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**INITIAL ASSESSMENT OF
MODIFICATION PROPOSAL P78 -
Revised Definitions of System Buy
Price and System Sell Price**

Prepared by ELEXON Limited

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I DOCUMENT CONTROL

a Authorities

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0.2	11/04/02	Mandi Francis		

Version	Date	Reviewer	Signature	Responsibility
0.1	11/04/02	Justin Andrews		Trading Strategy
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0.1	11/04/02	Mike Downing		Trading Development
0.1	11/04/02	Gwilym Rowlands		Trading Development
0.1	11/04/02	Peter Wibberley		Trading Operations
0.1	11/04/02	Neil Cohen		Trading Strategy
0.1	11/04/02	Dorcas Batstone		Modifications
0.2	11/04/02	As for 0.1		
1.0	12/04/02	Trading Strategy		

b Distribution

Name	Organisation
Each BSC Party	Various
Each BSC Agent	Various
The Gas and Electricity Markets Authority	Ofgem
Each BSC Panel Member	Various
Energywatch	Energywatch
Core Industry Document Owners	Various

c Intellectual Property Rights and Copyright

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1 SUMMARY

Modification Proposal P78 'Revised Definitions of System Buy Price and System Sell Price' was submitted on 5 April 2002 by National Grid. The Modification Proposal seeks to amend the calculation of Energy Imbalance Prices such that the Energy Imbalance Prices are reflective of the overall system imbalance.

The Modification proposes that the Energy Imbalance Prices be comprised of a main and reverse price, dependent upon the overall system imbalance, i.e. the Net Imbalance Volume. The main price will be calculated by reference to the Transmission Company (System Operator) balancing actions, and the reverse price will be a market price (potentially a composite price reflecting the exchange prices for the relevant Settlement Period).

An initial assessment of Modification Proposal P78 has identified the following potential areas of impact and issues to be considered. These are expanded further in section 10:

- The impact of Modification Proposal P78 on the BSC Agent Systems, specifically the Balancing Mechanism Reporting Agent (BMRA) and the Settlement Administration Agent (SAA);
- Impact on the Transmission Company systems, processes and documentation, including the Balancing Services Adjustment Data Methodology Statement;
- Definition of an appropriate market price and mechanism of publication;
- The interaction of this Modification Proposal with other Modification Proposals, such as Modification Proposals P12 (one hour Gate Closure), P74 (Single Cost-reflective Cash-out Price) and P27 (Amendment to the Derivation of Imbalance Prices). The interaction of these Modifications with Modification Proposal P78 is explored in more detail in section 10;
- Assessment of whether the Modification Proposal addresses the issues detailed without being outweighed by detrimental impacts elsewhere; and
- The impact of Modification Proposal P78 on the Settlement calculations and cashflows.

It is recommended that the Modification Proposal is progressed as follows:

- Modification Proposal P78 should be submitted to the Assessment Procedure, in accordance with Section F 2.6 of the BSC, in order to enable the Modification Group to assess the Modification;
- Modification Proposal P78 should be assessed in conjunction with Modification Proposal P74, as Modification Proposal P74 seeks to address similar issues to those identified by Modification Proposal P78. However, it should be noted that Modification Proposal P78 is sufficiently different from Modification Proposal P74 to warrant a separate assessment of each Modification Proposal, rather than amalgamating them;
- The Assessment Procedure should be undertaken by the Pricing Issues Modification Group (PIMG); and
- The Assessment Report should be submitted to the Panel for consideration at their meeting of 18 July 2002 (with an interim report to Panel meeting 13 June 2002).

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.

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

3 DESCRIPTION OF THE MODIFICATION PROPOSAL

A copy of the Modification Proposal and the associated Annex, as submitted by its proposer, can be found at Annex 1 to this report. It should be noted that the description of the Modification Proposal provided here is only a high level summary and description. The Modification Proposal itself, and associated Annex, provide more detail.

Description of the Proposed Modification

Modification Proposal P78 seeks to amend the calculation of Energy Imbalance Prices. The Modification proposes that the Energy Imbalance Prices be comprised of a main and reverse price, dependent upon the overall system imbalance, i.e. the Net Imbalance Volume. The main price will be calculated by reference to the Transmission Company (System Operator) balancing actions, and the reverse price will be a market price (potentially a composite price reflecting the exchange prices for the relevant Settlement Period).

The Net Imbalance Volume is determined by summing the Pre-Gate Closure trades (reflected in the Balancing Services Adjustment Data (BSAD)) and Bid – Offer Acceptances, i.e. the system is either 'long' (Bids and / or energy sales predominate) or 'short' (Offers and / or energy purchases predominate).

The Modification Proposal states that an associated change to BSAD will be required, to calculate and report only the net cost adjuster for a Settlement Period (i.e. one cost adjuster will always be zero).

Where the system is long then:

- The main price will be System Sell Price and this will be calculated by taking the weighted average of Bids and forwards trades (determined by the BSAD Sell Cost and Volume Adjuster (SCA and SVA)) required to meet the Net Imbalance Volume (NIV);
- The reverse price will be System Buy Price and this will be the market price.

Where the system is short then:

- The main price will be System Buy Price and this will be calculated by taking the weighted average of Offers and forwards trades (determined by the BSAD Buy Cost and Volume Adjuster (BCA and BVA)) required to meet the Net Imbalance Volume (NIV);
- The reverse price will be System Sell Price and this will be the market price.

In either case, where the BSAD is in the opposite direction to the Net Imbalance Volume, then the relevant cost adjuster will be zero and the main price will be calculated by reference to the Bid – Offer Acceptances (as appropriate) required to meet the Net Imbalance Volume.

The defaulting rule, i.e. where the Net Imbalance Volume is zero then:

- Both the main and the reverse price will be set to the market price.

The Modification Proposal has not defined the composition of / mechanism for determining the market price, as it states that it should be the responsibility of the Modification Group to develop an appropriate definition. However, the Modification Proposal provides an example / model of a type of market price used by the Transmission Company – the Single Price Net Imbalance Reference Price (SPNIRP), which is a composite of the UKPX and APX Exchange prices for a Settlement Period.

It should be noted that this Modification removes the requirement to set the Balancing Reserve Level (BRL), as the effect of the Modification is that of a BRL equivalent to zero.

Justification for the Proposed Modification

Modification Proposal P78 states that since Go-Live, Parties have been incentivised to 'go long' as a consequence of high System Buy Prices (i.e. very short Offer stack, such that any high priced offers drive the SBP up). This has increased the incentive on parties to go long, thus perpetuating the effect.

There have been other Modification Proposals, namely Modification Proposals P8¹, P10² and P18A³, aimed at reducing the volatility, however, some volatility still remains and Modification Proposal P78 asserts that such volatility is a consequence of system balancing actions.

The Modification Proposal states that the intent of the Modification is to remove the effects of system balancing from the reverse price (by applying a market price), whilst still incentivising forward contracting.

The Modification Proposal states that the current definitions of the System Buy Price and System Sell Price give rise to a number of issues, and it is these issues that Modification Proposal P78 is attempting to address:

- System Buy Price is unpredictable and is consequently driving the market long;
- System balancing actions can still materially affect the price of the 'short stack' (i.e. opposite direction to the Net Imbalance Volume); and
- The existing defaulting rules were expected to be used only rarely, however they are currently being used regularly and the resultant prices are materially different from those that would be produced by the standard rules.

¹ Modification Proposal P8 'Introduction of a Price Adjuster to Reflect Option Fees for Balancing Services Contracts in Setting System Buy Price and System Sell Price'.

² Modification Proposal P10 'Eliminating Imbalance Price Spikes Caused by Truncating Effects'.

³ Modification Proposal P18A 'Removing / Mitigating the Effect of System balancing Actions in the Imbalance Price Calculations'.

4 IMPACT ON BSC SYSTEMS AND PROCESSES

BSC System / Process	Potential Impact of Proposed Modification
<p>Balancing Mechanism Activities</p>	<p>Modification Proposal P78 requires an amendment to the definition of the volume and cost adjusters for the Balancing Services Adjustment Data (BSAD), such that a net position is reported. Whilst this does not affect the receipt of the BSAD by the Balancing Mechanism Reporting Agent (BMRA) or the Settlement Administration Agent (SAA), there may be a requirement to amend the receipt of BSAD such that the net position is additional to the current reporting (such that Parties can 'see' the pre-net position).</p> <p>BMRA may require amendment to the reporting of the BSAD if additional data items are reported by the Transmission Company.</p> <p>Modification Proposal P78 affects the calculation of the Indicative System Buy Price and Indicative System Sell Price, as it amends the way in which the prices are calculated. Therefore BMRA is materially affected by the changes being proposed by this Modification. BMRA should be able to determine an indicative Net Imbalance Volume from the BSAD and Bid – Offer Acceptances received, and should therefore be able to calculate and publish the indicative main price.</p> <p>However, an additional issue is introduced as to whether the market price developed will be available close enough to real time for it to be published on the BMRA, in a timescale that will be useful to parties.</p>
<p>Settlement</p>	<p>The SAA will be materially impacted by the requirement to amend the calculation of Energy Imbalance Prices, to determine the Net Imbalance Volume and then calculate and apply the main price. The SAA will be also impacted by the requirement to either calculate, or receive, the 'reverse' market price for application.</p> <p>Under Modification Proposal P78 there is no requirement for the Balancing Reserve level, therefore it may be appropriate for BRL to be removed from the system. However, one solution could be to retain BRL in the system(s) but set to zero, thus minimising costs and impacts.</p> <p>The SAA will also be impacted by the implementation of this Modification Proposal. It is expected that any Modification will be implemented on a Settlement Day basis and this will mean that Settlement Runs</p>

BSC System / Process	Potential Impact of Proposed Modification
	for days prior to the implementation date will utilise the existing calculations, and Settlement Runs for Settlement Days post implementation will use the Settlement calculations implemented under the Modification. This leads to a period of overlap in usage of two differing Settlement calculations which will have to be carefully managed.
Reporting	<p>The BMRA may require amendment to the reporting of the BSAD if additional data items are reported by the Transmission Company.</p> <p>The amendment to the indicative Energy Imbalance Price calculation will require an associated amendment to the reporting of the Indicative Energy Imbalance Prices on the BMRA.</p> <p>The Settlement Report (SAA-I014) may be affected by a requirement to report the Net Imbalance Volume, and additional BSAD data items (if appropriate). The reporting of System Buy Price and System Sell Price can be retained unchanged, however, it is possible that parties would prefer to see the main and the reverse price flagged explicitly, therefore an amendment to this effect may be required.</p>

5 IMPACT ON OTHER SYSTEMS AND PROCESSES USED BY PARTIES

System / Process	Potential Impact of Proposed Modification
BSC Parties	<p>BSC Parties will be impacted by the amendment to the manner in which Energy Imbalance Prices, and therefore Energy Imbalance Cashflows are calculated, and therefore their systems and processes may require amendment to reflect this change, thus enabling the calculation and verification of their Settlement liabilities correctly.</p> <p>Any amendments to the Settlement Report (SAA-I014) will impact Parties, as Party Systems and processes will require amendment to support changes to the report. However, it should be noted that flow version numbering has been introduced on the Settlement Report and therefore parties can choose to retain the 'old' version until they are ready for the new, thus delaying the impact of changes.</p>
Transmission Company	The Transmission Company will be impacted by the amendment to the manner in which Energy Imbalance Prices are calculated, and therefore their systems and processes may require amendment to reflect this change, thus enabling the verification of Settlement liabilities correctly.

System / Process	Potential Impact of Proposed Modification
	<p>The Transmission Company processes and systems will also be impacted by the amendment to BSAD calculation and reporting. Although the amendment to BSAD is outside of the scope of this Modification Proposal, it is expected that any amendment to the BSAD be progressed in conjunction with this Modification Proposal to ensure a consistent approach. It should also be noted that a change to BSAD requires an associated change to the BSAD Methodology Statement.</p> <p>It should be noted that this Modification may also impact the Transmission Company's processes with regards to imbalance compensation of balancing services providers. The existing compensation calculations reference the imbalance liability of the relevant party under the BSC and therefore this may require amendment if the manner in which these liabilities are calculated changes.</p> <p>Any amendments to the Settlement Report (SAA-I014) will impact the Transmission Company, as systems and processes will require amendment to support changes to the report. However, it should be noted that flow version numbering has been introduced on the Settlement Report and therefore the Transmission Company can choose to retain the 'old' version until they are ready for the new, thus delaying the impact of changes.</p>

6 IMPACT ON DOCUMENTATION

6.1 Impact on Balancing and Settlement Code

BSC Section	Potential Impact of Proposed Modification
Q: Balancing Mechanism Activities	<p>The changes to the BSAD required to support Modification Proposal P78 may require an associated amendment to the Code to reflect receipt of any additional data items, or to reflect any new definition of BSAD.</p> <p>Section Q may also require amendment to reflect any changes to the way in which BSAD is published on the BMRA.</p> <p>Section Q will also require amendment to reflect the amendments to the way in which the Indicative Energy Imbalance Prices are calculated, including a new step to calculate the Indicative Net Imbalance Volume from the BSAD and Bid – Offer Acceptances received. An associated amendment to reflect the</p>

BSC Section	Potential Impact of Proposed Modification
	<p>requirement to receive (and publish) the market price may be required, however, this will be dependent upon when the market price becomes available (if it is outside real-time, then it will not classify as a Balancing Mechanism activity).</p>
T: Settlement and Trading Charges	<p>Given that Modification Proposal P78 removes the requirement for the Balancing Reserve Level to be set, it may be appropriate to either remove references to the Balancing Reserve Level in the Code (mainly T1.5), or to state in the Code that it will be set to zero.</p> <p>Section T may require amendment to indicate receipt and / or calculation of the reverse market price.</p> <p>Section T requires amendment to reflect the changes to the way in which the Energy Imbalance Prices are calculated and applied, as defined in section 3 of this IWA.</p>
V: Reporting	<p>Any amendments to the data that is reported on the BMRA (see the detail of the changes to Section Q) will require a consequential amendment to the reporting requirements outlined in Section V.</p>
X: Definitions and Interpretation	<p>A new price is required to be calculated / used in Section T, the market price. This will require the creation of a new data item, and the construction of the associated definition of that data item.</p> <p>A new definition will be required for Net Imbalance Volume.</p> <p>New definition(s) may be required for BSAD / new data items reporting the net position and the amendments to the Indicative Energy Imbalance Price calculations.</p> <p>The definition of Balancing Reserve Level may require removal / amendment.</p>
X: ANNEX X-2 Technical Glossary	<p>A new price is required to be calculated / used in Section T, the market price. This will require the creation of a new data item, and the construction of the associated definition of that data item.</p> <p>A new definition will be required for Net Imbalance Volume.</p> <p>New definition(s) may be required for BSAD / new data items reporting the net position and the amendments to the Indicative Energy Imbalance Price calculations.</p> <p>The definition of Balancing Reserve Level may require removal / amendment.</p>

6.2 Impact on Code Subsidiary Documents

Code Subsidiary Document	Potential Impact of Proposed Modification
BSC Service Descriptions	<p>The BMRA Service Description may require amendment to reflect any amendments to the receipt, publishing or definition of BSAD.</p> <p>The SAA Service Description will require amendment to reflect the changes to the mechanism for calculating the Energy Imbalance Prices and to the receipt / calculation of the market price. The SAA Service Description may also require amendment to reflect the removal of BRL, or setting of BRL to zero.</p>
Data Catalogues Reporting Catalogue	<p>If the Settlement Report is amended, then the amendments should be reflected in the NETA Data File Catalogue and the Reporting Catalogue.</p> <p>If BMRA reporting is amended, then the NDFC and Reporting catalogue will require an associated amendment to reflect these reporting requirements.</p>

6.3 Impact on Core Industry Documents

Core Industry Document	Potential Impact of Proposed Modification
Grid Code CUSC Ancillary Services Agreements	<p>Modification Proposal P78 requires an amendment to the definition (and potentially the reporting) of BSAD, therefore the Balancing Services Adjustment Data Methodology Statement will require amendment. Although the amendment to BSAD is outside of the scope of this Modification Proposal, it is expected that any amendment to the BSAD be progressed in conjunction with this Modification Proposal to ensure a consistent approach.</p> <p>This Modification may impact the Transmission Company's processes with regards to imbalance compensation of balancing services providers. The existing compensation calculations reference the imbalance liability of the relevant party under the BSC and therefore this may require amendment if the manner in which these liabilities are calculated changes. This may require changes to the CUSC and / or Ancillary Services Agreements.</p>

7 IMPACT ON OTHER CONFIGURABLE ITEMS

Item	Potential Impact of Proposed Modification
BSC Central Service Agent Documentation	<p>The amendments to the BMRA Service Description, and the BMRA functionality are required to be reflected in the BMRA User Requirements Specification, the BMRA System Specification and the BMRA Design Specification.</p> <p>The amendments to the SAA Service Description, and the SAA functionality are required to be reflected in the SAA User Requirements Specification, the SAA System Specification and the SAA Design Specification.</p> <p>If the Settlement Report (SAA-I014) is amended, then this should be reflected in the Interface Design Definition (IDD) document.</p>

8 IMPACT ON ELEXON

Area of Business	Potential Impact of Proposed Modification
ELEXON Systems	<p>ELEXON will be impacted by the amendment to the manner in which Energy Imbalance Prices, and therefore Energy Imbalance Cashflows are calculated, and therefore their systems (TOMAS) and processes may require amendment to reflect this change, thus enabling the calculation and verification of Settlement liabilities correctly.</p> <p>Any amendments to the Settlement Report (SAA-I014) will impact TOMAS and associated processes to support changes to the report. However, it should be noted that flow version numbering has been introduced on the Settlement Report and therefore ELEXON can choose to retain the 'old' version until they are ready for the new, thus delaying the impact of changes.</p>
ELEXON Processes	<p>If the requirement to utilise the Balancing Reserve Level is removed by the implementation of Modification Proposal P78, then ELEXON monitoring processes are affected.</p> <p>ELEXON may be required to administrate / monitor the process of calculating the market price. This may have resource and financial impacts on ELEXON in terms of managing obtaining the information required to support the calculation. However, the impacts are not identifiable until the market price has been defined.</p>

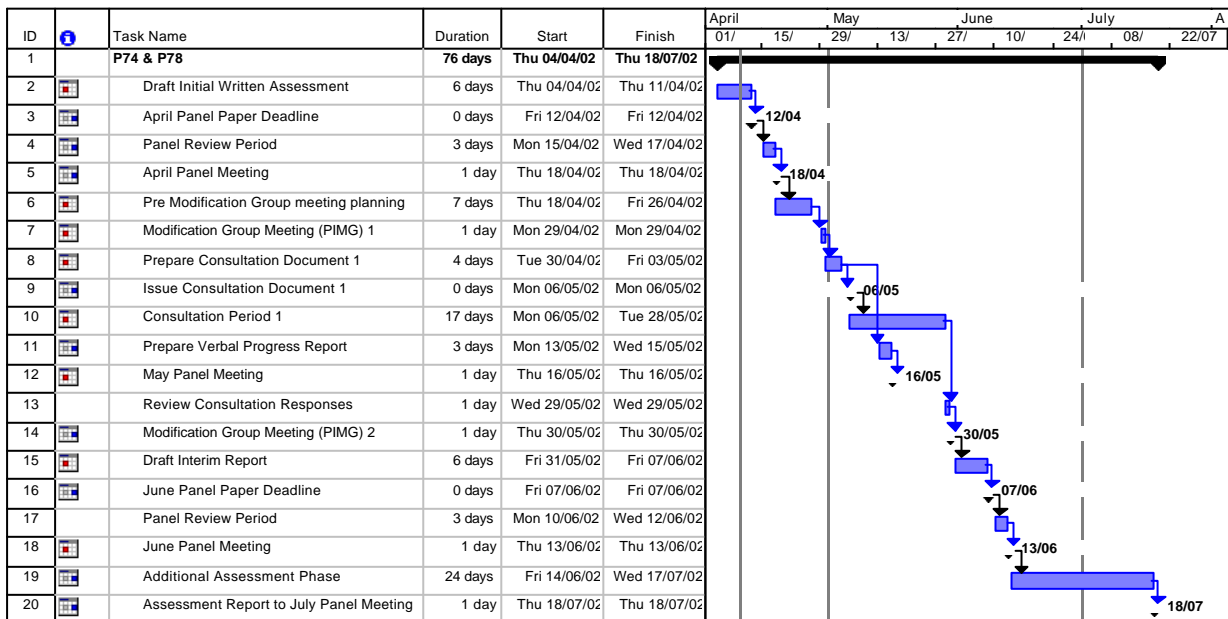
9 PROCESS AND TIMETABLE FOR PROGRESSING THE PROPOSAL

The initial assessment of this Modification Proposal indicates that some further work is required to define the amendments required to support this Modification Proposal, such as:

- Definition of an appropriate market price;
- Definition of how BSAD will be included in the Bid – Offer stacking process, i.e. is it treated as a Bid – Offer Acceptance and therefore included in the Arbitrage process, or is it included in the stack after Arbitrage, or can it be assumed that as it is a net figure, that it has already been effectively arbitrated; and
- Definition of the implications of amendments to BSAD, for example, will the Buy and Sell Cost adjusters be retained, or will they be included in the net reported figures.

However, it is believed that the definition required is more appropriate undertaken in the Assessment Procedure, as these definition requirements have assessment issues associated with them. Therefore ELEXON recommends that Modification Proposal P78 'Revised Definitions of System Buy Price and System Sell Price' be submitted to the Pricing Issues Modification Group (PIMG) for a three month Assessment Procedure (with an interim report after 2 months to provide the opportunity for provisional thinking to be requested from the Authority). The Pricing Issues Modification Group should be actioned to provide the Assessment Report for consideration at the Panel meeting of 18 July 2002.

The proposed timetable for Modification Proposal P78 is provided below:



10 ISSUES

The following issues will need to be considered and addressed in progressing Modification Proposal P78:

- The impact of Modification Proposal P78 on the Transmission Company systems, processes and documentation.

Modification Proposal P78 requires an amendment to the BSAD definitions and may require creation of new data items to report the net position. The Modification Proposal requires that only the definition of the BSAD is amended. However, it is likely that parties would want to see the pre-netting position, and this may require further amendments over those identified.

Modification Proposal P78 may impact on the CUSC / Ancillary Service Agreements in the area of balancing services provision and compensation, as a consequence of the amendment to the application of Energy Imbalance Prices. The Transmission Company may also be impacted by any change to operational behaviour caused by the implementation of Modification Proposal P78.

The impact on the Transmission Company will not be assessed by the Modification Group, however, the impacts should be understood such that any further ramifications on parties as a consequence of Transmission Company amendments can be assessed by parties. Any dependencies between the implementation of Modification Proposal P78 and consequential changes to the Transmission Company should be identified in order to ensure a consistent approach to implementation;

- Following on from the above point, it is not clear from the Modification Proposal where the BSAD price price adjusters (implemented by Modification Proposals P8 and P45 – Sell Price Price Adjuster (SPA) and Buy Price Price Adjuster (BPA)) will be utilised. It is not clear whether these price adjusters will be incorporated in the net BSAD calculation, and if so, what the effect will be. Therefore again, although this does not fall directly within the scope of the Modification Proposal, it does have an impact on the solution and therefore an understanding of the amendment and the impact is required;
- Definition of an appropriate market price. The Modification requires that the Modification Group define the market price, but provides an example as the Transmission Company's Single Price Net Imbalance Reference Price (SPNIRP), based upon a composite of exchange prices. However, other definitions may be more appropriate. It should also be noted that there is a consequential issue over publication of the market price. If the market price cannot be calculated / determined on a real time basis, then there may be an issue over prompt price reporting. Therefore any definition of a market price should also consider the most appropriate way of publicising it;
- Interaction with existing Modification Proposals. There are a number of Modification Proposals which have a degree of interaction with Modification Proposal P78. Namely:
 - Modification Proposal P12 'One Hour Gate Closure'. Modification Proposal P12 may have a twofold interaction with Modification Proposal P78. One of the key impacts of Modification Proposal P12 is the potential improvement of liquidity in the spot markets which may have an effect on the trading prices, and on the ability to trade out of imbalance, and therefore have an impact on the potential definition of the market price.

The second potential impact on Modification Proposal P78 from the implementation of Modification Proposal P12 is the amendments being introduced by the Transmission Company to support Pre gate Closure trading (i.e. the Pre-Gate Closure BM Unit Transactions (PGBTs).

Currently these are envisaged to take the form of contract notifications, and are deemed to be attributable to system (locational) balancing and therefore excluded from BSAD. However, this definition may be amended with time, and therefore should be considered in any assessment of Modification Proposal P78. Also, documentation should be explicit about exclusion (or otherwise) of these PGBTs from the Energy Imbalance Price calculations, for the avoidance of doubt.

- Modification Proposal P74 'Single Cost-reflective Cash-out Price', raised by Electricity Direct on 4 April 2002. This Modification Proposal seeks to amend the application of Energy Imbalance Prices such that only a single price, dependent upon the Total System Energy Imbalance Volume, is applied.

Therefore there is a material interaction between Modification Proposal P78 and Modification Proposal P74, and although they are addressing similar issues, they are not the same, and should be assessed separately. However, the Assessment procedure for Modification Proposal P78 should take into consideration that of Modification Proposal P74.

- Modification Proposal P27 'Amendment to the Derivation of Imbalance Prices' was raised by Electricity Direct on 26 June 2001. Modification Proposal P27 addressed a similar area and issues as Modification Proposal P78. However, Modification Proposal P27 was rejected by the Authority and therefore the concerns raised by the Authority in the Modification Proposal P27 Authority Decision letter should be considered whilst assessing Modification Proposal P78 (and Modification Proposal P74).

Therefore the assessment of Modification Proposal P78 should take into consideration issues arising from other Modification Proposals, where appropriate;

- Assessment of whether the Modification Proposal addresses the issues and would better facilitate achievement of the applicable BSC Objectives; and
- Assessment of the impact of Modification Proposal P78 on the Settlement calculations and cashflows. If the Energy Imbalance Price calculation changes, then there will be ramifications on other Settlement cashflows, such as the Residual Cashflow Reallocation Cashflow (RCRC). Therefore an assessment of Modification Proposal P78 should include the impact on the other aspects of Settlement, to ensure a consistent and cohesive set of Settlement calculations.

ANNEX 1 – MODIFICATION PROPOSAL

Modification Proposal	MP No: 78 <i>(mandatory by BSCCo)</i>
Title of Modification Proposal <i>(mandatory by proposer):</i> Revised Definitions of System Buy Price and System Sell Price	
Submission Date <i>(mandatory by proposer):</i> 05/04/2002	
Description of Proposed Modification <i>(mandatory by proposer):</i> The proposed definitions for System Buy Price (SBP) and System Sell Price (SSP) are outlined in the attached paper.	
Description of Issue or Defect that Modification Proposal Seeks to Address <i>(mandatory by proposer):</i> The current definitions of SBP and SSP give rise to the following issues: <ul style="list-style-type: none"> • SBP remains unpredictable with a high mean and spread • The price of the shorter stack (the “reverse price”) can, at times, still be significantly affected by costs associated with system balancing actions • The resultant high levels of SBP are driving the market long • The defaulting rules were devised on the basis they would very rarely be called upon and it was therefore considered satisfactory that they should merely avoid setting extreme values. Currently the default rules are being used regularly and the resultant prices are significantly different from those produced by the “standard” rules. 	
Impact on Code <i>(optional by proposer):</i> Section T, Paragraph 4.4 would need to be revised.	
Impact on Core Industry Documents <i>(optional by proposer):</i> None identified	
Impact on BSC Systems and Other Relevant Systems and Processes Used by Parties <i>(optional by proposer):</i> Change to imbalance price calculation software	
Impact on other Configurable Items <i>(optional by proposer):</i> None identified	
Justification for Proposed Modification with Reference to Applicable BSC Objectives <i>(mandatory by proposer):</i> Promoting effective competition in the generation and supply of electricity by improving the stability and cost reflectivity of the imbalance cash out prices.	

Modification Proposal	MP No: 78 <i>(mandatory by BSCCo)</i>
Details of Proposer: Name: Mike Calviou Organisation: National Grid Telephone Number: 024 7642 3950 Email Address: mike.calviou@uk.ngrid.com	
Details of Proposer's Representative: Name: Mike Calviou Organisation: National Grid Telephone Number: 024 7642 3950 Email Address: mike.calviou@uk.ngrid.com	
Details of Representative's Alternate: Name: Richard Lavender Organisation: National Grid Telephone Number: 024 7642 3967 Email Address: richard.lavender@uk.ngrid .com	
Attachments: Yes If Yes, Title and No. of Pages of Each Attachment: Proposed Modification to the Determination of Imbalance Prices under the BSC. (5 Pages)	

National Grid Company

Proposed Modification to the Determination of Imbalance Prices under the BSC

Introduction

Since “go-live” there have been concerns within the industry at the levels of the two imbalance prices System Buy Price (SBP) and System Sell Price (SSP). Whilst some of the more obvious anomalies have been addressed by BSC modifications (P8, P10 and P18A) there are a number of outstanding issues:

- SBP remains unpredictable with a high mean and spread
- The price of the shorter stack (the “reverse price”) can, at times, still be significantly affected by costs associated with system actions
- The resultant high levels of SBP are driving the market long
- The defaulting rules were devised on the basis they would very rarely be called upon and it was therefore considered satisfactory that they should merely avoid setting extreme values. Currently the default rules are being used regularly and the resultant prices are significantly different from those produced by the “standard” rules.

Discussion

The first year of NETA operation has seen a market that has generally been long. It follows that SBP has normally been the reverse price, often operating with a very short stack of offer acceptances. The low volume of accepted offers means that any highly priced actions that do get included in the calculation for SBP have a significant impact on the volume weighted-average price, driving up SBP. This scenario is self-sustaining, as any increase in SBP tends to increase the incentive on participants to “go-long”. Several previous modifications have sought to prevent highly priced offer acceptances from inflating the level of SBP inappropriately (P8, P10 and P18A), but whilst the mean and standard deviation of SBP have both reduced, some volatility driven by system balancing effects remains.

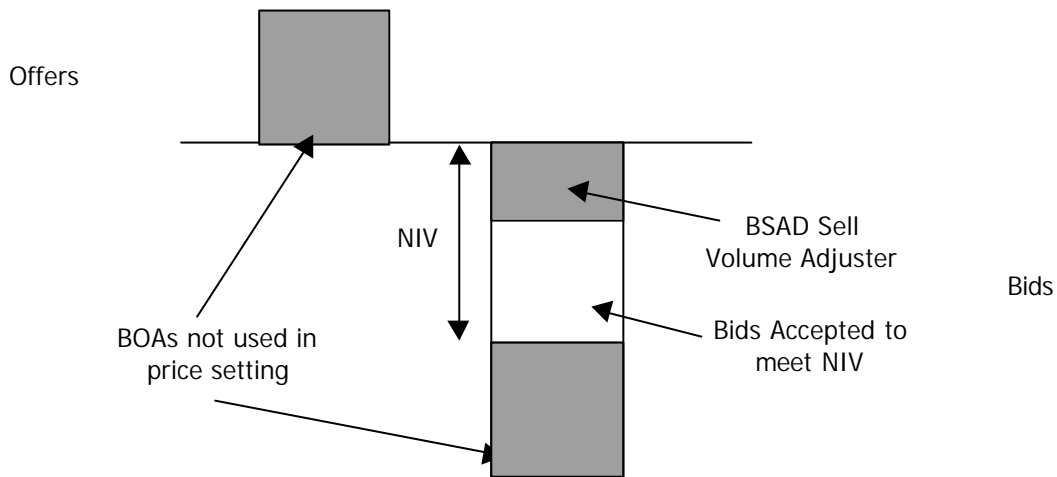
As Ofgem noted in their July 1999 consultation document, (The New Electricity Trading Arrangements Vol.1), a “commodity” price could be used as the basis for setting imbalance prices, however it was subsequently rejected on the grounds that it would not be cost reflective. After a year’s experience of market operation the concept of a “main” (i.e. the longer stack) and “reverse” price has become clearer. As the System Operator can normally avoid taking any action to correct errors that tend to reduce the system imbalance, no additional costs are imposed and thus the “commodity” or “market” price will reflect the cost of production. The main price will continue to reflect the costs incurred by the System Operator. The intention of this proposal is to remove fully the effects of system balancing from the reverse price, whilst retaining the incentive to forward contract. SSP will generally be at or below market price, whilst SBP will generally be at or above market price. The definition of the main price is effectively the same as the current rules with the Balancing Reserve Level set to zero.

Finally, the current defaulting rules are not sufficiently robust for their level of use. It is desirable to either reduce their utilisation or re-define them to give results more comparable to the “standard” rules. This proposal virtually eliminates the need for default rules.

Proposed Method for Setting Imbalance Prices

- The main price (i.e. SSP when long & SBP when short) is set at the volume weighted average price of bids or offers required to meet the actual net imbalance. (i.e. the net effect of the Bid/Offer Acceptances and forward trades)
- The reverse price is set to a "market price". The only exception would be when this would lead to a negative price spread, in which case the reverse price would be set equal to the main price.
- Net Imbalance Volume (NIV) = Sum of Pre-gate closure trades + Sum of BOAs

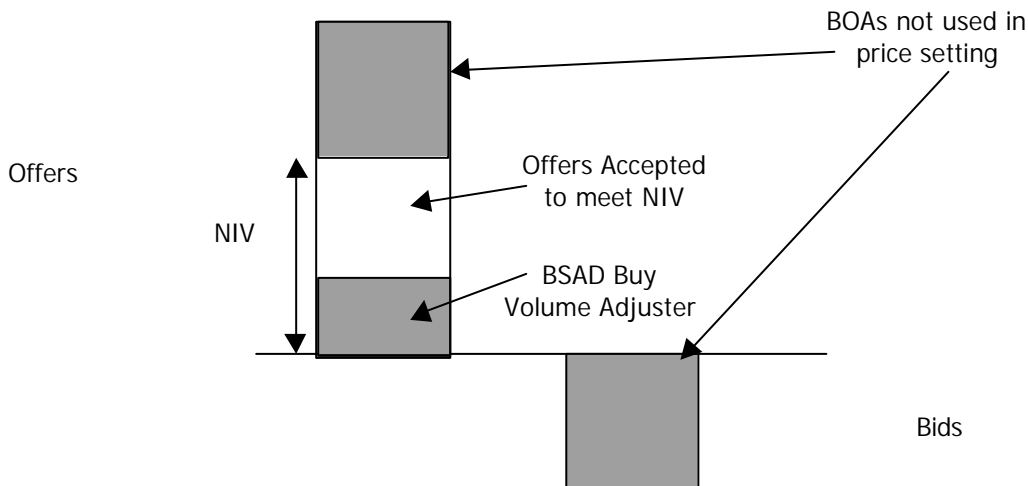
Long Market



SBP (Reverse Price) = Market price

$$SSP = \frac{\text{Sell Cost Adjuster} + \text{Cost of Bids to meet NIV}}{NIV}$$

Short Market



SSP (Reverse Price) = Market price

$$SBP = \frac{\text{Buy Cost Adjuster} + \text{Cost of Offers to meet NIV}}{NIV}$$

NB. Should pre-gate trades be in the opposite direction to NIV, the Cost Adjuster applicable to the main price will be zero and hence:

Main Price = volume weighted average price of Bids or Offers accepted to meet NIV.

The following features of the proposal are also worth noting:

- Arbitrage Bid/Offer acceptances will continue to be removed before calculating imbalance prices
- The concept of Balancing Reserve is not required with this methodology
- The only defaulting rule required is that for a zero net imbalance, both SBP and SSP would be equal to the market price. This rule would be used rarely as it requires a zero net imbalance.

Market Price

We believe that it is more appropriate for the Modification Group to develop a definition for the "Market Price" than for the proposer to "hardwire" a definition into the original proposal. However, as a starting point, we suggest the definition of the Single Price Net Imbalance Reference Price (SPNIRP) as defined in the Transmission Licence (see appendix).

Incorporation of Pre-Gate Closure Trades

If this modification proposal is implemented then National Grid intends to propose a corresponding change to the BSAD methodology statement such that net volumes are reported. The definitions would be as follows:

	Net Purchase Pre-Gate	Net Sale Pre Gate
Buy Volume Adjuster (BVA)	Net Purchase Volume	0
Sell Volume Adjuster (SVA)	0	Net Sale Volume
Buy Cost Adjuster (BCA)	(BVA) * (Average Price of Energy Trades)	0
Sell Cost Adjuster SCA)	0	(SVA) * (Average Price of Energy Trades)

Appendix: Extract from the Transmission Licence defining the Single Price Net Imbalance Volume Reference Price

B4 For the purpose of paragraph 9 of Part 2(i) of special condition AA5A, the term $NIRP_j$, which is the net imbalance volume reference price for each settlement period j , during relevant period t , shall be derived as follows:

(a)

- (i) when $UKPX_j$ and APX_j data is published in respect of the relevant settlement period j then:

$$SPNIRP_j = (0.5 * UKPX_j) + (0.5 * APX_j)$$

- (ii) when $UKPX_j$ data is published and APX_j data is not published in respect of the relevant settlement period j then:

$$SPNIRP_j = UKPX_j$$

- (iii) where $UKPX_j$ data is not published in respect of the relevant settlement period j and APX_j data is published in respect of the relevant settlement period j then:

$$SPNIRP_j = APX_j$$

- (iv) where neither $UKPX_j$ data and APX_j data has been published in respect of the relevant settlement period j then:

$$SPNIRP_j = SPNIRP_{j-1}$$

where:

$SPNIRP_j$ means the single price net imbalance volume reference price for each settlement period j .

j in all cases shall mean a settlement period (being a half an hour) as defined in the BSC.

$j-1$ the settlement period immediately preceding the relevant settlement period j .

$UKPX_j$ means the United Kingdom Power Exchange (UKPX) volume weighted reference price for each settlement period j based on the traded prices of half hourly spot contracts.

EFA block means the six four hourly blocks within the EFA day (being 23.00 hours to 23.00 hours in the immediately following day) set out in the table below:

Block	Time
1	23:00 to 03:00
2	03:00 to 07:00
3	07:00 to 11:00
4	11:00 to 15:00
5	15:00 to 19:00
6	19:00 to 23:00

APX_j means the Automated Power Exchange (UK APX) weighted average price in respect of all half hourly spot market and four (4) hour block market contracts delivered within the EFA block applying to those settlement periods j. In order to derive the APX_j price in respect of each relevant settlement period j the EFA block containing the relevant j shall be used.