for the calculation of the Net Imbalance Price.

The Assessment Report for Modification Proposal P78 (Reference 1) contains a description of the detailed amendments (system functionality and documentation) required to support Alternative Modification P78.

The legal drafting to support Alternative Modification P78 is provided in Section 5 of this Modification Report.

4.2 Net Imbalance Volume Derivation and Main Price Calculation: Common to Proposed and Alternative Modification

The following section details the mechanism for deriving the Net Imbalance Volume and calculating the main Energy Imbalance Price. This aspect is common to both the Proposed and the Alternative Modification.

Proposed and Alternative Modification P78 derives a (main) Energy Imbalance Price from balancing actions (including BSAD) taken to alleviate the energy imbalance of the system. The Proposed and the Alternative Modification propose a new mechanism for determining the energy imbalance of the system, by 'stacking' all system and energy balancing actions (BSAD purchases and Offer Acceptances on one stack, and BSAD sales and Bid Acceptances on the other stack), the volumes are then netted to leave the Net Imbalance Volume, which is deemed to be the energy imbalance of the system (with the netted off balancing actions deemed to have been taken for system balancing purposes).

It should be noted that the Proposed and Alternative Modification P78 require amendment to the formulation and utilisation of Balancing Services Adjustment Data (BSAD). The Transmission Company are currently consulting on the proposed amendments, and the following description (and the associated legal drafting) is based upon Option 2 of the Transmission Company's consultation (Reference 2), as this is the preferred option of the Transmission Company, as a consequence of Option 1 (based upon the amendments defined in the P78 Assessment Report, (Reference 1)) being insufficiently robust (section 1.4 of this Modification Report).

Figures 4.1 and 4.2, below, are high level schematics reflecting the stacking of all balancing actions, and the derivation of the Net Imbalance Volume.

System Short:
Note that BSAD (Energy and System) is net, so only appears in one stack.

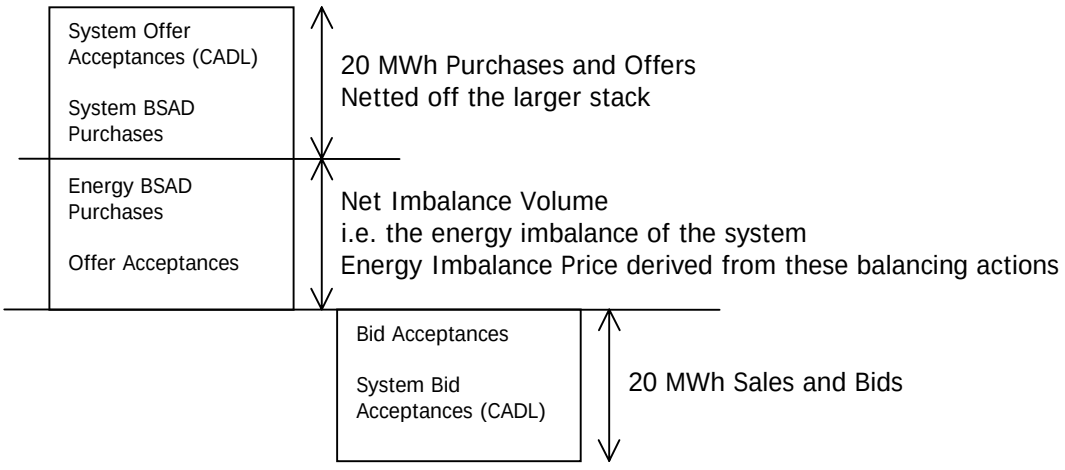

Figure 4.1: Net Imbalance Volume Derivation where the System is Short

System Long:
Note that BSAD (Energy and System) is net, so only appears in one stack.

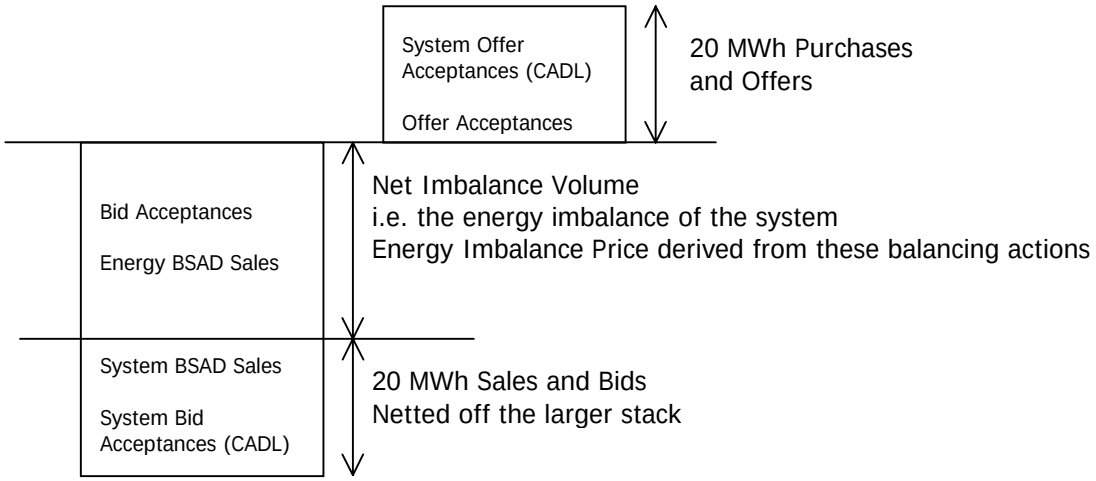

Figure 4.2: Net Imbalance Volume Derivation where the System is Long

Currently, Bid –Offer Acceptances for a Settlement Period have the Continuous Acceptance Duration Limit (CADL) applied to remove Acceptances deemed to have been taken for system balancing purposes. Then De-minimis Acceptances are identified and removed. The remaining Bid – Offer Acceptances are then stacked in price order (as defined in Annex T-1 of the BSC), and subjected to Arbitrage Tagging and Trade Tagging (to the level of the Balancing Reserve Limit). The Acceptances remaining after this tagging is applied, go forward to set the Energy Imbalance Prices. BSAD sales (SCA and SVA), purchases (BCA and BVA) and options fees (BPA and SPA) are also included in the Energy Imbalance Price calculation.

It is generally acknowledged that the current mechanism has the potential to include system balancing actions in the Acceptances going forward to set Energy Imbalance Price, especially on the shorter stack, where they may have an undue influence on the resulting Energy Imbalance Price. However, given the difficulty in distinguishing between a system and an energy balancing action, this could be considered to be inevitable.

Proposed and Alternative Modification P78 create a mechanism for better differentiating between energy and system balancing actions by netting off all system and balancing actions (as reflected in Figures 4.1 and 4.2), to derive the Net Imbalance Volume, i.e. the energy imbalance of the system, and deeming all balancing actions 'outside' of the Net Imbalance Volume to have been taken for system purposes (and therefore disregarded for the purposes of setting the Energy Imbalance Price). Those balancing actions taken to alleviate the energy imbalance of the system (the Net Imbalance Volume) are therefore deemed to be attributable to energy balancing only.

The resulting Energy Imbalance Price is then derived from the (energy) balancing actions taken to alleviate the Net Imbalance Volume (Figures 4.1 and 4.2).

This requires amendment to the way in which Bid – Offer Acceptances and BSAD are treated when deriving the Energy Imbalance Price, as follows:

The Bid – Offer Acceptances have the Continuous Acceptance Duration Limit (CADL) applied to determine those Acceptances deemed to have been taken for system balancing purposes.

The De-minimis Acceptances are removed, and Arbitrage Tagging is undertaken.

Then the Bid – Offer Acceptances and BSAD are stacked as follows, in order to derive the Net Imbalance Volume:

The Offer (and purchase) stack is 'built' by:

– The Total System Un-priced Accepted Offer Volume (i.e. CADL'ed Offers) is placed in the Offer stack as if it were the most expensive Offer (i.e. at the top);

– The (net) Buy Price Volume Adjustment (System) (SBVA) is placed in the Offer stack as if it were the second most expensive Offer (i.e. below the CADL'ed Acceptances, but above the Priced Accepted Offers);

– The Priced Offer Acceptances are stacked in price order (below the CADL'ed Offers and the SBVA), placing the most expensive Offers first; and

– The (net) Buy Price Volume Adjustment (Energy) (EBVA) is placed into the Offer stack in order of price (derived from EBCA / EBVA, i.e. a £/MWh price).

This is represented schematically in Figure 4.3 below.

The Bid (and sale) stack is 'built' by:

– The Total System Un-priced Accepted Bid Volume (i.e. CADL'ed Bids) is placed in the Bid stack as if it were the cheapest Bid (i.e. at the bottom);

– The (net) Sell Price Volume Adjustment (System) (SSVA) is placed in the Bid stack as if it were the second cheapest Bid (i.e. above the CADL'ed Acceptances, but below the Priced Accepted Bids);

– The Priced Bid Acceptances are stacked in price order (above the CADL'ed Offers and the SBVA), placing the most expensive Bids first; and

– The (net) Sell Price Volume Adjustment (Energy) (ESVA) is placed into the Bid stack in order of price (derived from ESCA / ESVA, i.e. a £/MWh price).

This is represented schematically in Figure 4.4 below.

Offer (Purchase) Stack

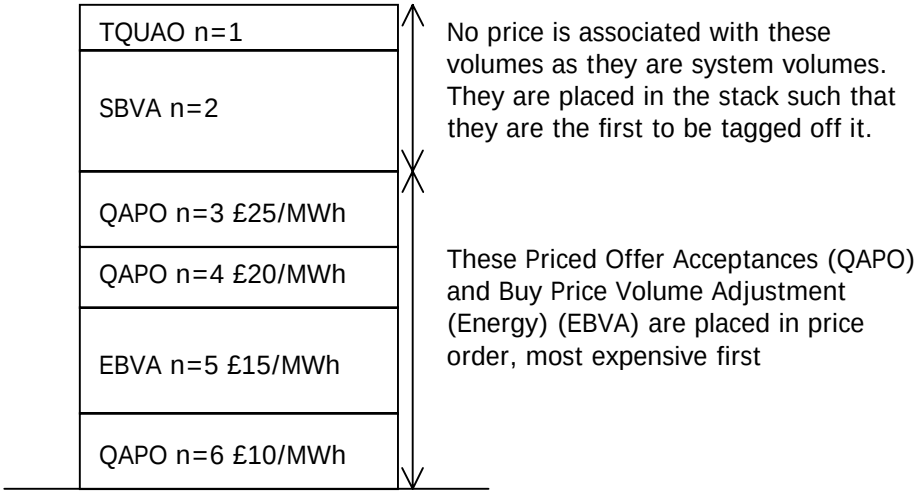

Figure 4.3: Composition of the Offer (Purchase) Stack

Bid (Sale) Stack

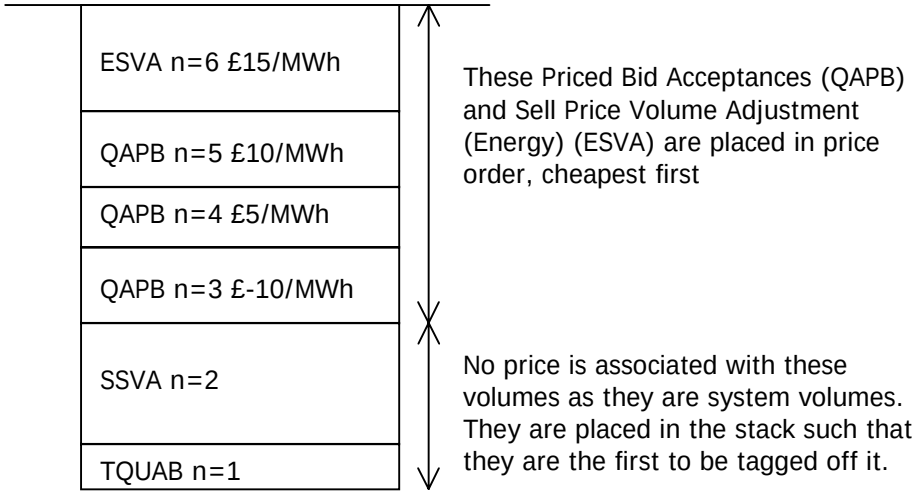

Figure 4.4: Composition of the Bid (Sale) Stack

Once the stacks have been built, the Net Imbalance Volume can be derived by netting, via tagging, the volume of the smaller stack (Offer stack where the system is long, and Bid stack where the system is short) off the larger stack. This is represented schematically in Figure 4.5, where a long system (i.e. more Bid Acceptances (and BSAD sales) than Offer Acceptances (and BSAD purchases)) is used as an example. It should be noted that this schematic assumes net BSAD energy and system volumes in the same direction as the system (i.e. net sales).

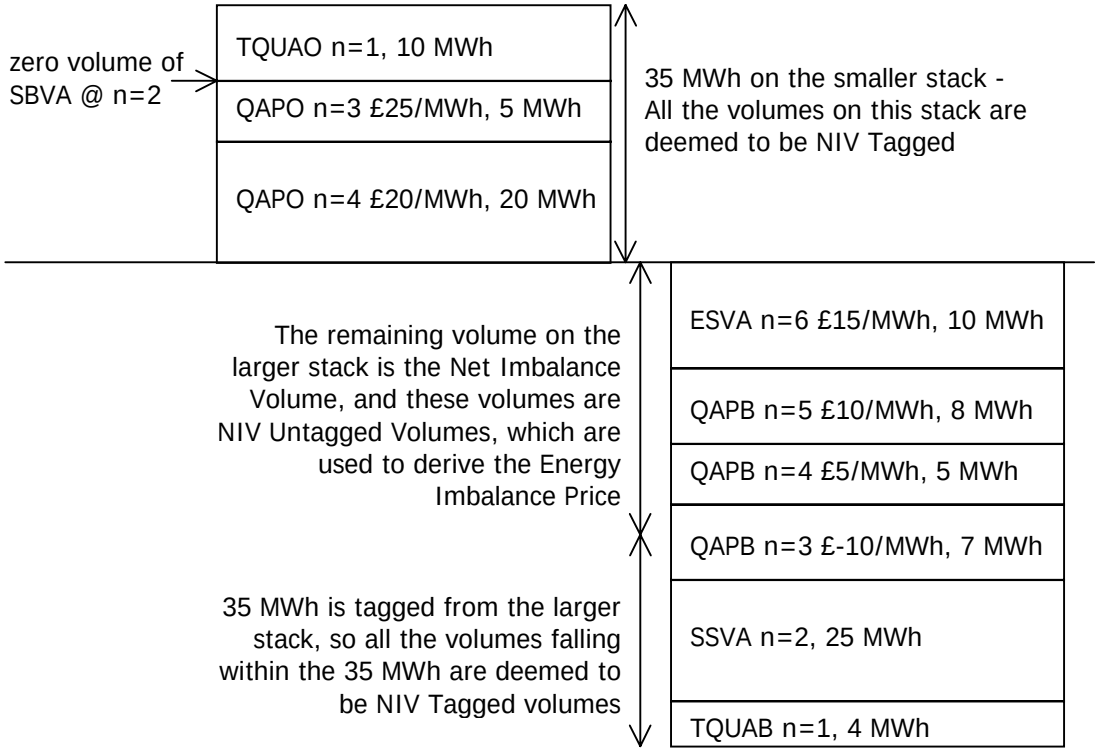

Figure 4.5: Net Imbalance Volume Tagging Example

Once the Net Imbalance Volume has been derived, the balancing actions that comprise it go forward to the Energy Imbalance Price calculation. A weighted average (main) Energy Imbalance Price is derived from the balancing actions taken to alleviate the Net Imbalance Volume.

If the Net Imbalance Volume is zero, then the default Energy Imbalance Price rules are invoked, as described in the subsequent sections (as the default rules for a NIV of zero differ between the Proposed and the Alternative Modification).

4.2.1 Balancing Services Adjustment Data Amendments

The Proposed and Alternative Modification P78 require amendment to the formulation and reporting of Balancing Services Adjustment Data (BSAD), as described in sections 1.4 and 4.1 of this Modification Report.

Currently BSAD reflects energy balancing only, and is reported as follows:

- Buy Price Cost Adjustment, BCA (£);
- Buy Price Volume Adjustment, BVA (MWh);
- Buy Price Price Adjustment, BPA (£);
- Sell Price Cost Adjustment, SCA (£);
- Sell Price Volume Adjustment, SVA (MWh); and
- Sell Price Price Adjustment, SPA (£).

However, for the derivation of a 'true' Net Imbalance Volume under the mechanism proposed by Proposed and Alternative Modification P78, the volumes attributable to system balancing should also be formulated and reported by the Transmission Company for use in the Settlement calculations.

However, it should be noted that only a volume attributable to system balancing will be provided, as it is not considered to be appropriate to 'pollute' the Energy Imbalance Price with 'known' system balancing actions. Therefore the system volumes are (only) used to derive the Net Imbalance Volume.

The following figure, (figure 4.6) taken from the Transmission Company document 'Modification Proposal P78: Revised SBP & SSP' (an expanded annex to Modification Proposal P78, provided in Annex 6 of the P78 Assessment Report (Reference 1)), reflects how the Transmission Company perceive any effect from gross reporting to be ameliorated by the incorporation of net BSAD.

In support of Figure 4.6 the Transmission Company asserts that in the gross reporting of BSAD the Energy Imbalance Price would reflect only BSAD trades, despite them resolving only a proportion of the Net Imbalance Volume, therefore this would not be robust against the Transmission Company (System Operator) having to unwind its pre-Gate Closure trades in the Balancing Mechanism.

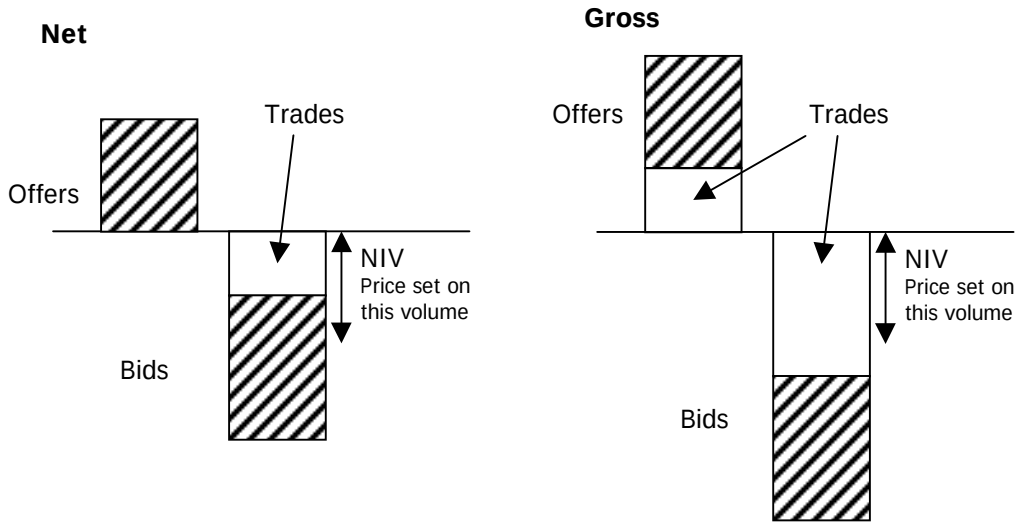

Figure 4.6: Net vs Gross Reporting / Usage of BSAD in the Energy Imbalance Price calculation.

Therefore the Transmission Company is proposing to report only net BSAD, as follows:

- (net) Buy Price Cost Adjustment (Energy) (EBCA) (£);
- (net) Buy Price Volume Adjustment (Energy) (EBVA) (MWh);
- (net) Buy Price Volume Adjustment (System) (SBVA) (MWh);
- Buy Price Price Adjustment (BPA) (£);
- (net) Sell Price Cost Adjustment (Energy) (ESCA) (£);
- (net) Sell Price Volume Adjustment (Energy) (ESVA) (MWh);
- (net) Sell Price Volume Adjustment (System) (SSVA) (MWh);
- Sell Price Price Adjustment (SPA) (£).

This will be validated on receipt to ensure, for the net reported variables, that where a net buy is reported (i.e. values for either or both EBVA and SBVA), that the net sell variables, i.e. ESVA and SSVA, are zero, and vice versa.

4.3 Proposed Modification: Market Based Reverse Price

For the Proposed Modification, the main price is derived as described in section 4.2, and the reverse price is derived as follows:

Each Market Index Data Provider (MIDP) (i.e. any 'body', designated by the Panel, that trades ahead of Gate Closure, where such trades are notified to the Energy Contract Volume Aggregation Agent (ECVAA) and taken into consideration in Settlement) will calculate a traded volume and traded price, in accordance with the Market Index Data Definition Statement (as agreed by the Panel) for each Settlement Period.

Such traded volume and traded price will be representative of the short-term trading for that Settlement Period (with the exact time constraints set out in the Definition Statement, noting that they may be different for each MIDP, as they may be dependent upon products traded, or the mechanism by which the MIDP trades).

Each MIDP will have a (Panel defined) Individual Liquidity Threshold, which is a minimum volume (in MWh) below which it is deemed that there has been insufficient liquidity for that MIDP, such that the traded volume and traded price can be considered to be unrepresentative of trading, and therefore unsuitable to set the (reverse) Energy Imbalance Price. Therefore where the MIDP has a traded volume below its Liquidity Threshold, then it should default to a traded volume and price of zero.

Each MIDP is required to provide the traded volume and traded price (Market Index Data) to the BMRA no later than the end of the Settlement Period to which the data pertains. The BMRA will use the information provided by each MIDP to calculate the reverse price, as a weighted average of the Market Index Data provided by the MIDPs.

The BMRA will validate the Market Index Data to ensure that the traded volume exceeds the Liquidity Threshold for the relevant MIDP, if the traded volume is below the Liquidity Threshold, then BMRA will default the traded volume and price to zero for that MIDP and Settlement Period (and note the occurrence for the purposes of performance reporting).

If the BMRA does not receive the Market Index Data from an MIDP, then BMRA will default the traded volume and price to zero for that MIDP and publish a warning to that effect (and note the occurrence for the purposes of performance reporting).

Each MIDP is required to provide the traded volume and traded price (Market Index Data) for all Settlement Periods on a Settlement Day to the SAA and BSCCo no later than the end of the next Business Day to which the data pertains. The SAA will use the information provided by each MIDP to calculate the reverse price, as a weighted average of the Market Index Data provided by the MIDPs. BSCCo will publish the latest Market Index Data on the BSC Website.

Each MIDP should resubmit amended Market Index Data to the BMRA, SAA and BSCCo, as soon as the MIDP is aware of any amendments to such Market Index Data. BMRA will publish the amendments on the BMRA, SAA will use the latest data in the next Settlement Run, and BSCCo will publish the amended data on the BSC Website.

The SAA will validate the (latest) Market Index Data to ensure that the traded volume exceeds the Liquidity Threshold for the relevant MIDP, if the traded volume is below the Liquidity Threshold, then

SAA will default the traded volume and price to zero for that MIDP and Settlement Period (and note the occurrence for the purposes of performance reporting).

If the SAA does not receive the Market Index Data from an MIDP, then the SAA will default the traded volume and price to zero for that MIDP, and the Settlement Report will indicate that this is the case by reporting null (or zero) values for Market Index Data for that MIDP.

For the avoidance of doubt, if one of more of the MIDPs provide traded volumes in excess of their Liquidity Threshold, then the reverse Energy Imbalance Price will be derived from the Market Index Data provided by the(se) MIDP(s), i.e. (valid) data from one MIDP is sufficient to set the reverse Energy Imbalance Price.

Default Rules:

If the sum of all the traded volumes is equal to zero for a Settlement Period (i.e. either the MIDPs were below their Liquidity Thresholds, or no Market Index Data has been received), then the SAA / BMRA will default the reverse price to the main Energy Imbalance Price (calculated from the Net Imbalance Volume).

Where there is a negative spread between the main and the reverse Energy Imbalance Prices, i.e. the System Sell Price is greater than the System Buy Price, then both the System Sell Price and the System Buy Price default to the main Energy Imbalance Price derived from the Net Imbalance Volume.

Where the Net Imbalance Volume is zero, then both the System Buy Price and the System Sell Price default to the market based reverse Energy Imbalance Price, i.e. calculated from Market Index Data. For the avoidance of doubt, where the Net Imbalance Volume is zero AND the sum of all traded volumes provided by the MIDPs is zero, then both the System Buy Price and the System Sell Price will be zero.

4.3.1 Supporting Arrangements for the Market Based Reverse Price

Obtaining a market based reverse price (i.e. the Market Index Data) requires management and administration from ELEXON in order to secure provision of the data required to set the reverse Energy Imbalance Price. The following describes the supporting arrangements. The proposed amendment to Sections T1.5 and T1.5A, as described in the legal drafting for the Proposed Modification, provides a detailed description of the obligations and responsibilities regarding procurement and provision of Market Index Data.

The Panel is required to agree, with supporting analysis from ELEXON, the 'bodies' to become the Market Index Data Providers (MIDPs), and to derive the content of the supporting Market Index Data Definition Statement, i.e. the calculation undertaken by the MIDP to derive the Market Index Data, and the relevant Individual Liquidity Threshold for each MIDP.

It should be noted that it is intended that the designation of any MIDP be relatively dynamic, to ensure use of the most appropriate Market Index Data for setting the reverse Energy Imbalance Price, at all times. Therefore it is expected that liquidity (and performance) within existing MIDPs would be monitored (a Panel responsibility, with support from ELEXON) to ensure sufficient levels, and therefore the appropriateness of the resulting Market Index Data (noting that the MIDP can be 'removed' from the designated list at any time, by agreement of the Panel). It should also be noted that this monitoring would be extended to include monitoring of the appearance of any new potential providers, with designation of any such body as an MIDP, as and when their liquidity is sufficient.

ELEXON is required to procure the provision of the Market Index Data from the MIDP, via a commercial contract, with sufficient safeguards to ensure / secure the provision of Market Index Data to the requisite service levels, in the requisite format, and in accordance with the calculation / derivation set out in the Definition Statement.

Once the service has been procured from the MIDP, then ELEXON will be required, with assistance from the BMRA and SAA (in providing the relevant performance reports), to ensure that the MIDP performs to the service levels agreed, i.e. provision of Market Index Data to the BMRA by the end of the relevant Settlement Period, and to SAA and BSCCo by the Settlement Day plus one Business Day, adherence to the default rules for the Liquidity Threshold, and to levy any relevant penalties where service levels are not complied with.

Given that the Market Index Data is utilised for Settlement purposes, it is expected that the BSC Auditor would be required to audit each MIDP to ensure adherence to the Definition Statement in the provision of the information. However, it should be noted that, as a consequence of the commercial nature of the 'bodies' who are likely to be MIDP's, the scope of the BSC Auditor will be limited to the matters in any contract for provision of the Market Index Data, and / or compliance with the Definition Statement.

Again, as Market Index Data is utilised for Settlement purposes, it is expected that the scope of Trading Disputes would be extended to cover adherence to the Definition Statement in the provision of the information. However, it should be noted that, as a consequence of the commercial nature of the 'bodies' who are likely to be MIDP's, the scope of Trading Disputes will be limited to issues of compliance with the Definition Statement.

The scope of ELEXON 'control' is indicated in Figure 4.7 below.

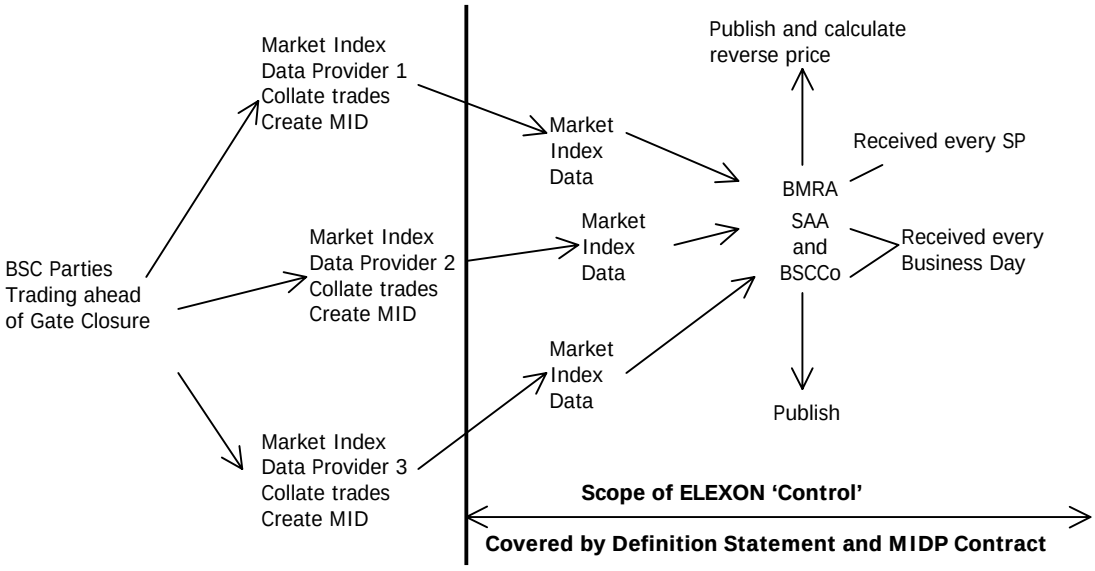

Figure 4.7: Scope of ELEXON 'Control' with Regards to the Provision of Market Index Data.

4.4 Alternative Modification: Balancing Action Based Reverse Price

For the Alternative Modification, the main price is derived as described in section 4.2, and the reverse price is derived as follows:

Where the Net Imbalance Volume is positive, i.e. the system is short, the main Energy Imbalance Price is derived from a weighted average of the NIV Untagged balancing actions (Priced Offers and Energy BSAD purchases) taken to alleviate the Net Imbalance Volume (see Figure 4.5 for an example).

The reverse Energy Imbalance Price is then the cheapest (minimum) of the:

- First Non-arbitrage Offer Acceptance; or
- the Buy Price Cost Adjustment Price (BCAP, i.e. a £/MWh price derived from EBCA / EBVA) (where the EBVA was a value other than zero); or
- Where there is no such Offer or BSAD, zero.

This is shown schematically in Figure 4.8 below.

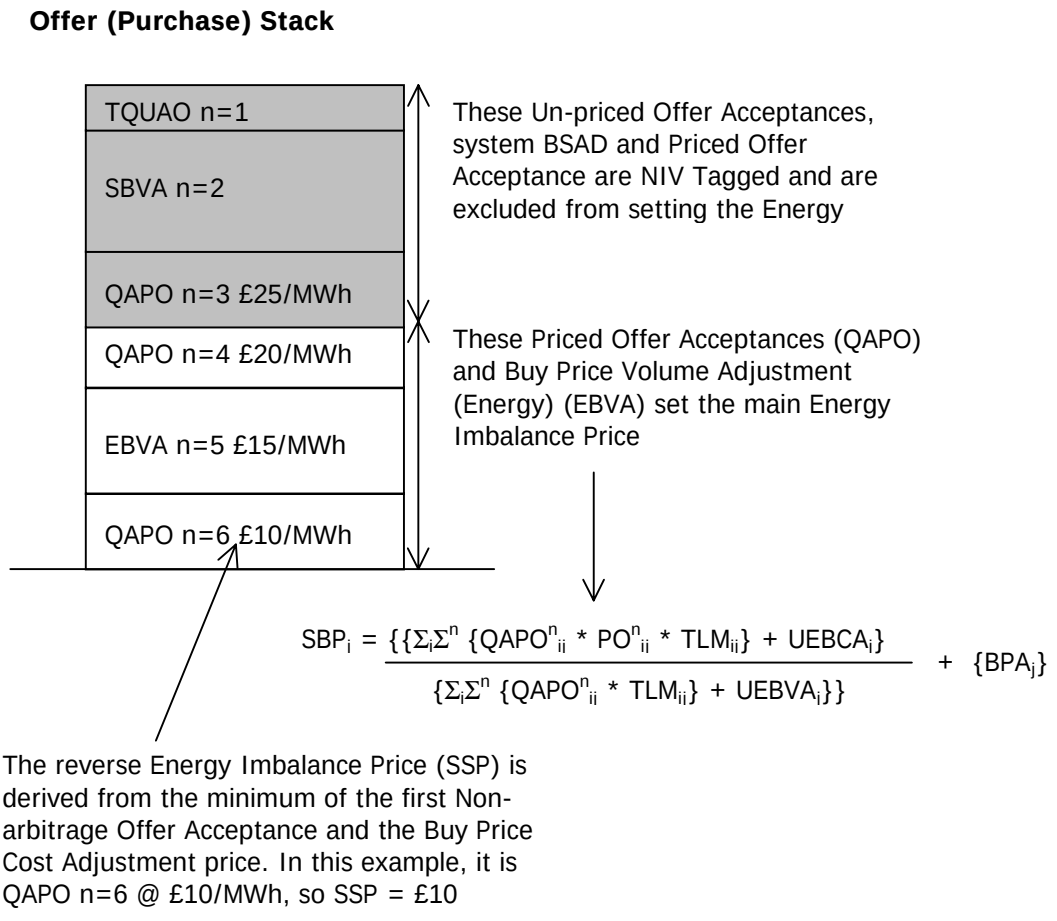

Figure 4.8: Reverse Energy Imbalance Price Example, where Net Imbalance Volume is Positive

Where the Net Imbalance Volume is negative, i.e. the system is long, the main Energy Imbalance Price is derived from a weighted average of the NIV Untagged balancing actions (Priced Bids and Energy BSAD sales) taken to alleviate the Net Imbalance Volume (see Figure 4.5 for an example).

The reverse Energy Imbalance Price is then the most expensive (maximum) of the:

- First Non-arbitrage Bid Acceptance; or
- the Sell Price Cost Adjustment Price (SCAP, i.e. a £/MWh price derived from ESCA / ESVA) (where the ESVA was a value other than zero); or
- Where there is no such Offer or BSAD, zero.

This is shown schematically in Figure 4.9 below.

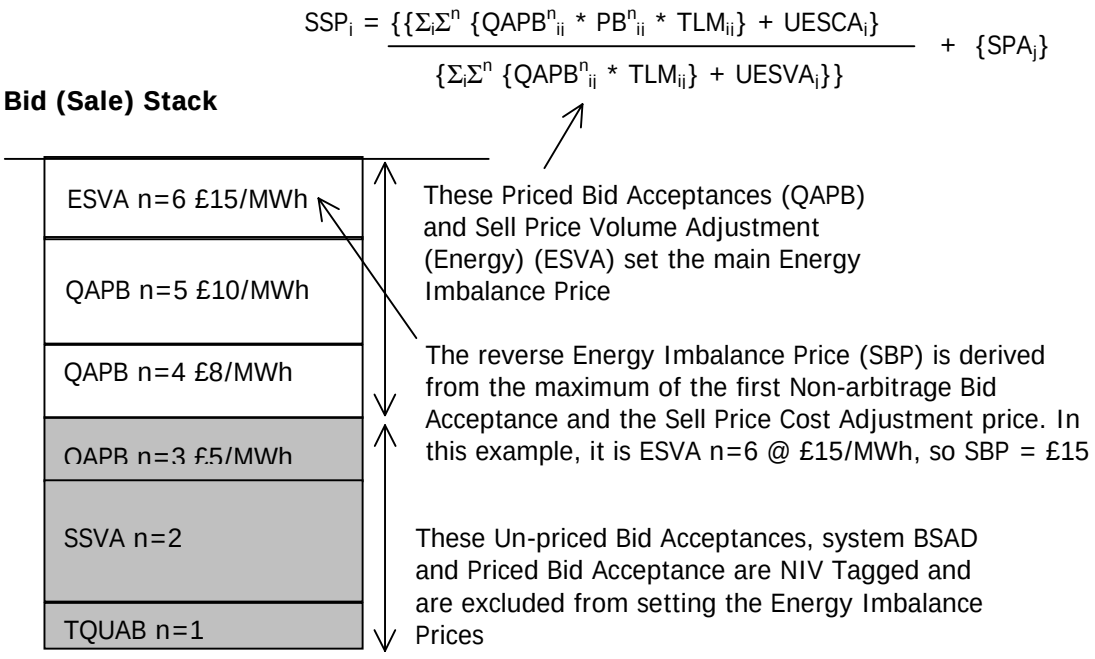

Figure 4.9: Reverse Energy Imbalance Price Example, where Net Imbalance Volume is Negative

The reverse Energy Imbalance Price will be calculated and reported to the same timetable as currently and no further amendments to functionality / reporting are required to give effect to the Alternative Modification.

Default Rules:

Where the Net Imbalance Volume is zero, then:

- The System Buy Price is derived from the cheapest Non-arbitrage Accepted Offer (with a positive pair number), or where there is no such Offer, then the Buy Price Cost Adjustment Price (BCAP), where there is no Offer, and no BCAP, then zero; and
- The System Sell Price is derived from the most expensive Non-arbitrage Accepted Bid (with a negative pair number), or where there is no such Bid, then the Sell Price Cost Adjustment Price (SCAP), where there is no Bid, and no SCAP, then zero.

Where there is a negative spread between the System Sell Price and the System Buy Price, i.e. the System Sell Price is greater than the System Buy Price, then both the System Buy Price and the System Sell Price default to the main Energy Imbalance Price (derived from the Net Imbalance Volume).

5 LEGAL TEXT TO GIVE EFFECT TO THE PROPOSED AND THE ALTERNATIVE MODIFICATION

5.1 Proposed Modification

5.1.1 Conformed Version

See attached document 'P078RR_Proposed Conformed text.doc'.

5.1.2 Clean Version

See attached document 'P078RR_Proposed Clean text.doc'.

5.2 Alternative Modification

5.2.1 Conformed Version

See attached document 'P078RR_Alternative Conformed Text.doc'.

5.2.2 Clean Version

See attached document 'P078RR_Alternative Clean Text.doc'.

6 SUMMARY OF REPRESENTATIONS

[Pending receipt]…

ANNEX 1 – REPRESENTATIONS

Pending receipt…