P167RR10 Annex 3:

ASSESSMENT REPORT for Modification Proposal P167
Erroneous Calculation of Bid Offer Acceptance (BOA) Volume

Prepared by: Settlement Standing Modification Group (SSMG)

Date of issue:	08/10/04	**Document reference:**	P167AR
Reason for issue:	For Decision	**Issue/Version number:**	1.0

This document has been distributed in accordance with Section F2.1.10[1] of the Balancing and Settlement Code.

RECOMMENDATIONS

The SSMG invites the Panel to;

- **AGREE that the Proposed Modification P167 should not be made;**
- **AGREE a provisional Implementation Date for Proposed Modification P167 of 1 March 2006 if an Authority decision is received on or before 29 April 2005, or 28 June 2006 if the Authority decision is received after 29 April 2005 but on or before 26 August 2005;**
- **AGREE that Modification Proposal P167 be submitted to the Report Phase; and**
- **AGREE that the draft Modification Report be issued for consultation and submitted to the Panel Meeting of 11 November 2004.**

[1] The current version of the Balancing and Settlement Code (the 'Code') can be found at www.elexon.co.uk/ta/bscrel_docs/bsc_code.html

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SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

As far as the SSMG has been able to assess the following parties/documents have been identified as being potentially impacted by Modification Proposal P167.

Parties		Sections of the BSC		Code Subsidiary Documents	
Suppliers	☒	A	☐	BSC Procedures	☒
Generators	☒	B	☐	Codes of Practice	☐
Licence Exemptable Generators	☒	C	☐	BSC Service Descriptions	☒
Transmission Company	☒	D	☐	Service Lines	☐
Interconnector	☒	E	☐	Data Catalogues	☐
Distribution System Operators	☐	F	☐	Communication Requirements Documents	☐
Party Agents		G	☐	Reporting Catalogue	☒
Data Aggregators	☐	H	☐	MIDS	☐
Data Collectors	☐	I	☐	**Core Industry Documents**	
Meter Operator Agents	☐	J	☐	Grid Code	☒
ECVNA	☐	K	☐		
		L	☐	Supplemental Agreements	☐
MVRNA	☐	M	☐	Ancillary Services Agreements	☐
BSC Agents		N	☐	Master Registration Agreement	☐
SAA	☒	O	☐	Data Transfer Services Agreement	☐
FAA	☐	P	☐	British Grid Systems Agreement	☐
BMRA	☒	Q	☒	Use of Interconnector Agreement	☐
ECVAA	☐	R	☐	Settlement Agreement for Scotland	☐
CDCA	☐	S	☐	Distribution Codes	☐
TAA	☐	T	☒	Distribution Use of System Agreements	☐
CRA	☐	U	☐	Distribution Connection Agreements	☐
Teleswitch Agent	☐	V	☐	**BSCCo**	
SVAA	☐	W	☐	Internal Working Procedures	☒
BSC Auditor	☐	X	☒	**Other Documents**	
Profile Administrator	☐			Transmission Licence	☐
Certification Agent	☐				
MIDP	☐				
Other Agents					
SMRA	☐				
Data Transmission Provider	☐				

X = Identified in Report for last Procedure
N = Newly identified in this Report

1 DESCRIPTION OF PROPOSED MODIFICATION AND ASSESSMENT AGAINST THE APPLICABLE BSC OBJECTIVES

1.1 Modification Proposal

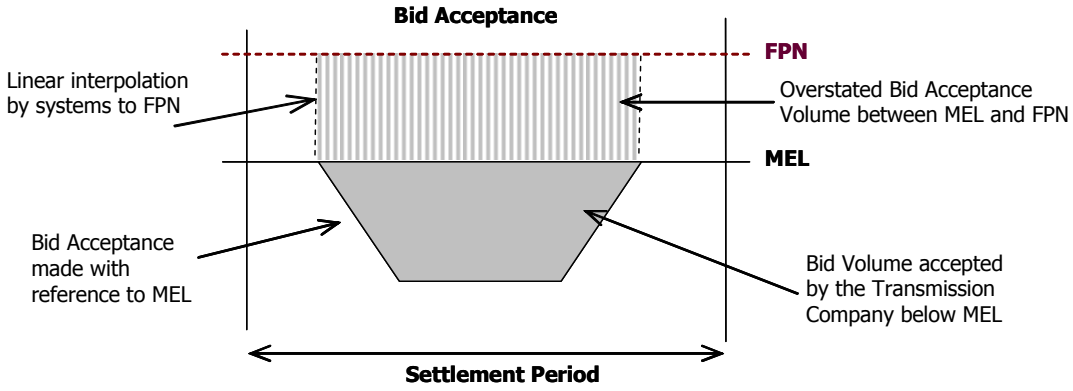
Modification Proposal P167 'Erroneous Calculation of Bid Offer Acceptance (BOA) Volume' (P167) was raised on 28 June 2004 by British Gas Trading (BGT). P167 seeks to amend the methodology for calculation of Acceptance Volumes, to account for changes in BM Unit Maximum Export Level (MEL) and Maximum Import Level (MIL). The perceived defect was initially raised to the Settlement Standing Modification Group (SSMG) as Issue 7-'Potential anomaly in respect of Bid Offer Acceptance (BOA) volume' (Issue 7), see References 1-4.

Currently the Balancing and Settlement Code (the 'Code') requires that Acceptance Volumes are calculated based on the Final Physical Notification (FPN) submitted by the Lead Party of the relevant BM Unit. The Proposer contends that this approach is not appropriate in all instances, specifically where a Party has re-declared MEL or MIL post Gate Closure (MEL below FPN, or MIL above FPN) prior to an Acceptance being issued.

The issue that P167 seeks to address is that the Transmission Company considers the physical dynamics of the BM Unit at the time the Acceptance is instructed (i.e. its notified output; FPN, or MEL (if MEL has been re-declared below FPN), or MIL (if MIL has been re-declared above FPN)), whereas the Code requires that the volume of the Acceptance is always calculated with reference to FPN. This results in the calculation and creation of Acceptance Volumes, in Settlement, that were essentially not instructed by the Transmission Company. Therefore, P167 seeks to ensure that Acceptance Volumes are calculated with reference to the output level the Transmission Company actually instructed against (i.e. FPN or MEL / MIL), and thus the 'correct' Acceptance Volumes feed into the Settlement calculations.

For clarification, P167 is not proposing to amend the actions undertaken by the Transmission Company, as the Transmission Company is acting in accordance with its obligations (as set out in the Grid Code and the BSC). Furthermore, the calculation of Acceptance Volumes for Settlement is being undertaken in accordance with the current baseline. However, the Proposer of P167 is of the view there is an anomaly in the baseline and therefore seeks to amend the Settlement calculation to ensure that the calculation of Acceptance Volumes accounts for MEL and MIL re-declarations post Gate Closure.

At a high level, the perceived defect can be illustrated via the simple example of a Party which re-declares its MEL below FPN after Gate Closure (once the FPN cannot be amended) and subsequently has a Bid accepted. The Transmission Company accepts the Bid with reference to the MEL at the time the Bid was taken. However, the Acceptance Volume is calculated by Settlement with reference to the FPN prevailing at Gate Closure for the Settlement Period, as illustrated diagrammatically below.



As a result of calculating the Acceptance Volume in relation to the FPN, the Accepted Bid Volume for the BM Unit is overstated. Overstating the Acceptance Volume has consequential effects on the Credited Energy for the Party, by removing some, or all, of the imbalance between FPN and MEL, i.e. the Party is essentially protected from exposure to imbalance to the extent of the overstated Bid Volume. Furthermore, overstating the Accepted Bid Volume has implications on the Net Imbalance Volume (NIV) calculation, and therefore on the resulting Energy Imbalance Price. This has implications on other Settlement calculations, such as the Residual Cashflow Reallocation Cashflow (RCRC) derivation, directly for the affected Party, and indirectly for all other Parties.

The Proposer is of the view that P167 would better facilitate Applicable BSC Objective (c) "Promoting effective competition in the generation and supply of electricity and promoting such competition in the sale and purchase of electricity" in the following ways:-

- Imbalance positions are being incorrectly calculated under the current baseline, mitigating Party exposure to imbalance prices. Correcting the perceived defect would improve the accuracy to which imbalance positions are reported and level of imbalance Parties are exposed to;
- Correcting the perceived defect will help to ensure that all Parties are receiving appropriate RCRC payments; and
- Amending the methodology for calculating Acceptance Volumes will result in a more appropriate calculation of imbalance prices.

The Initial Written Assessment (IWA) for P167 (Reference 6) was presented to the Panel at its meeting on the 8 July 2004. The Panel agreed with the recommendation that P167 be submitted to a two month Assessment Procedure conducted by the SSMG.

The SSMG met four times during the Assessment Procedure, (on the 15 July, 5 August, 27 September and 5 October 2004) and P167 was issued for industry consultation to seek the views of industry participants on the issues discussed and to support the group's assessment against the Applicable BSC Objectives.

P167 was originally issued for industry consultation on the 10 August 2004 under the England and Wales BSC. Following BETTA Go-Active on 1 September 2004, the consultation document was issued on a GB basis. The purpose of the latter consultation was for participants to consider P167 on a GB basis as well as for new Scottish participants to consider the consultation and related documents against the Applicable BSC Objectives (please note the Applicable BSC Objectives were amended at BETTA Go-Active).

1.2 Worked Example

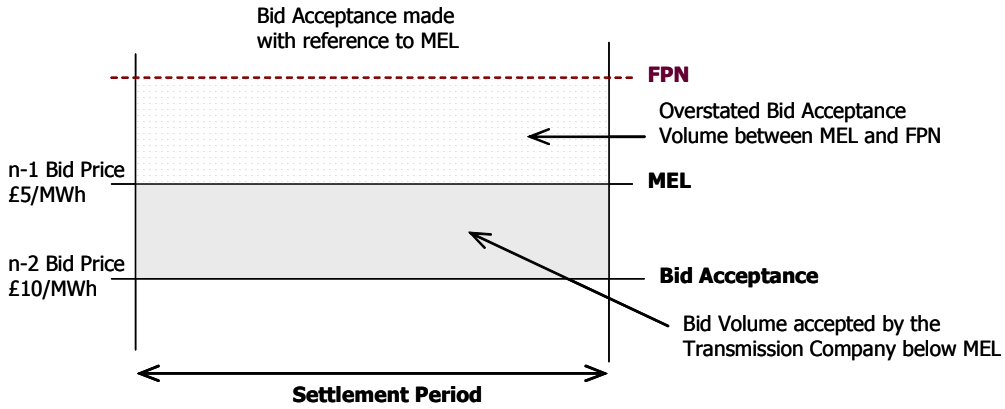
This section provides details of the perceived defect identified under P167, and a simplified example is provided to illustrate the effects on Settlement calculations.

The Code, Section Q 5.1.3(a)(ii)(1) obliges the Transmission Company to ensure Bid – Offer Acceptance data is consistent with the following data prevailing at the time the Bid – Offer Acceptance is made:

- The Physical Notification;
- Dynamic Data set;
- MEL and MIL; and
- Quiescent Physical Notification (QPN).

As a result, where the MEL or MIL for a BM Unit is re-declared below / above FPN, respectively, and the Transmission Company accepts a Bid or Offer, the volume the Transmission Company expects to be delivered is from the MEL or MIL rather than the FPN. However, the Code currently derives BOA data in relation to FPN, and does not take into consideration amendments to MEL or MIL; this can cause the Acceptance Volume to be overstated. The following simplified example is provided to illustrate the effect on Settlement calculations.

BM Unit A has an FPN of 500 MW in place for a Settlement Period. After Gate Closure, the MEL is re-declared to 400 MW. A Bid is then accepted taking the BM Unit down to 300 MW, as illustrated below:



The Transmission Company has accepted a Bid Volume of -50 MWh (100 MW * Settlement Period Duration (SPD)), hence the BM Unit operating at a MEL of 400MW is reduced to the Bid level of 300MW. At the Bid Price of £5 / MWh (i.e. the price of the n-1 Bid) accepted by the Transmission Company, the Party is 'expected' to pay the system £250 for the Bid.

Settlement calculates Acceptance Volumes with reference to FPN, therefore the Bid Volume is calculated as the difference between the FPN of 500MW and the final level 300MW, i.e. -100 MWh (200 MW * SPD). As a result, the Party will actually pay the system £750 for the Bid (50 MWh at £5/MWh and 50 MWh at £10/MWh), i.e. the Party has to pay the relevant Bid Price for the overstated Acceptance Volume.

Had the Bid price been negative, the system would have paid out more for the Bid Acceptance. Furthermore, it is assumed that the Transmission Company did not consider the Bid Price of the overstated volume (i.e. the difference between MEL and FPN) when issuing the Acceptance. Bid Prices are derived in relation to a movement away from a specified starting point, therefore the Transmission Company only considers the Bid Prices for the volumes they are instructing. If the Transmission Company believes they are instructing 100MW they would look at the price of 100MW change in output. If the instruction is then found to be 200MW in settlement, going into the next Bid Price band, the Bid price generated differs to that actually accepted by the Transmission Company. This may lead to issues where the Bid Price for the 'additional' portion of volume (effectively that between FPN and MEL) is unfavourable, and the Transmission Company may have taken a Bid on a different BM Unit had the Bid Price of the volume between FPN and MEL been considered.

Looking at the Settlement calculations, the effect of overstating the Bid Volume can be illustrated (simplistically) as follows:

1. Settlement calculates the Period BM Unit Balancing Services Volume (QBS) as -100 MWh (FPN to Bid level), rather than -50MWh (MEL to Bid level);
2. The QBS is used to derive the Expected Metered Volume for the BM Unit, which is calculated to be 150 MWh instead of 200 MWh (Expected Metered Volume = FPN – QBS);

3. Had the BM Unit been subject to any percentage Metered Volume Reallocation Notifications (MRVNs), the reallocated volume would be adjusted for the incorrect volume;

4. In the absence of any MVRNs, the Lead Party has a Credited Energy of 150 MWh (i.e. the Metered Volume for the BM Unit);

5. The Energy Imbalance Volume is calculated as the Credited Energy Volume, minus the Balancing Services and Contracted Volumes. Assuming the Party contracted to FPN, this would give 150 – (-100) – (250) = 0 MWh, rather than 150 – (-50) –(250) = -50 MWh;

6. Given the negative Imbalance Volume, the Party should have an Energy Imbalance Volume of -50MWh exposed to System Buy Price (SBP) (as they did not meet the contracted level). Assuming an average SBP of £18/MWh (using the Credit Assessment Price), the Party is protected from exposure to £900 worth of SBP. This avoided imbalance more than offsets the 'over' payment for the Bid, hence the affected Party receives a net benefit. It is likely that directly affected Parties will benefit in the majority of circumstances, since SBP is usually above contract price and Bid Prices are likely to be below contract price (in order to maximise the commercial benefit of delivering a Bid).

7. Avoided imbalance for the directly affected Party impacts all Parties via the RCRC, as there is a 'missing' imbalance volume and thus an impact on Imbalance charges;

8. Had the Party had MVRNs in place, then its Credited Energy is incorrect, and this will affect its Residual Cashflow Reallocation Proportion, and thus have implications for other Parties.

Aside from the implications on directly affected Parties, the overstated Bid Volume will be used in the derivation of the Net Imbalance Volume (NIV), overstating the market length. The NIV will include a Bid Volume that was not instructed by the Transmission Company, and thus the Energy Imbalance Price calculated from the NIV will be incorrect. Typically the market would appear longer than it is in reality, and in extreme cases may be switched from short to long by the overstated Acceptance Volume(s).

The 'over payment' by the Party (or where the Bid price was negative, the 'over payment' to the Party) for the overstated Bid Volume will also be reflected in Balancing Services Use of System (BSUoS) charges.

Proposed Modification P167 seeks to rectify the perceived defect as outlined above.

1.3 Issues raised by the Proposed Modification

The SSMG have considered the following aspects of the Proposed Modification:

- The required changes to the Code and BSC Systems to account for MEL and MIL resubmissions in the calculation of Acceptance and Non-Delivery volumes, and the associated costs;
- The impact of the perceived defect on Party imbalance positions, imbalance prices, and the RCRC;
- The potential for exploitation of the issue (deliberate avoidance of imbalance via re-declaration of MEL or MIL post Gate Closure);
- Exception rules for specific circumstances where it would be inappropriate for the Acceptance Volume to be calculated from MEL/ MIL;
- Historic rationale for the current approach to the calculation of Acceptance Volumes; and
- Interaction with the Grid Code, in particular the potential impact on the submission of FPN, MIL and MEL data (including the implications of Parties benefiting from re-declaration acting as a disincentive to submit accurate FPNs).

Details of SSMG discussions on these issues are included in the remainder of this document.

1.4 Changes required to the Code and BSC Systems

This section outlines the changes required to the Code and BSC systems to implement P167. It should be noted that the information included here is a high level overview of the changes required, for further detail please refer to the P167 Requirements Specification (Reference 5).

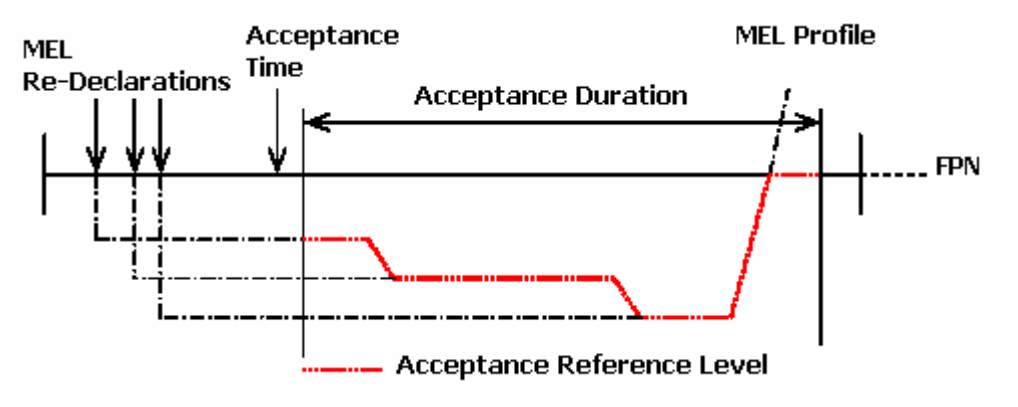
1.4.1 Acceptance Reference Level

P167 requires the volume of Acceptances to be calculated with reference to the physical dynamics of the BM Unit prevailing at the time the Acceptance is instructed (i.e. FPN or MEL/ MIL). In order to do this, a new variable would be created- the 'Acceptance Reference Level' (ARL), the ARL would be calculated for each Acceptance, and would be used instead of the FPN through all Bid – Offer Acceptance and Acceptance Non – Delivery volume calculations (noting that the ARL may be equivalent to FPN).

Whether the FPN or the MEL/ MIL are used as the Acceptance Reference Level would depend on the relative timings of Bid – Offer Acceptances being made and re-declarations of MEL/ MIL. Simplistically the Acceptance Reference Level would be either:

- FPN, where, at the point the Acceptance was issued, the effective MEL is above FPN and the most effective MIL is below FPN for the duration of the Acceptance; or
- For each point in time:
  - Where MEL has been declared below FPN the smallest magnitude value of the MEL effective at the Acceptance time and FPN; or
  - Where MIL has been declared above FPN the smallest magnitude value of the MIL effective at the Acceptance time and FPN.

The derivation of the ARL is illustrated in the example below where the ARL follows the level of MEL below FPN effective to the Acceptance time.



1.4.2 Calculation of Acceptance Volumes

Currently Acceptance Volumes are calculated within Settlement by reference to the BM Unit FPN. Under P167 both the Code and BSC Systems would be amended to calculate the volume of each Acceptance from the 'Acceptance Reference Level'.

1.4.3 Calculating Acceptance Non – Delivery Volumes

The SSMG have considered how Non-Delivery Volume Calculation should work under P167 as set out in this section:

Current Approach to Non-Delivery Calculation:

Under the current baseline Non-Delivery is defined in Section T4.8 of the Code, the calculation of Non-Delivery Volumes can be simplistically summarised as follows:

Non Delivery Volume = Expected Metered Volume – Actual Metered Volume

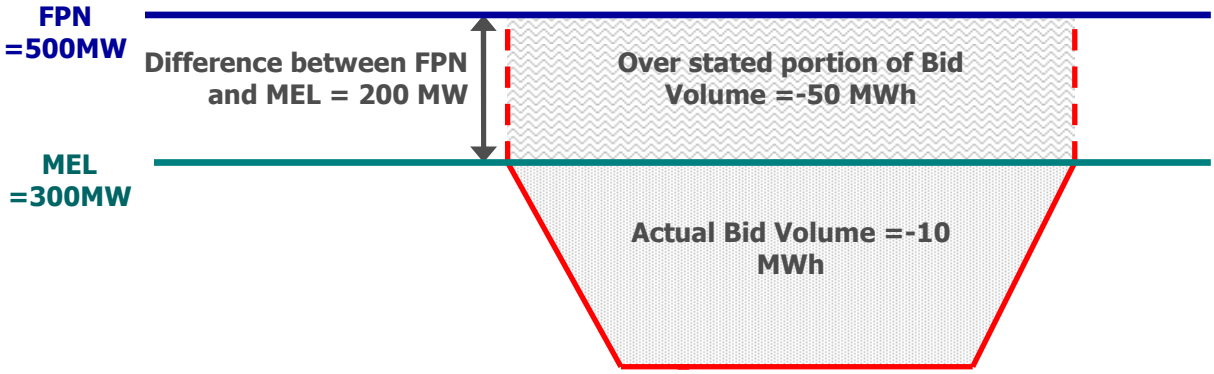
Where: Expected Metered = Period FPN[2] *+ Balancing Services*

Therefore, the Non-Delivered Volume is the difference between the Period FPN adjusted for Balancing Services (including both Bid Offer Acceptances and Applicable Balancing Services) and the actual Metered Volume.

The calculation of Non-Delivery Volume under the current baseline is relatively simple since all the values being used are single value for the Settlement Period. i.e. Period FPN (single value for the Settlement Period) is adjusted for Balancing Services (single value for the Settlement Period) and then compared to the Actual Metered Volume (single value for the Settlement Period). It should be recognised that any rules for Non-Delivery will ultimately be limited due to the fact Metered Volumes are only known at an aggregate Settlement Period level. Hence any approach to non-Delivery calculation will at best be an approximation.

[2] NB: In respect of each Settlement Period, for each BM Unit, the Period FPN (FPN_{ij}) (MWh Volume for the Settlement Period) is calculated by integrating the value of $FPN_{ij}(t)$ (MW level for each spot time) over all spot times falling within the Settlement Period in question.

In determining appropriate Non-Delivery rules under P167, the SSMG recognised the limitations of the existing calculation. These limitations can be illustrated by considering the example of a BM Unit operating at a MEL below FPN which has a Bid accepted as illustrated in the following diagram:



In this example a Bid has been accepted from MEL but not delivered, hence the BM Unit operates at MEL for the duration of the Settlement Period such that:

*Balancing Services Volume = -**60 MWh** (Overstated + Actual Bid Volume)*

*Expected Metered Volume = **190 MWh** (FPN*SPD +Balancing Services)*

*Actual Metered Volume = **150 MWh** (MEL*SPD)*

Hence the Non-Delivery Volume will be:

*Non Delivery Volume = Expected Metered Volume – Actual Metered Volume = **40MW***

Since the Non-Delivery Volume is positive, the BM Unit will be deemed to have over delivered the Bid and Non-Delivery Charges will not be calculated. Hence the calculation has failed to identify the Non-Delivery of an Acceptance due to the fact the BM Unit was not operating at FPN when the Acceptance was issued.

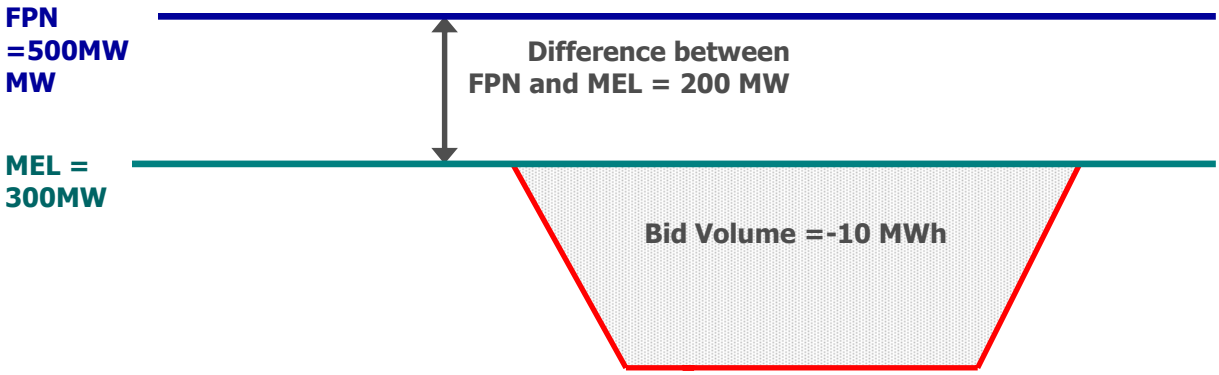
This example illustrates that the current calculation of Non-Delivery Volumes does not accurately reflect the situation when a BM Unit is operating away from FPN when an Acceptance is issued.

Non Delivery under P167:

The calculation of Non-Delivery Volumes under P167 is complicated since each Acceptance can be issued from a different reference level (Acceptance Reference Level (ARL)). Since multiple Acceptances can be issued in a Settlement Period, multiple ARLs can exist for a Settlement Period, as such an expected Metered Volume for a Settlement Period cannot simply be derived from any one of these reference levels. The SSMG considered different approaches to progress as Proposed Modification P167 as follows:

Option 1: Apply current rules

The most simplistic approach would be to apply the existing rules and determine the expected Metered Volume (and hence Non-Delivery) from FPN. However, this presents similar issues as the existing baseline when a BM Unit is operating away from FPN and an Acceptance is issued as follows:



In this example a Bid has been accepted from MEL (ARL) but not delivered, hence the BM Unit operates at MEL/ARL for the duration of the Settlement Period. Therefore, the Balancing Services Volume will reflect the Bid Acceptance Volume based on deviation from MEL, whereas the Expected Metered Volume is derived form FPN such that:

*Balancing Services Volume = -**10 MWh** (Bid Volume)*

*Expected Metered Volume = **240 MWh** (FPN*SPD +Balancing Services)*

*Actual Metered Volume = **150 MWh** (MEL*SPD)*

Hence the Non-Delivery Volume will be:

*Non Delivery Volume = Expected Metered Volume (240) – Actual Metered Volume (150) = **90MW***

Since the Non-Delivery Volume is positive, the BM Unit would be deemed to have over delivered the Bid and Non-Delivery Charges would not be calculated. Hence the calculation would fail to identify the Non-Delivery of a Bid due to the fact the BM Unit is not operating at FPN.

Therefore, applying the existing rules and determining the expected Metered Volume (and hence Non-Delivery) from FPN would present similar issues under P167 as exist under the current baseline. The SSMG noted that this approach is not significantly less accurate than the existing baseline and could form an acceptable method for calculation of Non-Delivery under P167. However, the SSMG agreed that P167 is seeking to recognise the potential for Acceptances to be issued from an output level other than FPN and therefore should, if possible, include Non-Delivery rules which recognise the level from which an Acceptance is issued.

Option 2: Determine spot time expected output levels

In order to reflect the situation where an Acceptance is issued from a level other than FPN, it would be necessary to derive a new definition of expected Metered Volume based on the level from which Acceptances have actually been issued. However, this becomes complex when multiple ARLs exist for a Settlement Period, since each ARL effectively implies a separate Expected Metered Volume such that more than one expected output level is implied for each spot time in the Settlement Period.

In order to calculate Non-Delivery Volumes, for each Settlement Period, the Period Expected Metered Volume would need to be derived. Two different variables would be required as a consequence of the differing intents of Information Imbalance and Non Delivery Charges:

- Information Imbalance should be the difference between what was declared prior to Gate Closure and what was delivered post Gate Closure. Therefore, for Information Imbalance Charging the Expected Metered Volume would be calculated as FPN adjusted for Bid –Offer Acceptances and Applicable Balancing Services Volumes. Hence, the existing definition of Expected Metered Volume would be utilised for this calculation; and

- The Non – Delivery Volume should be the difference between what the Transmission Company expected to be delivered when instructing a Bid – Offer Acceptance, and what was actually delivered by the BM Unit. Therefore the Non – Delivery Volume would be calculated against a level other than FPN.

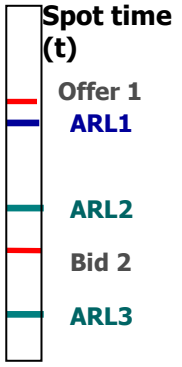
Therefore, under P167, separate definitions of Expected Metered Volume for the purpose of Information Imbalance and Non - Delivery Volume calculation would be required.

For the purpose of Non-Delivery Volume calculation, a new function Expected Acceptance Metered Volume $EAQM_{ij}(t)$ could be defined for each spot time within a Settlement Period. The Period Expected Metered Volume ($EAQM_{ij}$) could then be calculated by integrating the value of $EAQM_{ij}(t)$ over all spot times falling within the Settlement Period. This Period Acceptance Expected Metered Volume could then be used to derive the Non-Delivery Volume as follows:

Non Delivery Volume = Period Acceptance Expected Metered Volume + Applicable Balancing Services – Actual Metered Volume

Therefore the SSMG considered how to define the spot point values of Expected Acceptance Metered Volume $EAQM_{ij}(t)$.

As noted previously, for any individual spot time, multiple Acceptance Reference Levels $ARL^{k}_{ij}(t)$ and Acceptances may exists, as illustrated in the following diagram:



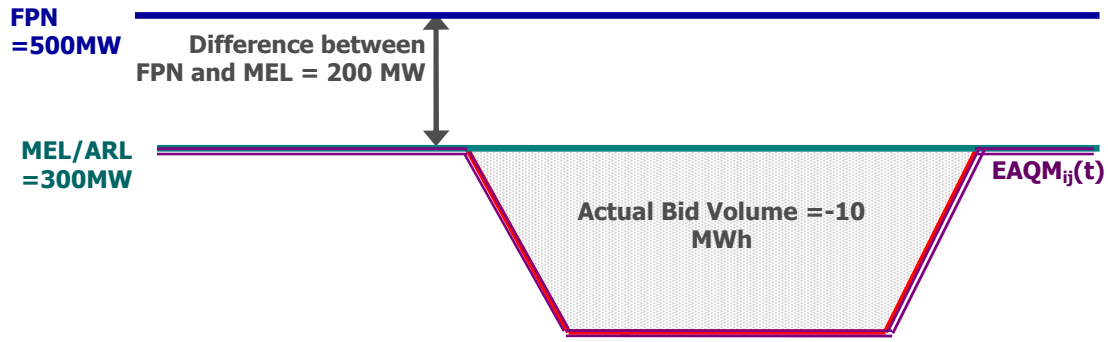
In order to determine which of the multiple Acceptance Reference Levels $ARL^{k}_{ij}(t)$ and Acceptances for a spot point should set the expected output level of the BM Unit the following logical rules could be applied:

1. Output levels directed by the Transmission Company take precedence over output levels notified by Parties (e.g. Bid/ Offer Acceptances take precedence over the ARL);
2. The directions made by the Transmission Company or notifications made by Parties should be considered in reverse chronological order;
3. Notifications made for retrospective spot times should not amend the expected output level.

Following this logic:

- The output level that should be expected where one or more Acceptances have been issued for a spot time is that of the last Acceptance issued for that spot time (since, this is the last output level instructed by the Transmission Company).
- Where, no Acceptance has been issued for a spot time, the output level that should be expected is the value of ARL^{k}_{ij} (t) associated with the last Acceptance issued with an Acceptance Time prior to the spot time being considered (since this will be the last output level for the spot time which has been prospectively declared by the Lead Party).

If we apply these rules to the previous example where a BM Unit is operating away from FPN and an Acceptance is issued as follows:



In this example a Bid has been accepted from MEL but not delivered, hence the BM Unit operates at MEL for the duration of the Settlement Period such that:

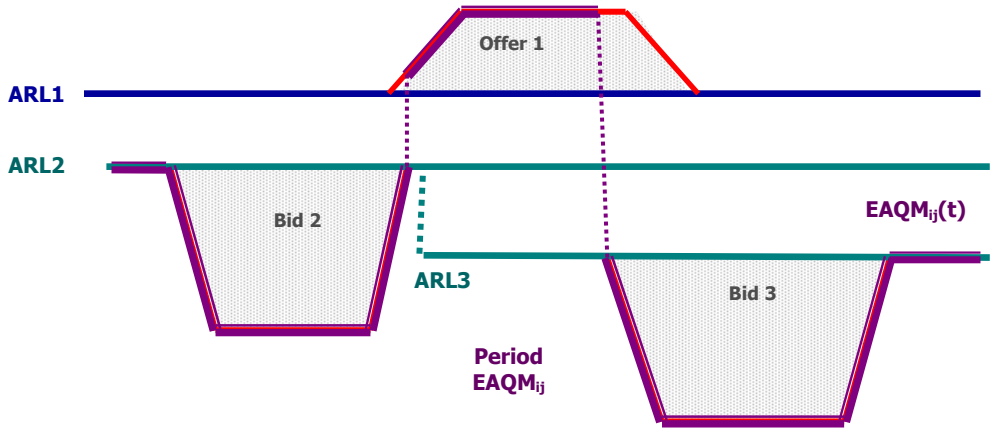
*Period Acceptance Expected Metered Volume = **140 MWh** (equivalent to ARL*SPD+ Bid Volume)*

*Actual Metered Volume = **150 MWh** (ARL *SPD)*

Hence the Non-Delivery Volume will be:

*Non Delivery Volume = Period Acceptance Expected Metered Volume (140) – Actual Metered Volume (150) = **-10MW***

Hence the non-delivery of the Bid would be identified under this approach (since the Non-Delivery Volume is negative, i.e. a Bid has been Non-Delivered). Therefore, the SSMG concluded that amending the Non-Delivery rules in this manner would provide a more accurate estimation of Non-Delivery Volumes than the existing baseline under the majority of circumstances. However, the SSMG noted that the calculation of the Expected Acceptance Metered Volume becomes much more complex where multiple MEL re-declarations have been made and a number of different Acceptances have been issued as illustrated below: NB: The SSMG noted that, whilst such scenarios are possibly, actual operational occurrences are highly unlikely.



The SSMG considered scenarios such as that illustrated in the diagram above and whether it would be possible to derive an approach to Non-Delivery which would accurately identify Non-Delivery Volumes in all circumstances. Having considered a number of potential solutions and scenarios, the SSMG concluded that the approach outlined above would provide the best approximation of Non-Delivery in the majority of circumstances and should form the solution for Proposed Modification P167.

SSMG Conclusions:

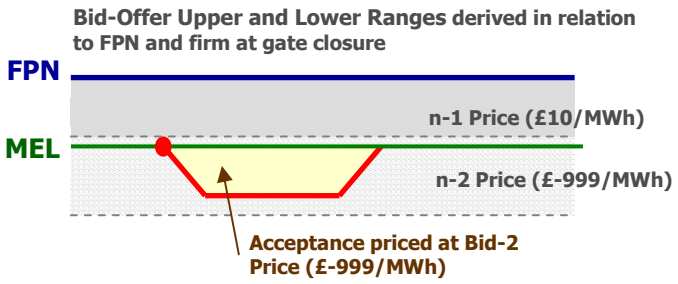
- **Non-Delivery calculation is an approximation which is limited by the resolution of actual metered data (only available at a Settlement Period level);**
- **The current baseline does not recognise the possibility of an Acceptance being issued from an output level other than FPN and may not accurately represent Non-Delivery in such scenarios;**
- **Amending the Non-Delivery calculation under P167 to that outlined above would provide a more accurate estimation of Non-Delivery than the current baseline; and**
- **It should be recognised that, due to the limitations on Metered Volume information, some scenarios would still not be accurately represented by the proposed Non-Delivery Calculation.**

1.4.4 Bid-Offer Upper and Lower Range Derivation

Bid and Offer Upper and Lower Ranges define the price the Transmission Company pays (or is paid) for an Acceptance. The SSMG have considered how Bid-Offer Upper and Lower Ranges should be derived under P167, two options were considered as follows:

Option 1: Bid-Offer Upper and Lower Range Derivation fixed at FPN

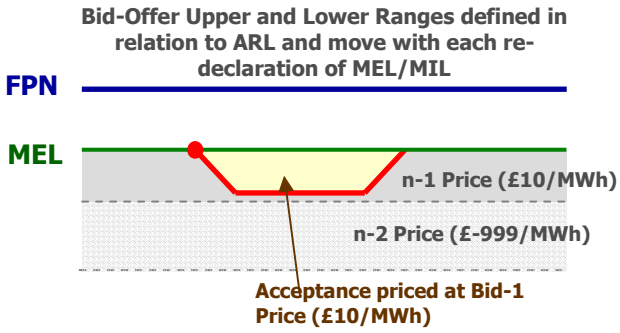
Under this approach Bid-Offer Upper and Lower Ranges would always be derived from FPN (as is the case under the current baseline). This approach would ensure that Bid-Offer Upper and Lower Ranges are firm at Gate Closure. However, both Parties and the Transmission Company would need to consider whether an Acceptance was from FPN or MEL/ MIL in order to determine the price of the Acceptance (since the relevant price band will be dependent on the point from which the Acceptance is issued).



In the example, a Party has submitted a Bid price which indicates they do not wish to reduce output to the level of the n-2 band (i.e. a high negative Bid price in the second band). With the Bid Upper and Lower Ranges derived from FPN, the price for an Acceptance taken from MEL would be calculated from the n-2 band and the Party would receive the associated payment for reducing output to an undesirable level if the Bid is accepted.

Option 2: Bid-Offer Upper and Lower Range Derivation derived in relation to ARL

Under this approach, Bid-Offer Upper and Lower Range Derivation would be from the Acceptance Reference Level. As a consequence, the cost of any Acceptance Volume would be independent of the level from which the Acceptance is taken (since the Bid-Offer Upper and Lower ranges will be derived in relation to the point from which the Acceptance is issued). This means Parties may not be able to price different output levels as considered below.



In the example, the Party has submitted a price which indicates to the Transmission Company that they do not wish to reduce output to the level of the n-2 band (i.e. a high negative Bid price in the n-2 band). However, following a re-declaration of MEL, the Bid Upper and Lower Ranges would be derived in relation to MEL and the price for an Acceptance taken from MEL would be calculated from the n-1 band. The Party would therefore not receive the associated payment for reducing output to an undesirable level if the Bid is accepted.

Following consideration of consultation responses (see section 6) the SSMG agreed that, under P167, Bid-Offer Upper and Lower Range derivation would be fixed at FPN. This approach was favoured on the grounds it would allow Parties to appropriately price output levels and receive the appropriate payment if the output of a BM Unit is reduced to an undesirable level. It was also noted that this process would have less impact on the systems and process used by both Parties and Transmission Company.

SSMG Conclusion:

- **Bid-Offer Upper and Lower Range derivation would be fixed at FPN**

1.4.5 Reporting

Under P167 new reporting requirements would be specified to indicate (to Parties and the Transmission Company in the Settlement Report) the level from which Acceptance Volumes have been calculated (as considered in Reference 5).

1.4.6 MEL and MIL Submissions

Under P167 submission of MEL/MIL data to the Transmission Company and provision of this data to BSC Agents for use in Settlement would be formalised as considered in section (1.8.2).

1.5 Implementation Costs

It was noted by the SSMG that under P167 there would be an impact on Parties (verifying the amended Settlement calculations) and on the BSC Systems (associated with the inclusion of MIL and MEL into the Settlement Calculation). Therefore, the SSMG have considered the cost of implementing P167 as follows.

It should be noted that the implementation costs are summarised in section 2 of this report, however the costs estimates included in section 2 are limited to the cost of amending central systems to support P167 and exclude the costs identified under participant and Transmission Company impact assessment as summarised in this section.

1.5.1 BSC Agent Costs

Impact assessment of the requirements specification (Reference 5) by BSC Agents indicated the following costs for amending their systems to include MIL and MEL into the Settlemnt calculation as required by P167 (the response to BSC Agent impact assessment is include as an appendix to this report):

- **Change Specific Costs of the order of £320k;**
- **Incremental Costs of the order of £28k; and**
- **Fixed Release Costs of the order of £250k.**

It was noted by the SSMG that the actual BSC Agent cost associated with implementing a solution would lie somewhere between the Total Cost (~£600k) and the sum of the Change Specific and Incremental Costs (~£350k) (the difference between these values being the Fixed Release cost).

The Fixed Release cost is an amount associated with any Release of the Central Systems, this value is independent of the changes included in the release. Hence, the proportion of the fixed release cost realised by an individual change is dependent on the scope of the release. For example were the P167 Central System solution implemented on its own it would realise the entire Fixed Release Cost (£250k). However, if implemented with 3 other significant changes, 1/4 of the cost would be associated with the change.

1.5.2 Party Costs

It was noted by the SSMG that, were P167 approved, there would be an impact on Parties, as they would be required to update their systems (in particular to account for the timing of MEL and MIL submissions when verifying Settlement Calculations). It was suggested by another SSMG member that the total cost to Parties could be of the order of 10 times the central costs. Participant impact assessment was conducted and the following costs were indicted by respondents:

- One response, indicating estimated costs in the region of £75k (assuming that these costs would be shared among Parties using the same type of system);
- Another respondent identified a requirement for changes to systems at an estimated cost of £100k; and
- Two respondents provided cost estimates which are confidential to ELEXON/ the Authority.

1.5.3 BSCCo Costs:

The SSMG noted that there would be an additional cost in terms of impact on BSCCo to be considered, both in terms of implementation effort and operational impact. In particular there would be an impact on BSCCo's Market Monitoring system (TOMAS). Under P167 changes to TOMAS to allow calculation of Bid – Offer Acceptance Volumes from spot point data in respect of the relevant output level (MIL / MEL) and with the correct Acceptance / declaration timings applied would be required.

ELEXON impact assessment identified the following costs:

- Requirement to support implementation (150 ELEXON Man Days incremental cost (£45,000) and 350 ELEXON Man Days (£105,000) as a stand alone change); and
- Requirement to upgrade TOMAS (approximately 100 ELEXON Man Days (£30,000));

Therefore, it is estimated that the ELEXON Implementation Resource Cost would lie somewhere between the stand alone cost of 450 ELEXON man days (£135,000) and the incremental cost of 250 ELEXON man days (£75,000).

1.5.4 Impact on the Transmission Company

Transmission Company analysis identified the following impact on the computer systems and processes of the Transmission Company:

- Change required to despatch systems used in the issuing of Acceptances;
- Requirement to support new variation of SAA-I014 flow (Settlement Report);
- Processes surrounding the submission of MEL/MIL would require amending in order to provide suitable assurance were the data to be used in Settlement calculations (see section 6 for further details);

The Transmission Company indicated a total cost of £470k to implement these changes.

Summary:

Participant	Costs
BSC Agent	Total Cost £600k Change Specific £350k
BSCCo	Total £75k Change Specific £135k
Transmission Company	£470k
Party Costs	£75-100k per Party

1.6 Impact of Perceived Defect

The SSMG have considered the impact of the perceived defect, both in terms of the financial benefit to those Parties directly affected and the cash flows in the market as a whole. The materiality of the perceived defect, in terms of the net benefit received by directly affected Parties under the current baseline, has been estimated to be between £100-400k pa, this section details the sources of this impact and the approach used for estimating the materiality.

The SSMG noted that the estimates of materiality included within this section is intended to represent the impact on cashflows within the market rather than a potential saving available to the industry as a whole should P167 be implemented. Therefore, it was recognised by the SSMG that the estimate of materiality is not a figure that can be simply compared to the implementation costs in order to derive a cost benefit.

1.6.1 Sources of impact

The perceived defect impacts on the calculation of Acceptance Volumes and results in an overstated Acceptance Volume being used in Settlement. As a result there is an impact on Imbalance Charges, payments made for Bids, the RCRC and BSUoS charges. It should be noted that the potential impact on Imbalance Prices is considered separately in section 1.6.4 of this document.

- ***Imbalance Cashflow***

The perceived defect impacts the imbalance position for directly affected Parties. The effect of overstating the Acceptance Volume(s) for the BM Unit has consequential effects on the Credited Energy for the Party (by removing some, or all, of the imbalance between FPN and MEL/MIL). Depending on the imbalance position of the Party prior to the Acceptance, this could result in the Party being less short, reducing the SBP liability, alternatively the Party could be made more long, resulting in a greater System Sell Price (SSP) (NB: exposure to SSP typically results in a payment). Therefore, Parties directly affected by the perceived defect are currently benefiting in terms of the imbalance cashflow.

- ***Bid/ Offer payments***

The perceived defect impacts the payments made to the Transmission Company for Bids by directly affected Parties. The overstatement of Acceptance Volumes typically results in increased Bid payments from directly affected Parties to the Transmission Company (assuming Bids are priced positively). Therefore, Parties directly affected are currently at a dis-benefit in terms of Bid payments as a result of the perceived defect.

The converse effect would be observed in terms of Offer payments, since, where MIL has been re-declared above FPN and an Offer Accepted by the Transmission Company, the impacted Party would

typically receive an increased payment. However this issue is not considered material in the current market due to the limited involvement of the demand side within the Balancing Mechanism.

- ***RCRC***

As discussed previously, the perceived defect impacts the imbalance position for directly affected Parties, resulting in a decrease in imbalance payments by these Parties (or increase in imbalance payments to these Parties). Therefore, the perceived defect results in a decrease in the RCRC, such that the majority of Parties with a physical position are currently at a dis-benefit in terms of the RCRC due to the perceived defect.

- ***BSUoS Charges***

It was recognised by the SSMG that changes to BSUoS charging methodology are not within the scope of P167, however it is necessary to consider how the perceived defect impacts on BSUoS charging in order to understand the impact on the overall market cashflow.

As discussed previously, the perceived defect typically results in an increase in payments made by directly affected Parties to the Transmission Company for Bids. Therefore, the perceived defect results in a decrease in BSUoS charges, such that the majority of Parties with a physical position are currently receiving a benefit in terms of the BSUoS charges.

1.6.2 Materiality Estimate

In order to understand the net effect of the perceived defect and resulting impact in terms of the overall cashflow within the market, the SSMG have performed analysis of live occurrences of the perceived defect and produced an estimate of the annually materiality as outlined in this section. It should be noted that the SSMG performed its analysis in respect of overstated Bid Volumes (MEL re-declared below FPN) as this is the commonest form of the anomaly (due to the current level of demand side participation in the Balancing Mechanism).

- ***Initial Estimate***

An initial estimate of the materiality of the perceived defect was made under the scope of Issue 7 as outlined in this section.

Identifying genuine occurrences of the anomaly requires timing information (in respect of MIL / MEL re-declarations) that is not currently available in a format that allows automated processing. Therefore, an approximation was used to identify potential occurrences of the perceived defect over a 12 month period.

Settlement Periods, where the 'period' MEL was less than the 'period' FPN[3] and an Acceptance had been issued, were identified as potential occurrences of the anomaly. Initial analysis using this approach identified approximately 7,000 potential occurrences of the anomaly over a 12 month period. It should be recognised that some of these occurrences were not genuine, as it depends upon the sequence of issuing Acceptances and MEL re-declarations (which was not taken into account at this stage of analysis).

For each potential occurrence, the difference between FPN and MEL for the Settlement Period was used to estimate the overstatement of Acceptance Volume resulting from the perceived defect. It should be noted that this approach tends to increase the materiality estimate (since the Acceptance is assumed to last the duration of the Settlement Period, this is considered in the following section). Utilising this estimate of overstated Acceptance Volumes and the corresponding Bid prices, an estimate of the annual materiality in terms of decreased Bid payments from directly affected Parties was made (£500k pa).

[3] The average value of the MEL across the Settlement Period was compared to the average value of the FPN, however at this stage no allowance could be made for the timing of the MEL submissions.

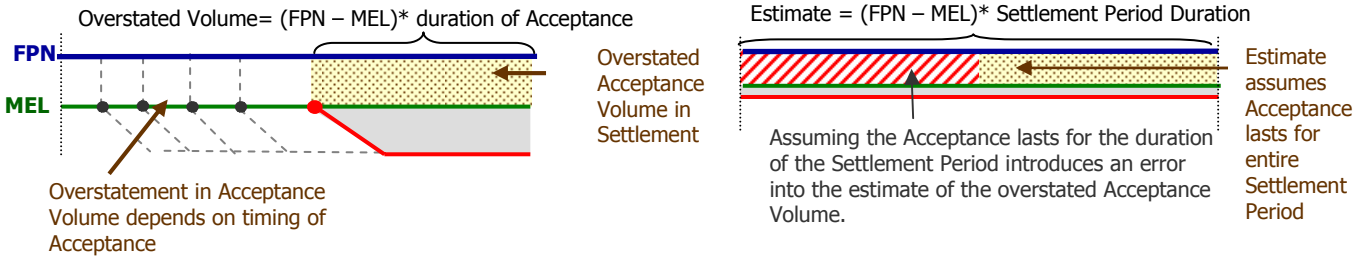
The estimated change in imbalance payments was calculated by multiplying the estimated change in Bid Volume by SBP, giving an estimated annual materiality in terms of decreased imbalance payments of £2m pa. It should be noted that this estimate is based on the assumption that the relevant Party account was short and would be subject SBP, in some cases the Party may actually have been long and subject to SSP, hence this approach tends to overestimate the materiality.

Therefore, initial analysis indicated that Parties directly affected by the anomaly would receive a net benefit of the order of £1.5m pa. However, the SSMG recognised that there were significant assumptions made in producing this estimate that would tend to overestimate the materiality and it was agreed that further analysis should be conducted in order to refine this estimation.

- ***Capping of estimated overstated Acceptance Volume***

The SSMG recognised that estimating the change in Acceptance Volume as the difference between the period FPN and the period MEL would result in an over estimation of the materiality in some cases and have allowed for this overestimation as considered in this section.

In order to estimate the overstated Acceptance Volume that is introduced into Settlement by the perceived defect, it was initially assumed that overstatement of Acceptance Volume is the difference between FPN and MEL multiplied by the Settlement Period Duration (i.e. that all affected Acceptances were issued at the start of the Settlement Period). However, since Acceptances can be issued at any point in the Settlement Period, the actual overstatement of Acceptance Volume is the difference between FPN and MEL multiplied by the duration of the Acceptance within that Settlement Period. Therefore, where the Acceptance is issued late in the Settlement Period there is a significant overestimation of the overstated Acceptance Volume, as illustrated diagrammatically below:



In the Settlement systems, the Acceptance taken from MEL is interpolated from MEL to FPN, resulting in an overstatement of the Acceptance Volume; the extent of this overstatement depends on the point in the Settlement Period at which the Acceptance is issued.

In the estimation, it is assumed the Acceptance lasts for the duration of the Settlement Period, hence the estimated overstatement of Acceptance Volume in Settlement is larger than the actual overstatement.

In particular, the SSMG noted that, in some cases, this approach had resulted in an estimated overstatement of Acceptance Volume that was greater than the total Settlement Period Acceptance Volume. Clearly the actual overstatement of the Acceptance Volume cannot exceed the total Settlement Period Acceptance Volume (since the total Settlement Period Acceptance Volume is the sum of the actual Acceptance Volume and the Overstated Acceptance Volume). Therefore, the estimate of materiality was refined by capping the estimated change in Bid Volume to the magnitude of the original Bid Volume. This refinement in the analysis resulted in a reduction of the estimated net materiality from £1,500,000pa to £650,000pa.

- ***Sensitivity to SBP and SSP***

In producing the initial estimate of materiality it was assumed that in all cases the directly affected Party would be short and that the benefit in terms of avoided imbalance would be received at SBP. However, it was recognised by the SSMG that the Party may actually be long and the imbalance benefit received at SSP. Analysis indicated that, over the 12 month period being considered, Parties were long 75% of the time. The SSMG have therefore produced three separate estimates of the annual materiality based on the assumptions that:

  - In all cases the Party was short and the imbalance benefit was received at SSP;
  - in all cases the imbalance benefit was received at a 'mid price' (where the mid price is derived as 25% SBP and 75% SSP, in recognition of the proportion of cases where Parties were actually long in the time period considered); and
  - In all cases the Party was long and the imbalance benefit was received at SSP.

- ***Validation***

In recognition of the fact that the initial analysis would have identified a number of potential occurrences which were not genuine (due to the fact timing information in relation to MEL submissions and Acceptances had not been taken into account), the SSMG performed further analysis in an attempt to remove the contribution of false occurrences from the materiality estimates.

It was noted by the SSMG that 35% of the overall materiality was associated with only 100 of the 7000 potential occurrences (1.5%). Therefore, these 100 potential occurrences were verified manually via the use of BMRS data and those occurrences not considered to be genuine were removed from the estimate.

In order to account for the inclusion of false occurrences in the unverified portion of the data set, a week's data (approximately 160 potential occurrences) was interrogated manually (via reference to the BMRS and use of MEL submission times provided by the Transmission Company). Analysis of this subset of the data indicated that approximately 60% of the occurrences were genuine and 40% were false, furthermore the average materiality of genuine and false occurrences was found to be approximately equal. It was therefore assumed that false occurrences would be contributing around 40% of the materiality of unverified occurrences and the total materiality estimates were reduced accordingly.

It should be noted that it is possible that the method used to identify potential occurrences of the perceived defect may have missed some genuine cases, however no allowance has been made for this in the materiality estimates.

Conclusion:

The SSMG have produced estimates of the annual materiality associated with P167 (in terms of avoided imbalance payments and increased Bid payments) as follows:

- **Settlement Periods where the period FPN is more than the period MEL and an Acceptance has been issued are potential occurrences of the perceived defect;**
- **The overstated Acceptance Volume is approximately equal to the difference between period FPN and period MEL (capped to total Settlement Period Acceptance Volume);**
- **Separate estimates have been produced recognising the sensitivity to whether Parties were long or short and imbalance benefit may be received at SBP or SSP;**

- **False occurrences with significant materiality were removed, based on manual verification of the 100 most significant cases; and**
- **40% of the materiality of unverified occurrences was removed to account for false cases, based on manual verification of a subset of the data.**

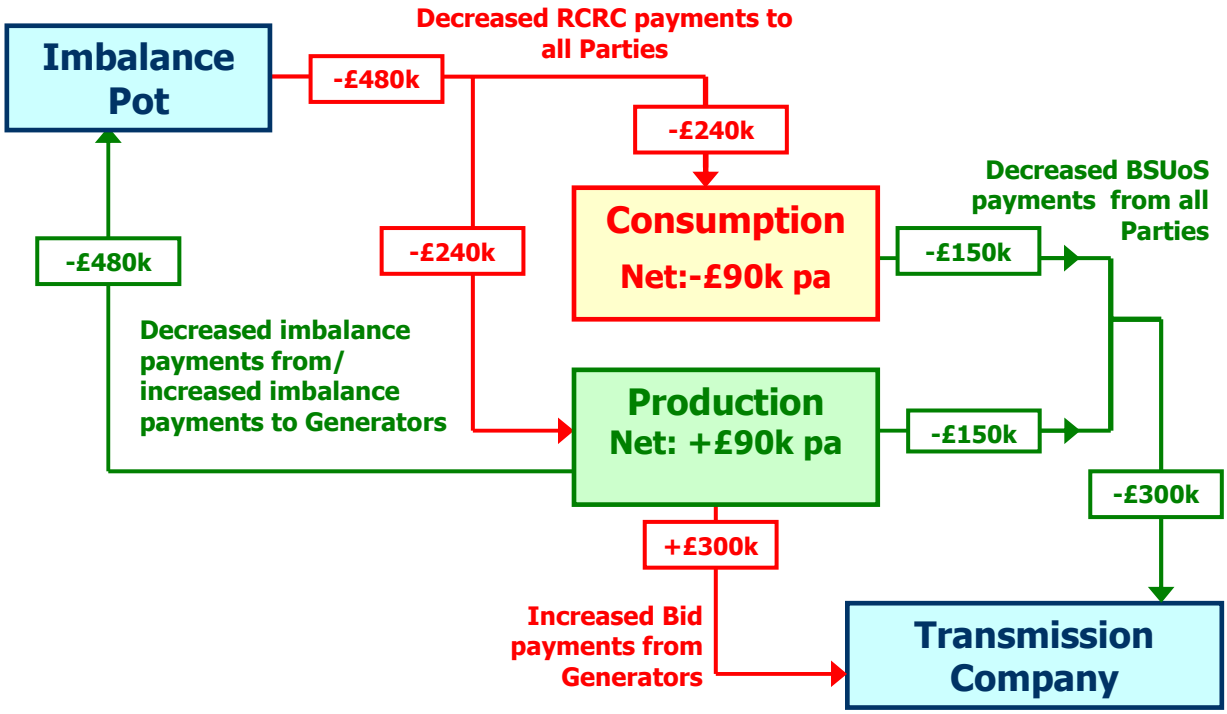
Final Estimate	SBP (£pa)	Mid price (£pa)	SSP (£pa)
Materiality of decreased imbalance payments	700,000	480,000	400,000
Materiality of increased Bid payments	-300,000	-300,000	-300,000
Net Materiality	**400,000**	**180,000**	**100,000**

It should be noted that, although every effort has been made to refine these values as far as possible, it has been necessary to make a number of assumptions in order to estimate the materiality of the perceived defect, therefore this analysis should not be interpreted as a definitive assessment of the materiality; rather it should be interpreted as an indicative guide to the potential materiality.

1.6.3 Overall Impact on Market Cashflows

Having estimated the impact in terms of the net benefit to directly affected Parties the SSMG considered the impact on the overall cashflow within the market. The following simplistic diagram illustrates, at a high level, how the perceived defect is currently impacting the various different cashflows within the market. It should be noted that the materiality figures included in the diagram are based on the mid price estimates of annual materiality (see section 1.6.2).

For the purpose of this analysis it has been assumed that the decrease in the RCRC is equal and opposite to the materiality in terms of avoided imbalance (since a reduction in imbalance payments by directly affected generators results in a reduction in the RCRC received by all Parties). It has also been assumed that the increase in BSUoS charges is equal to the materiality in terms of increased Bid payments (since the increase in Bid payments by directly affected generators results in a reduction in BSUoS charges for all Parties).



It was noted by the SSMG that the perceived defect is currently resulting in a net flow of cash from the consumption side, to the production side, of the market (such that implementation of P167 would result in a net cashflow from production to consumption). In order to understand the impact of the perceived defect on Parties with different portfolio types, in particular where Parties have a balance of supply and generation assets, the SSMG have considered how the impact on the various cashflows illustrated above would be distributed amongst participant types as follows:

- **Suppliers**

  For the purpose of this analysis a Supplier is considered to be a Party that either has predominantly supply assets or has generation assets not directly affected by the perceived defect. It is also assumed that a Supplier has a 20% share of the supply market and 10% of the entire market (and receives an associated proportion of the impact on each cashflow affected).

- **Vertically integrated participants**

  For the purpose of this analysis a vertically integrated participant (VIP) is considered to be a Party with an equal mix of supply and generation assets. It is also assumed that a vertically integrated participant has a 20% share of both the supply and generation market and therefore a 20% share of the total market (and receives an associated proportion of the impact on each cashflow affected). The SSMG noted that, in practice, it is unlikely that any participant will have precisely matched supply and generation assets, therefore the actual impact observed would tend towards the portion of the business which dominates i.e. vertically integrated participants with more generation will tend to towards the impact for a generator whilst those with more supply assets will tend towards the impact for a Supplier.

- **Generators**

  For the purpose of this analysis a generator is considered to be Party with predominantly generation assets participating in the Balancing Mechanism and directly affected by the perceived anomaly. For the purpose of this analysis it has been assumed that a generator has a 20% share of the generation market and a 10% share of the entire market (and receives an associated proportion of the impact on each cashflow affected).

It should be noted that this analysis is intended to be relatively high level and to give an indication of the impact on general Party types depending on their balance of supply and generation assets. The examples should not be taken as a definitive assessment of the impact on any individual Party, as both the relative proportion of generation and supply assets and market shares will clearly vary significantly between individual Parties.

	Supplier	VIP	Generator
Supply Market Share	20%	20%	0
Generation Market share	0	20%	20%
Total Market Share	10%	20%	10%
Imbalance Benefit (£k pa) (Total impact on Imbalance Payments * generation market share)	0 (0% of 480)	+96 (20% of 480)	+96 (20% of 480)
RCRC Benefit (£k pa) (Total impact on RCRC benefit * total market share)	-48 (10% of -480)	-96 (20% of -480)	-48 (10% of -480)
Bid Benefit (£k pa) (Total impact on Bid benefit * generation market share)	0 (0% of -300)	-60 (20% of -300)	-60 (20% of -300)

BSUoS Benefit(£k pa) (Total impact on BSUoS * total market share)	+30 (10% of 300)	+60 (20% of -300)	+30 (10% of -300)
Net Benefit (£k pa)	**-18**	**0**	**+18**

SSMG Conclusions:

- **Suppliers are currently receiving a net dis-benefit from the perceived defect, and would therefore financially benefit from the implementation of P167;**
- **Vertically integrated participants (with equal generation and supply assets) are currently neutral to the perceived defect; and**
- **Generators (participating in the Balancing Mechanism and directly affected by the perceived anomaly) are currently at a net benefit from the perceived defect, and therefore would be at a financial dis-benefit from the implementation of P167.**

1.6.4 Impact on Imbalance Prices

Overstating Acceptance Volumes has the potential to impact on the calculation of imbalance prices, as these overstated volumes are used in the derivation of the Net Imbalance Volume (NIV), as follows:

Figure 1 represents the price setting mechanism. The NIV Tagging mechanism derives the 'length' of the system by comparing the Accepted Offer (and Balancing Services Adjustment Data (BSAD) purchase) volume with the Accepted Bid (and BSAD sales) volume. Where the Offer Volume exceeds the Bid Volume, then the NIV is positive, and the system is considered to have been short (insufficient generation to meet demand) in that Settlement Period.

The current mechanism calculates a volume weighted average price from the Accepted Offers (and Energy BSAD if present) remaining in the NIV (i.e. the volume 'left' when the Accepted Bid Volume is netted off the Accepted Offer volume). The NIV is intended to represent the volume associated with energy balancing. The system balancing actions are considered to be those that are netted off by NIV Tagging.

Where the Bid Volume exceeds the Offer volume, then the NIV is negative, and the system is considered to have been long (generation exceeds demand) in that Settlement Period, this is shown in Figure 2.

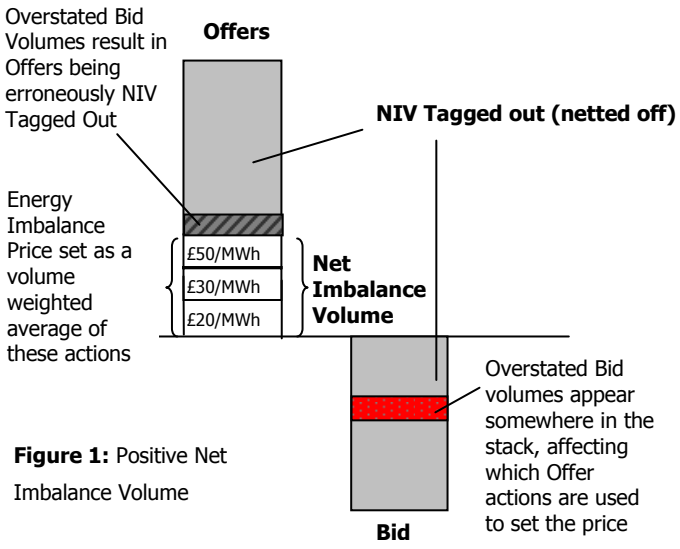


Figure 1: Positive Net Imbalance Volume

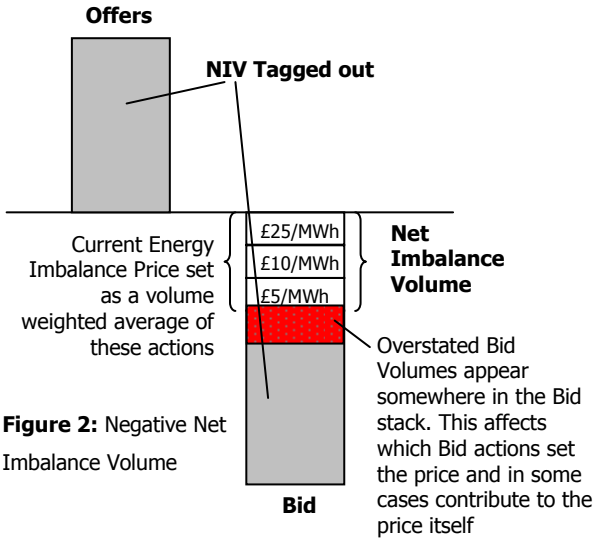


Figure 2: Negative Net Imbalance Volume

Overstated Acceptance Volumes, resulting from the perceived defect identified under P167, will feed into the NIV Tagging mechanism, thereby impacting the calculation of the imbalance prices. For example an overstated Bid Volume may cause the market to appear longer, affecting which actions set the imbalance price, and could, in extreme cases, cause the market to switch from short to long.

The SSMG have considered the potential impact of the perceived defect on imbalance prices and this section details the analysis of the SSMG in this area.

1.6.4.1 Analysis of impact on Imbalance Prices

The SSMG have conducted analysis of the impact of the perceived defect on Imbalance Prices. It should be noted that there are two (main) caveats that apply to the analysis undertaken that should be considered when reviewing / assessing the results:

- The analysis has been performed on potential occurrences of the anomaly identified via comparison of period MEL and period MIL, taking no account of the relative timings of the Acceptance and MEL re-declaration. Therefore, given that the issue is highly timing dependent, it is possible that genuine occurrences of the issue have been excluded, and that erroneous instances have been included; and
- It is also impossible to determine whether MEL has been re-declared more than once, and therefore whether the Acceptance Volumes are being calculated with reference to the 'correct' MEL.

In light of these assumptions, this analysis should not be interpreted as a definitive assessment of the materiality in respect of the implications on the imbalance prices; rather it should be interpreted as an indicative guide to the potential materiality.

- **Process Followed**

Settlement Periods from 20 March to 12 April and from the 28 June to 21 July 2004 were considered. For this time period (approximately 2300 Settlement Periods), potential occurrences of the anomaly were identified for BM Units where the Settlement Period MEL was lower than the Settlement Period FPN and an Acceptance had been instructed on the BM Unit. It should be noted that this approach makes no allowance for the timing of the MEL submission and will typically over estimate the number of affected Settlement Periods.

For all the Settlement Periods identified as potentially affected the imbalance prices were recalculated on the basis of Acceptance Volumes derived in relation to MEL for the relevant BM Unit.

Cases where one (or both) of the imbalance prices (System Sell and / or System Buy) had changed significantly were identified for further manual investigation. These cases were considered individually (via manual reference to BMRA data) in order to identify whether or not an apparently genuine occurrence of the anomaly exists. This judgement was based on the following criteria:

- MEL is less than FPN throughout the Settlement Period;
- The Acceptance points correspond to the MEL. This is assumed to indicate that the BM Unit was operating at MEL prior to the Acceptance instruction, thus implying the MEL re-declaration was issued prior to the Acceptance.

In the absence of MEL submission information, these criteria were used to identify cases where maximum confidence can be taken that the occurrence of the anomaly is genuine. Therefore, it should not be assumed that cases that do not meet these criteria are not genuine occurrences.

- **Results**

In the period from 20 March to 12 April and from the 28 June to 21 July 2004[4] (comprising approximately 2300 Settlement Periods) the number of Settlement Periods flagged as potentially affected was 816 (approximately 35% of the total Settlement Periods). It should be noted that the 35% figure is derived from the approximation that BM Units on which Acceptances were taken and the period MEL is below the period FPN for the Settlement Period are occurrences of the perceived defect, this approach is caveated above.

Of these 816 Settlement Periods, recalculation of the imbalance prices indicated a change of +/- £0.25 or more in 62 cases (7.6% of the 816 Settlement Periods, and 2.7% of the total number of Settlement Periods (2300)). From these 62 cases, 7 have been identified as having both a potentially material impact on the imbalance prices and a high likelihood of being genuine (noting that other potential occurrences may also be genuine). It was also noted by the SSMG that in some cases the overstated Acceptance Volume had caused the market to flip from long to short (or vice versa). For these example cases the absolute change in imbalance payments in the Settlement Period affected has also been estimated by multiplying the change in relevant imbalance price by the total Imbalance Volumes (long and short) in the affected Settlement Periods.

The following table outlines the analysis of the Imbalance Price impact in the 7 example cases:

Date	SP	BMUs Affected	Original SBP	Original SSP	Revised SBP (change)	Revised SSP (change)	Change in Imbalance Payments (absolute)
21-Mar-04	45	T_MEDP-1	£19.13	£-20.63	£19.13 (0)	-£14.78 (28%)	£2,600
22-Mar-04	47	T_WBUPS-4	£15.42	£14.62	£15.00 (3%)	£15.00 (2.6%)	£154
01-Apr-04	28	T_DRAXX-6	£28.63	£13.60	£28.63 (0)	£14.49 (6.5%)	£560
11-July-04	23	T_TILB-9 T_LBAR-1 T_SEAB-1	£28.73	£15.70	£21.75 (24%)	£21.75 (39%)	£9,400
14-July-04	18	T_DIDC2	£21.71	£16.05	£42.83 (97%)	£21.71 (83%)	£4,400
20-July-04	28	T_SEAB-2 E_BRYP-1	£25.77	£13.94	£45.54 (76%)	£25.77 (84%)	Not estimated (SF data not available for analysis)

The SSMG have also estimated the annual materiality of the impact on imbalance prices in terms of imbalance payments to /from Parties. It should be noted that this estimate has been made using absolute changes in Imbalance Payments. As such, the estimate does not represent a measure of actual cash flow impact on any particulars section of the market, since imbalance payments can be both positive and negative and will clearly net between Settlement Periods and trading groups.

For Settlement Periods in 48 of the Settlement Days considered (28 June- 19 July and the 20 March – 12 April 2004[4]) which had been flagged as potentially affected by the perceived defect, the impact on imbalance payments made by Parties was estimated (by multiplying the change in relevant imbalance price by the total Imbalance Volume (long or short as appropriate) in the affected Settlement Periods). This gave an absolute change in imbalance payments to or from Parties in the 48 Settlement Days considered of approximately £72,000. This estimate was then reduced by 40% to £43,000, in

[4] These dates were chosen as Settlement Final (SF) data was available at the time of conducting the analysis.

recognition of the contribution of false occurrences (see section 1.6.2). Annualising this 48 day estimate gave an estimate of materiality of the impact on imbalance prices in terms of absolute imbalance payments by Parties of £327,000 pa. In order to put this figure into context the SSMG noted that the total absolute Imbalance Payments was of the order of £200m pa. One SSMG member noted that the actual figure could be substantially higher than the estimate, since the analysis was based on data for summer Settlement Periods and that the impact may be more substantial during winter months (due to typically higher Imbalance Charges over these periods)

SSMG conclusions:

- **The perceived defect has the potential to impact the imbalance prices in up to 35% of Settlement Periods;**
- **The estimated annual materiality of the impact on imbalance prices, in terms of absolute imbalance payments from/to Parties, is £327,000 pa;**
- **In the majority (at least 97%) of potentially affected Settlement Periods the impact is less than £0.25 on both imbalance prices; and**
- **The impact on the imbalance price in any individual Settlement Period could be significant (97% in one example).**

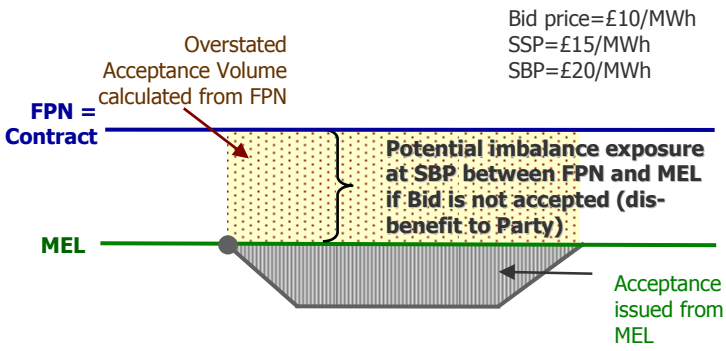
1.7 Potential for exploitation of the issue

The SSMG have considered the potential for exploiting the perceived defect (i.e. re-declaration of MEL/ MIL below FPN in order to avoid imbalance). It is the view of the SSMG that the opportunity for Parties to gain a commercial advantage by targeting the anomaly would be limited for the following reasons:

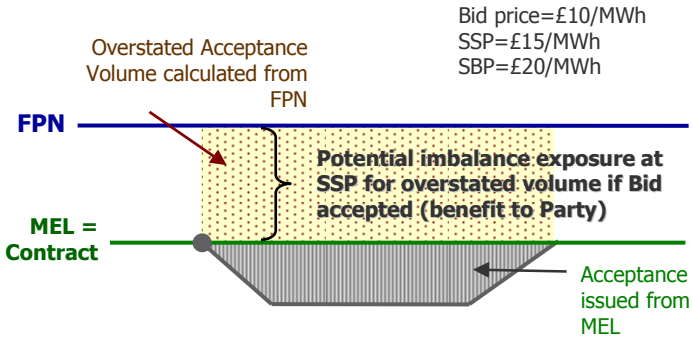
- It cannot be predicted whether the Transmission Company is going to take the Bid on that BM Unit;
- The Bid Price would have to be favourable to the Transmission Company to make the Bid attractive and increase the possibility of it being called (potentially reducing the 'profit' for the BM Unit when the Bid is called outside of the circumstances when this issue arises);
- The Bid Price would have to be below the relevant system price for there to be any advantage from re-declaring MEL below FPN;
- Acceptances may not last for the entire Settlement Period, therefore even if a Bid is accepted, the overstated Bid Acceptance Volume may not 'cover' the imbalance volume (i.e. FPN minus MEL) exposing the Party to imbalance for the 'uncovered' volume (i.e. during the portion of the Settlement Period where there is no Acceptance the Party may still be exposed to Imbalance). It should be noted that this assumes the Party has contracted at FPN, although this may not be the case; and
- To efficiently exploit the perceived defect the Party would need to predict the length of the market in the Settlement Period.

It was also noted that the Transmission Company has procedures in place to check, as far as possible, the veracity of MEL and MIL re-declarations. Furthermore, the SSMG noted that analysis of live occurrences had not shown any indication of Parties exploiting the anomaly to date.

The SSMG have also considered the potential for a Party to exploit the perceived defect by contracting away from FPN. The majority of analysis within this document assumes that the Party has contracted at or around its FPN, in this situation there is a potential imbalance exposure as a result of operating at MEL (i.e. if the Transmission Company does not issue an Acceptance the Party will be subject to imbalance for the difference between FPN and MEL). However, if a Party actually contracts at MEL this imbalance exposure would be removed (since the Party will not be subject to imbalance exposure if an Acceptance is not issued). The following example illustrates how the Party could exploit the issue when contracting to MEL.



Contracting to FPN:
If the Bid is accepted, the Party pays for the overstated Acceptance Volume (at Bid price of £10/MWh). The Party also avoids imbalance for the overstated Acceptance Volume (at SBP of £20/MWh). Therefore, if the Bid is accepted the Party receives a net benefit for the Overstated Acceptance Volume at the difference between SBP and the Bid price (£10/MWh). However, if the Bid is not accepted the Party will be exposed to SBP for the difference between FPN and MEL. This potential imbalance exposure reduces the potential for the Party to exploit the perceived defect when contracting to FPN.



Contracting to MEL:
If the Bid is accepted, the Party pays for the overstated Acceptance Volume (at Bid price of £10/MWh). The Party will also be credited with the overstated Acceptance Volume, this will result in the Party being long (since contract = MEL) and receiving SSP (£15/MWh) for the overstated volume. Therefore, if the Bid is accepted the Party receives a net benefit for the Overstated Acceptance Volume of the difference between SSP and the Bid price (£5/MWh). However, if the Bid is not accepted the Party is neutral, since contract is at MEL and, as such, there is no imbalance exposure. Hence there is no risk to the Party when exploiting the perceived defect.

The previous example illustrates that it is possible for the Party to exploit the perceived defect at no risk by submitting an FPN much higher than the contracted level but re-declaring MEL to the contracted level post Gate Closure. If the Party then has a Bid accepted it will receive a net benefit for the overstated Acceptance Volume at the difference between the Bid price and SSP, however if a Bid is not accepted there will be no imbalance exposure and hence no risk to the Party. The SSMG noted that if a Party were to attempt to exploit the perceived defect in this way it would loose potential income from Offers and that this would act as a disincentive against exploitation. In addition it was noted that there are Grid Code obligations to submit accurate FPNs.

SSMG Conclusions:

- **To date there is no evidence of exploitation of the perceived defect;**
- **Going forward the possibility for exploitation of the issue is extremely limited due to the number of variables influencing the possible benefit to Parties.**

1.8 Interaction with the Grid Code, including submission of FPN, MIL and MEL data

1.8.1 Drivers on MEL and MIL submissions

It was noted by the SSMG that MEL and MIL are currently defined within the Grid Code and there is no commercial driver on submissions. In order to address the perceived defect it would be necessary to include MEL and MIL submissions within the Settlement calculation, this could place a commercial driver

on, and affect Parties approach to, such submissions. For example a Party may avoid re-declaring MEL for a BM Unit if it is considered that the Transmission Company may issue a Bid on the plant, since if a Bid is issued prior to the MEL re-declaration the Acceptance Volume will be calculated from FPN (rather than MEL) and the Party would be protected from Imbalance exposure. As a consequence, there is a potential adverse impact on MEL and MIL submissions if Parties were to postpone re-declaring MEL or MIL in order to achieve a commercial benefit through Settlement. It was noted by the SSMG that submission of accurate and timely MEL and MIL information is a Grid Code requirement and any Party delaying submission of such information in order to achieve a commercial benefit within Settlement could be held to account and could be subject to a Significant Incident Report (as defined under the Grid Code).

SSMG Conclusions:

- **P167 would place a commercial driver on, and therefore potentially impact, the submission of MEL and MIL data to the Transmission Company.**

1.8.2 Method for submission of MEL and MIL data

Transmission Company analysis of P167 raised several points in relation to MEL/MIL data submission which can be summarised as follows:

- Interim processing of MEL/ MIL information provided by participants is required by the Transmission Company prior to submission of this data to the BSC Agent in order to provide MEL/MIL data defined for all points within the Settlement Period.
- Historically, it has been considered a point of principle that the Transmission Company should not amend data submitted by participants in any way where this data is to be used in Settlement calculations. For example, participants are required to submit Physical Notification data which is defined for all points within the Settlement Period such that no pre-processing is required by the Transmission Company prior to use in Settlement (i.e. the Transmission Company passes Physical Notification data as submitted by Parties directly to BSC Agents). Were P167 to be approved, without amendment of the current method by which Parties submit MEL/MIL data, participants would have to accept that data pre-processed by the Transmission Company would be used in Settlement.
- Were MEL/MIL data to be used in Settlement in the form currently provided by the Transmission Company (i.e. including some pre-processing following submission by Parties) the Transmission Company may require a more robust process for pre-processing MEL/MIL data in order to provide assurance that the data is suitable for use in Settlement (the cost of which is included in the Transmission Company analysis of P167). Furthermore, formal documentation of the process used would be required such that method could be robustly applied and disputed.

In light of the comments raised by the Transmission Company relating to the submission of MEL and MIL data into Settlement the SSMG considered two options as follows:

Option 1: Continue with existing process
Under this approach the Transmission Company would continue to use the existing process for profiling effective MEL and MIL levels.

The legal drafting for P167 would set out (in the BSC) the method by which the Transmission Company would process MEL/MIL information following receipt from Participants and prior to submission to BMRA/ SAA. Any failure to follow this methodology would then be disputable under the BSC.

Option 2: Re-Define the process for submission of MEL/ MIL data by Parties
Under this approach Parties would be required, on each submission, to provide MEL/ MIL data defined for all points within the affected Settlement Periods. As such, no additional Transmission Company processing would be required prior to such data being submitted to the BSC Agents. Thus any concerns relating to

violating the principle that the Transmission Company should not amend data submitted by participants in any way prior to use in Settlement would be removed.

The Transmission Company indicated that this approach would require a Grid Code change to amend the existing rules for submission of MEL/ MIL information. There would also be an additional impact on Participants and the Transmission Company beyond that previously identified under P167 impact assessment responses (due to the amended approach for ME/ MIL submission).

On consideration of the two options outlined above the majority of the SSMG agreed that approach 1 (whereby the current method for submitting MEL/ MIL data to BSC Agents would be formalised under P167) formed the most efficient solution. Concerns expressed by the Transmission Company in relation to the principle that the Transmission Company should not amend data submitted by participants in any way prior where this data is to be used in Settlement calculations were noted by the SSMG. However, in coming to its conclusion the SSMG recognised that the pre-processing required by the Transmission Company was limited to linear interpolation of values submitted by Parties, and provided this process was documented within the Code, Parties would have assurance that the process was being applied correctly.

In addition the SSMG considered whether, under either of the options considered above, it would be necessary for the Transmission Company to report back to participants the data which would be passed to the BSC Agents for use in Settlement. The Transmission Company confirmed that currently, on receipt of data from participants, (including both Physical Notification data and MEL/ MIL submissions) an initial response is provided to confirm receipt and a further message is sent detailing the results of data validation. However, these response files do not include details of the data that will be submitted into Settlement and therefore additional system amendments would be required to provide this functionality. The SSMG concluded that under P167, the current approach (consistent with that for Physical Notification Data) whereby the Transmission Company provide an initial response confirming receipt and a further message detailing the results of data validation should be utilised for MEL/MIL data submission under P167.

One SSMG member queried how it would be possible to dispute the submission of MEL/ MIL data by the Transmission Company without feedback of the values being submitted into Settlement. However, it was noted by the Group that Central System reporting of Acceptance Reference Levels would allow Parties to identify any errors in the submission of MEL and MIL data.

SSMG conclusions:

- **Under P167 the existing MEL/MIL data submission process would not be amended, such that a small amount of pre-processing would continue to be required by the Transmission Company;**
- **The existing process would be formalised within the Code.**

1.8.3 Incentives to meet FPN

The SSMG have considered whether P167 would affect the incentives for Parties to meet their FPNs. Currently the Code does not place an incentive on Parties to meet FPN, since the Information Imbalance Charge (paid by Parties whose actual positions do not match their FPN) is set to zero. As such, the current incentives to meet FPN sit in the Grid Code rather than the BSC and would not be modified under P167. Therefore, it was the view of the SSMG that there would not be an impact, either beneficial or detrimental, on the incentives for Parties to meet FPN under P167.

The SSMG noted the view expressed by one consultation respondent that the opportunity to obtain commercial benefit via a re-declared MEL/MIL could act as a disincentive to submit accurate Physical

Notification data. Consistent with their views on the potential for gaming, the SSMG concluded that the practical difficulties in exploiting the perceived defect would reduce the opportunity to target the perceived defect. Therefore, the SSMG concluded that the perceived defect would not have a significant impact on the incentives to submit accurate Physical Notification data.

SSMG Conclusion:

- **No impact on incentives for Parties to meet their FPNs.**

1.9 Potential impact on other dynamic data items

In recognition of the issues identified under P167 relating to the impact on Acceptance Volumes of post Gate Closure MEL and MIL submissions, the SSMG have considered whether there would be similar issues for other Dynamic Data items (as defined in Section Q2.1.2 of the Code). No impact on Settlement resulting from Parties re-declaring any of the Dynamic Data items apart from MEL or MIL has been identified by the SSMG.

SSMG Initial Conclusions:

- **Similar issues identified under P167 in relation to MEL or MIL re-declarations have not been identified for other Dynamic Data items.**

1.10 Exception rules

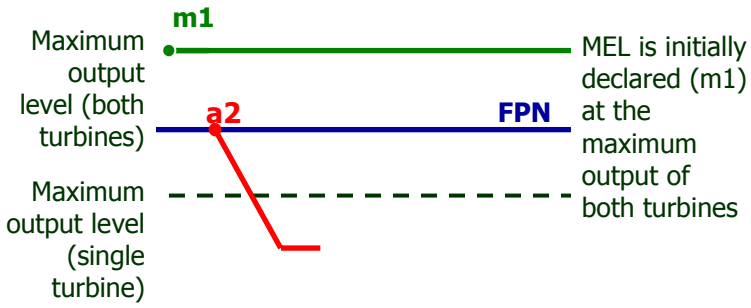
The SSMG have considered potential circumstances where it would be inappropriate for the Acceptance Volume to be calculated from MIL/ MEL, despite the Party re-declaring MIL/ MEL prior to the Transmission Company issuing the Acceptance, and whether exceptions rules would be required in such scenarios.

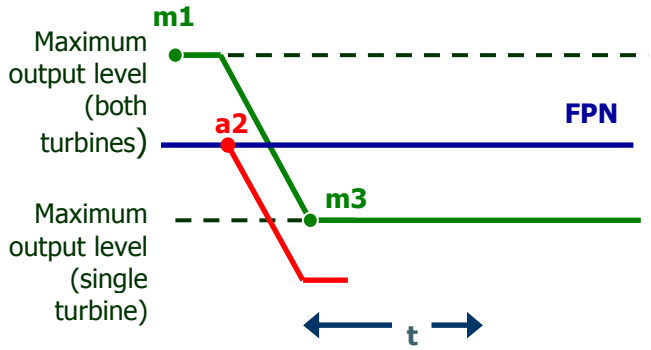
1.10.1 Multi shafted BM Units

The SSMG have identified a potential exception scenario which relates to the operation of 'Multi Shafted' BM Units (a single BM Unit with multiple turbines).

The scenario arises where the Party issues a Bid which, if accepted by the Transmission Company would require one of the turbines to be desynchronised for a number of Settlement Periods (typically between 4 and 12 hours). In order to manage the situation such that the plant can return to its FPN, the Transmission Company may issue multiple Acceptances on a rolling hour by hour basis (since Acceptances cannot extend into Settlement Periods for which Gate Closure has not passed). Following the first Acceptance being issued, the BM Unit may be required to reduce MEL to maintain Grid Code compliance, as on de-synchronisation the machine can no longer provide a 2 minute response and should therefore reduce MEL to reflect the capability of the remaining synchronised turbines. Any reduction in MEL will typically occur shortly after de-synchronisation (i.e. following the first Acceptance being issued), therefore, under P167, the Acceptance Volumes for any consequential Acceptances would be calculated from MEL. As a result, the Party may be subject to imbalance exposure as a result of delivering the Bids. This scenario is illustrated diagrammatically below:

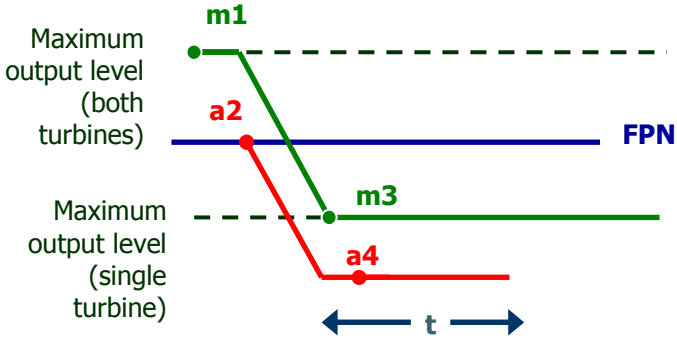
1. BM Unit initially operating at FPN, the Transmission Company issues an Acceptance (a2), taking the BM Unit to an output level which requires one of the turbines to be switched off

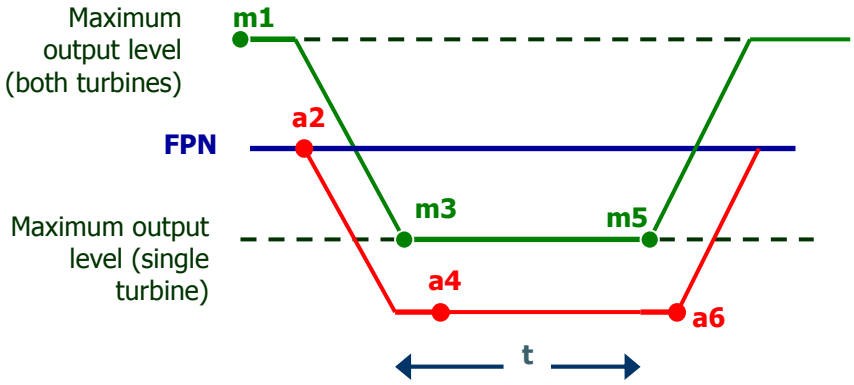




2. After switching off one turbine, there will be a minimum time period (t) before the BM Unit can increase its output above the single turbine level and return to FPN. Hence, after the first Acceptance is issued (a1), MEL is re-declared to the maximum output level of the single turbine (m3).

3. In recognition of the minimum time period (t) required to increase output above the single turbine level and return to FPN, the Transmission Company will issue further Acceptances (a4), keeping the BM Unit at the lower level of output until such time as the plant can be returned to FPN.

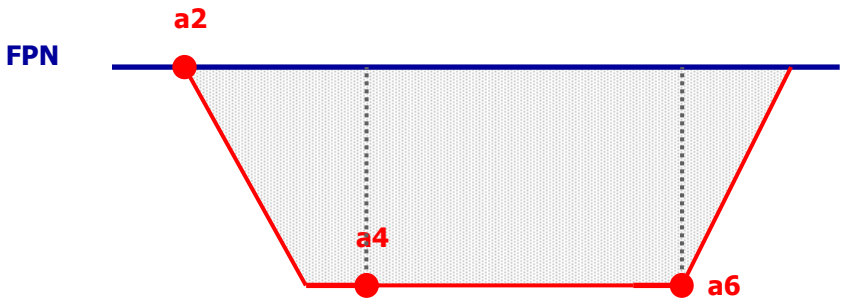




4. Once the turbine can be restarted, MEL will be re-declared to the maximum output level of both turbines (m5) and the Transmission Company can return the BM Unit to FPN (a6).

Acceptance Volumes: Current Baseline

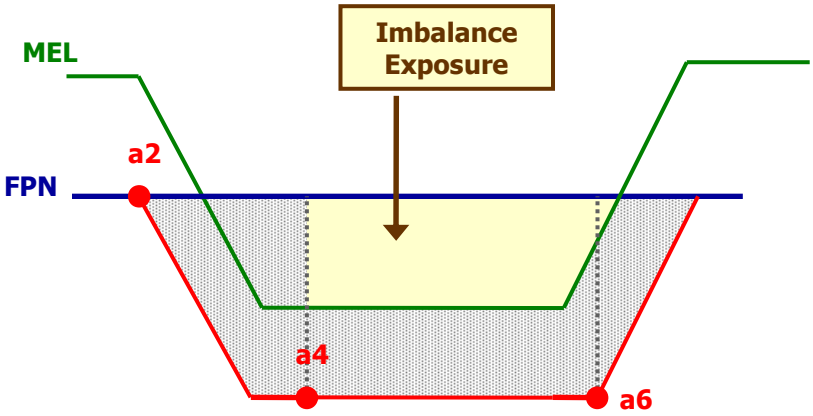
Under the current baseline the volume of all three acceptances (a2, a4, and a6) would be calculated with reference to the FPN**.**



Hence, under the current baseline the Lead Party would not be subject to imbalance exposure when delivering the series of Bids.

Acceptance Volumes: P167

Under the proposed P167 baseline, the volume of acceptances a2 and a6 would be calculated with reference to the FPN (since the MEL in effect at the point of acceptance was greater than FPN). However, the volume of acceptance a4 would be calculated from MEL, since the MEL effective at this point would be less than FPN.



Hence, under P167 the Lead Party may be subject to imbalance exposure as a consequence of delivering the series of Bids.

In order to support assessment of this issue the Transmission Company provided analysis of the extent to which the scenario identified may be occurring operationally. The Transmission Company indicated that there are currently 25 registered multi-shafted BM Units either commissioning or fully commissioned onto the Transmission System at this time (currently there are over 1000 registered BM Units of which approximately 200 are generation BM Units that the Transmission Company can instruct by means of Bids and Offers). Analysis was also conducted by the Transmission Company in order to identify actual operational occurrences of the scenario; this analysis did not identify any occurrences of the scenario. It was also noted by the SSMG that a change to the definition of Dynamic Data items submitted to the Transmission Company under the Grid Code, such that the characteristics of Multi Shafted BM Units could be accurately reflected, would also address the scenario identified.

Having considered the consultation responses (see section 5) and recognising that, to date, analysis has not identified any operational occurrences of the scenario, the SSMG concluded that it would not be appropriate to include exception rules for Multi Shafted BM Units under P167.

1.10.2 Other considerations

The SSMG have also considered whether there may be other exception scenarios which require consideration. Specifically the SSMG noted that there could be an impact on BM Units associated with cascade hydro plants or wind turbines, since MEL is likely to be a highly variable parameter at these sites. Market Participants were invited to raise any other exception scenarios which should be considered via consultation.

Consultation responses did not identify any specific scenarios which the SSMG were of the view warranted exception rules under P167. One respondent raised the issue of wind farms and the fact that they would be eligible to participate in the Balancing Mechanism and could have highly variable MELs. However, the SSMG did not identify a requirement for exception rules for such BM Units.

Therefore, the SSMG concluded that no exception rules would be included in P167, it was also noted that should valid exception scenarios be identified post implementation a Modification Proposal could be raised in order to provide specific exception rules.

SSMG Conclusion:

- **Exception rules are not required for scenarios identified; and**
- **If valid exception rules were identified post implementation a Modification Proposal could be raised to consider whether these should be addressed.**

1.11 Historical rationale for current approach

The SSMG have considered the historical rationale for the current approach to calculation of Acceptance Volumes under the Code. It is the view of the SSMG that, although there was an awareness that the current approach to calculation of Acceptance Volumes, that does not account for changes in Dynamic Data items, was an approximation which introduced a certain level of inaccuracy into Settlement, the level of inaccuracy introduced was not considered to be material when the Code was originally drafted. It was noted by the SSMG that the number of Acceptances issued by the Transmission Company may be higher than was originally expected and that situations where MEL is declared below FPN occur more frequently than may have been foreseen.

Initial SSMG conclusion:

- **Perceived defect was not considered material when Code was originally drafted.**

1.12 BETTA implications

The British Electricity Trading and Transmission Arrangements (BETTA) Code was designated on the 1 September 2004. This Assessment Report is to be considered by the GB Panel on the 14 October 2004, therefore assessment of P167 will be against the BETTA baseline. Therefore, industry participants were invited to raise any BETTA specific issues that need be considered under P167 via consultation.

Industry consultation did not identify any issues specifically relating to BETTA that had not been previously identified. However, the SSMG noted a number of points specifically relating to BETTA as follows:

- As the market would effectively be expanded under BETTA there may be an impact on the overall materiality of the perceived defect. Some members of the SSMG were of the view this could increase the overall materiality; however in the absence of suitable market data it is not possible to estimate the extent of this increase. A counter view was put forward that the removal of the Scottish Interconnector may reduce the overall materiality on the grounds that the associated BM Units may be contributing a significant proportion of the overall materiality estimate. However, it was noted by the SSMG that, although the materiality estimates conducted included Interconnector BM Units, these did not contribute a significant proportion of the total materiality.
- The SSMG noted that there may be an increase in Embedded Generation under BETTA and that this change in market composition may impact some of the analysis conducted under P167. However, it was agreed by the SSMG that it was not possible to foresee the effects of such market developments in terms of the issues raised under P167 and that any increase in Embedded Generation formed part of a wider question to be considered outside P167.

1.13 Assessment of how the Proposed Modification will better facilitate the Applicable BSC Objectives

The SSMG have considered the arguments for and against achievement of the Applicable BSC Objectives under P167 as follows:

- The SSMG agreed that there is a discrepancy in the way in which Acceptance Volumes are calculated where there has been a MIL / MEL re-declaration away from FPN before an Acceptance is instructed by the Transmission Company. It was noted by the SSMG that correcting this discrepancy would:
  - improve the accuracy to which imbalance positions are reported and the level of imbalance to which Parties are exposed;
  - help to ensure that all Parties are receiving appropriate RCRC payments;
  - result in a more appropriate calculation of imbalance prices; and
  - remove any possibility of exploitation of the perceived defect (although it should be noted that the SSMG have initially concluded there is no evidence of exploitation at present).

  It was the view of the SSMG that these benefits would better facilitate achievement of Applicable BSC Objective (c);
- The SSMG noted that there would be an impact on and associated cost for Parties and the Transmission Company under P167. The SSMG agreed that this impacts and associated costs would be detrimental to the achievement of Applicable BSC objective c);

- The SSMG noted that there would be implementation costs associated with P167 in terms of central systems. It was also recognised that P167 would introduce a further level of complexity into the Settlement arrangements. The SSMG agreed that the costs and increased complexity associated with P167 would be detrimental to the achievement of Applicable BSC objective d); and
- The SSMG also noted that placing a commercial driver on MEL and MIL submissions could potentially have a detrimental impact on the submission of these values. It was considered by the SSMG that this could have a potentially detrimental impact on the achievement of Applicable BSC Objective b).

The majority of the SSMG were of the view that, on balance, P167 would not better facilitate achievement of the Applicable BSC Objectives.

Those members not in support of P167 were of the opinion that placing a commercial driver on MEL and MIL submissions would have a potentially detrimental impact on the achievement of Applicable BSC Objective b). In addition, it was the view of these members that the materiality of the perceived defect is not sufficient to justify the cost of implementation and therefore does not overall better facilitate Applicable BSC Objective (c). Also any beneficial effect on achievement of Applicable BSC Objective c) would be further outweighed by the detrimental effect on achievement of Applicable BSC Objectives d) associated with Central System costs. Those members in support of P167 (including the Proposer) were of the opinion that the materiality of the perceived defect is such that the cost of implementation could be justified and hence the beneficial effect to the achievement of Applicable BSC Objective c) would outweigh any detrimental effect to the achievement of Applicable BSC Objectives d) and b).

1.14 Alternative Modification

No Alternative Modification was developed.

1.15 Governance and regulatory framework assessment

No impact on the statutory, regulatory and contractual framework within which the Code sits was identified by the SSMG.

2 COSTS[5]

PROGRESSING MODIFICATION PROPOSAL	
Demand Led Cost	£1,500
ELEXON Resource	50 Man days £10,500
Impact Assessment Cost	£10,000

IMPLEMENTATION COSTS				
		Stand Alone Cost	**P167 Incremental Cost**	**Tolerance**
Service Provider[6] Cost	Change Specific Cost	£320,000	£320,000	+/- 0% (£0)
	Release Cost	£250,000		+/- 0% (£0)
	Incremental Release Cost	£28,000	£28,000	+/- 0% (£0)
	Total Service Provider Cost	£598,000	£348,000	+/- 0%
Implementation Cost	External Audit	£60,000	£35,000	+/- 20%
	Design Clarifications	£30,000	£17,000	+/- 100%
	Additional Resource Costs	£0	£0	+/- 0%
	Additional Testing and Audit Support Costs	£40,000		+/- 25%
Total Demand Led Implementation Cost		£728,000	£390,000	+/- 1 %
ELEXON Implementation Resource Cost		450 Man days £135,000	250 Man days £75,000	+/- 10%
Total Implementation Cost		£863,000	£465,000	+/- 10%

[5] Clarification of the meanings of the cost terms in this section can be found in annex 7 of this report
[6] BSC Agent and non-BSC Agent Service Provider and software Costs

ONGOING SUPPORT AND MAINTENANCE COSTS			
	Stand Alone Cost	**P167 Incremental Cost**	**Tolerance**
Service Provider Operation Cost	£ 0	£0	+/- 0%
Service Provider Maintenance Cost	£ 0	£ 0	+/- 0%
ELEXON Operational Cost	£ 0	£ 0	+/- 0%

3 RATIONALE FOR MODIFICATION GROUP'S RECOMMENDATIONS TO THE PANEL

On the basis of the majority view of the SSMG that Proposed Modification P167 would not better facilitate the Applicable BSC Objectives (see section 1.13) it is recommended that Proposed Modification P167 should not be made.

In order to allow the Transmission Company the required ten calendar months following either Authority Approval or the BETTA Effective Date (see section 6) and in order to minimise cost by aligning implementation with the release strategy the following Implementation Dates are recommended by the SSMG:

- 1 March 2006 if an Authority decision is received on or before 29 April 2005; or
- 28 June 2006 if the Authority decision is received after 29 April 2005 but on or before 26 August 2005.

Should be P167 be implemented on the 1 March 2006, the required software changes would be delivered in the February 2006 Release but would not be utilised until the P167 Implementation Date.

Impact on BSC Systems and Parties

An assessment has been undertaken in respect of BSC Systems and Parties and the following areas have been identified as potentially being impacted by the Proposed Modification and any Alternative Modification.

3.1 BSCCo

An initial assessment has been undertaken in respect of BSCCo and the following areas have been identified as potentially impacted by the Modification Proposal.

Area of Business	Potential Impact of Proposed Modification
BSCCo Systems	There would be a significant impact on the BSCCo Market Monitoring system (TOMAS) potentially requiring changes to: • TOMAS Requirement Catalogue • TOMAS Data Catalogue • TOMAS System Design • TOMAS User Guide

ELEXON impact assessment identified the following costs:

- Requirement to support implementation (150 ELEXON Man Days incremental cost (£45,000) and 350 ELEXON Man Days (£105,000) as a stand alone change); and
- Requirement to upgrade TOMAS (approximately 100 ELEXON Man Days (£30,000));

Therefore, it is estimated that the ELEXON implementation resource cost would lie somewhere between the stand alone cost of 450 ELEXON man days (£135,000) and the incremental cost of 250 ELEXON man days (£75,000).

3.2 BSC Systems

BSC Systems and processes have been identified as being impacted by the Modification Proposal.

BSC System / Process	Potential Impact of Proposed Modification
Balancing Mechanism Activities	Formalisation of MEL and MIL data submission.
Settlement	Settlement calculations would be amended such that the derivation of Acceptance and Non-Delivery Volumes accounts for MEL and MIL submissions.
Reporting	New reporting requirements will be introduced to indicate the level from which Acceptance Volumes have been calculated.

Response to BSC Agent impact assessment is included in Annex 4.

3.3 Parties and Party Agents

The systems and processes used by Parties and the following would be impacted as follows:

System / Process	Potential Impact of Proposed Modification
Settlement Calculations	Parties would be required to amend their systems to account for the timings of MEL and MIL submissions and resulting approach to

System / Process	Potential Impact of Proposed Modification
	Acceptance and Imbalance Volume calculation.
Reporting	Party systems and process would require amendment in line with the new reporting requirements.

Participant impact assessment responses are included in Annex 5.

4 IMPACT ON CODE AND DOCUMENTATION

4.1 Balancing and Settlement Code

Having agreed the requirements for the draft legal text for P167 the text has been drafted and issued to the SSMG for review. Following SSMG review the draft legal text will be available for industry review during the P167 Report Phase. The requirements agreed by the SSMG can be summarised as follows:

4.1.1 Section Q: Balancing Mechanism Activities

- Formalisation of MEL and MIL data submission; and
- Formalised requirements for Transmission Company provision and interim processing of MEL and MIL data to the SAA.

4.1.2 Section T: Settlement and Trading Charges

- Introduction of rules for conversion of MEL and MIL data for use in Settlement calculation;
- Rules for calculation of the Acceptance Reference Level;
- Rules for calculation of Acceptance Volumes from Acceptance Reference Level; and
- Amendment of Non-Delivery Rules.

4.2 Code Subsidiary Documents

The following Code Subsidiary Documents have been identified as impacted by the Modification Proposal.

Item	Potential Impact of Proposed Modification
NDFC	Changes to reporting requirements would impact the NETA Data File Catalogue
Reporting Catalogue	Changes to reporting requirements would impact the Reporting Catalogue.
SAA SD	The Settlement Administration Agent Service Description would need to be amended in line with changes to the calculation of Acceptance and Non-Delivery Volumes.
BMRA SD	The Balancing Mechanism Reporting Agent Service Description would need to be amended in line with changes to the calculation of Acceptance Volumes.

4.3 BSCCo Memorandum and Articles of Association

No changes to the BSCCo Memorandum and Articles of Association have been identified.

4.4 Impact on Core Industry Documents and supporting arrangements

No changes to would be required to Core industry documents to support Proposed Modification P167.

5 SUMMARY OF CONSULTATIONS

Two Consultation Documents were issued, one under the England & Wales baseline and the other on a GB wide basis. Annex 3 contains the full responses to these documents, the following table summarises the results of both consultations.

Consultation question	Respondent agrees	Respondent disagrees	Opinion unexpressed
1. Do you believe Proposed Modification P167 would better facilitate achievement of the Applicable BSC objectives?	2	7	1 (Yes & No)
2. Do you support the implementation approach preferred by the Modification Group?	9	1	0
3. Do you believe there are any alternative solutions that the Modification Group has not identified and that should be considered?	1	9	0
4. Do you believe the issue raised by P167 is a defect in the current baseline?	7	2	1 (Yes & No)
5. Do you believe there would be an overall cost benefit from implementing P167?	2	6	2 (1 Yes & No)
6. Do you believe there is potential for Parties to exploit the defect identified under P167?	2	8	0
7. Do you believe P167 would have a detrimental impact on the submission of MEL and MIL data?	7	1	2 Yes & No
8. Do you believe there should be exception scenarios including in P167 for 'Multi shafted BM Units' that should be considered further under P167?	4	5	1 Yes & No
9. Do you believe there are any exception scenarios that should be considered further under P167 that have not been identified by the SSMG to date?	1	7	2 (1 Yes & No)
10. How do you believe Bid/Offer Upper and Lower prices bands should be derived under P167?	N/A	N/A	N/A
11. Do you believe the impact on imbalance prices from the perceived defect is material?	2	8	0
12. Please provide comments on the estimated materiality associated with the perceived defect identified under P167.	N/A	N/A	N/A

13. Please provide details of any issues that you believe have not been identified so far and that should be progressed as part of the Assessment Procedure.	N/A	N/A	N/A
14. Are there any further comments on P167 that you wish to make?	N/A	N/A	N/A
GB Consultation Specific Questions			
Please provide details of any issues that you believe have not been identified so far and that should be progressed as part of the Assessment Procedure (in particular in the context of BETTA)?	N/A	N/A	N/A

5.1 Modification Group's summary of the consultation responses

5.1.1 Achievement of the Applicable BSC Objectives

The majority of respondents expressed the view that Proposed Modification P167 would not better facilitate the achievement of the Applicable BSC Objectives.

The arguments expressed **not in support** of the Proposed Modification better facilitating the achievement of the Applicable BSC Objectives were:

- Although the defect identified under the Modification Proposal is genuine, the overall materiality is small and the costs are too high to warrant implementation;
- The perceived defect was acknowledged and accepted at NETA Go-Live;
- If approved MEL and MIL would be come a commercial parameter which could have an adverse impact on the Transmission Company's ability to operate the System;
- The proposal has the potential to reduce the viability of participation in the Balancing Mechanism for Multi shafted BM Units, thereby hindering competition and the Transmission Company's ability to operate the System;

The arguments expressed **in support** of the Proposed Modification better facilitating the achievement of the Applicable BSC Objectives were:

- The overall materiality is significant and warrants the cost of implementation;
- Correcting the perceived defect would improve the accuracy to which imbalance positions are reported and level of imbalance Parties are exposed to;
- The perceived defect is currently benefiting one segment of the market and thereby hindering effective competition; and
- The Proposed Modification would provide an incentive to submit accurate Physical Notifications by removing a potential benefit that is available when deviating from FPN.

5.1.2 Implementation approach

The majority of respondents supported the implementation approach preferred by the Modification Group.

The SSMG noted the comment of the one respondent that the Acceptance Reference Level should be the prevailing MEL (if less than FPN) at the time of the BOA, not a lower value if one previously existed. The SSMG agreed with the view expressed by this respondent and noted that this had been the original intention of the proposal. It was agreed the description of the Acceptance Reference calculation should be amended in order to remove any ambiguity in this area.

5.1.3 Potential alternative solutions

The following potential alternative solution was proposed by a consultation respondent and considered by the SSMG as follows:

A solution was suggested whereby the Transmission Company would not accept Bids from BM Units that had re-declared MEL by more than a few MW to take account of ambient temperatures. It was proposed that if a BM Unit has re-declared MEL then its momentary reliability is questionable and it could be argued that it should not be relied upon to deliver the Bid. The SSMG noted the number of occurrences of MEL being re-declared below FPN identified in the materiality analysis and concluded that the approach being suggested could have a significant adverse effect on the ability of the Transmission Company to operate the System. It was also the view of the SSMG that it could not be assumed that the reliability of a BM Unit that re-declared MEL was questionable. Therefore, it was agreed that this solution would not be progressed as Alternative Modification P167.

5.1.4 Defect in the current baseline

The majority of respondents were of the view the issue raised by P167 is a defect in the existing baseline.

The arguments expressed **in support** of the view the the issue raised by P167 is a defect in the existing baseline were:

- That a defect exists, since Imbalance Charges that should have been incurred are being avoided due to the way Acceptance Volumes are calculated;
- Inaccurate Acceptance Volumes can distorts the Imbalance Pricing mechanism; and
- Although the defect may have been acknowledged and accepted at NETA Go-Live, the materiality may be more significant than anticipated;
- It allows Parties to benefit from the submission of inaccurate Physical Notification data.

The arguments expressed **not in support** of the view the issue raised by P167 is a defect in the existing baseline were:

- The anomaly was identified and accepted at NETA Go-Live; and
- The perceived defect has been part of the baseline since Go-Live without causing a significant distortion or level of concern.

5.1.5 Cost benefit

The majority of respondents were of the view there would not be an overall cost benefit from implementing P167.

The arguments expressed **not in support** of the view that there would be an overall cost benefit from implementing P167 were:

- Overall impact of the defect is small compared to the cost of implementing a solution;

- Impact on Party system and processes is significant; and
- When considered at a trading group level the overall materiality is small since a significant element of netting would occur within such trading groups.

The arguments expressed **in support** of the view there would be an overall cost benefit from implementing P167 were:

- Overall impact of the defect is significant and justifies the cost of implementing a solution.

5.1.6 Potential for exploitation

The majority of respondents were of the view that the potential for exploitation of the anomaly identified under P167 would be limited.

Those respondents in support of the view that the potential for exploitation of the anomaly identified under P167 would be limited expressed the view that there are too many variables involved for the defect to be efficiently exploited and noted that the analysis had not indicated that it is occurring at present. A number of respondents presented the view that implementation of P167 may increase the potential for exploitation by encouraging Parties to manipulate MEL and MIL submissions to obtain commercial advantage.

5.1.7 MEL and MIL submission

The majority of respondents were of the view that implementation of Proposed Modification P167 would have a detrimental effect on submission of MEL and MIL data. These respondents were of the view that using MEL and MIL data within Settlement would place a commercial driver on submission of the data and could result in less accurate and timely information being provided to the Transmission Company.

The respondents not in support of the view that implementation of proposed Modification P167 would have a detrimental effect on submission of MEL and MIL data were of the view that the Grid Code provisions relating to the submission of MEL/ MIL data provide assurance that Parties would continue to submit such data in a timely and accurate manner.

5.1.8 Exception scenarios for 'Multi shafted BM Units'

The majority of respondents were of the view that exception scenarios for 'Multi shafted BM Units' should not be included in Proposed Modification P167. A number of respondents expressed the view that, since no specific operational incidents had been identified, exception rules would not be warranted. One respondent noted that Pre Gate Closure Balancing Trades (PGBTs) could be used to remove any potential difficulties in the scenario identified. In addition another respondent expressed the view that, dynamic data does not cover all plant characteristics, and, if special dynamics are required for 'Multi–Shafted BM Units', these should be progressed via the Grid Code.

One respondent indicated that, if the current operational practice for handling Acceptances for 'Multi Shafted BM Units' was maintained there would be no need for particular exception scenarios for 'Multi-Shafted' BM Units, however if this changed the situation may need to be re-visited.

The SSMG considered the possibility of exception scenarios for 'Multi shafted BM Units' as outlined in section 1.9.

5.1.9 Further exception scenarios

One respondent expressed the view that, since wind farms can participate in the Balancing Mechanism and may have variable MELs, exception rules may be required. The SSMG considered the possibility of exception scenarios for wind farms as outlined in section 1.10.

5.1.10 Bid/Offer Upper and Lower prices band derivation

The majority of respondents were of the view that Bid/Offer Upper and Lower price band derivation should be from FPN under P167. This approach was preferred on the grounds it would allow Parties to appropriately price output levels and receive the appropriate payment if the output of a BM Unit is reduced to an undesirable level.

5.1.11 Impact on imbalance prices

The majority of consultation respondents were of the view that the impact on imbalances prices of the perceived defect identified under P167 was not material.

The arguments expressed **in support** of this view were:

- In the majority of Settlement Periods the impact is small;
- Few Settlement Periods are affected and the impact of the proposed change can not be predicted;
- The overall market materiality is misleading because this materiality may be netted between individual Parties (e.g. a Party benefiting in one Settlement Period may be at a dis-benefit in another).

The arguments expressed **not in support** of this view were:

- Although changes in individual Settlement Periods were relatively small, the impact on the market overall may be significant.

5.1.12 Estimated materiality

The following comments were made on the materiality estimates under P167:

- Those respondents in support of the Proposed Modification were of the view the materiality was significant;
- One respondent noted that net impact on individual trading groups is likely to be small;
- A number of respondents noted that there is a significant uncertainty in the materiality estimate and presented the view that the actual materiality would lie at the bottom range of the estimates.

6 SUMMARY OF TRANSMISSION COMPANY ANALYSIS

The Transmission Company analysis is included in Annex 3 and is summarised here.

The Transmission Company expressed the view that P167 would only have a marginal impact on its ability to discharge its obligations efficiently under the Transmission Licence and on its ability to operate an efficient, economical and co-ordinated transmission system. Concerns were raised over the possible reluctance of Balancing Mechanism participants to re-declare MIL/MEL under P167, given that such re-declaration would hold a financial implication. As such the Transmission Company indicated that there would be a potential impact on the security of supply if there is any distortion to the true generation ability declared, however it was noted that this would be dependent on the behaviour of participants.

On consideration of P167 against the Applicable BSC Objectives, the Transmission Company expressed the view that achievement of Applicable BSC Objective c) would be better facilitated due more accurate apportioning of cashflows to Parties. However, the view was also expressed that P167 would be detrimental to Objective b), due to the possible adverse impact on provision of MEL and MIL data leading to a less efficient operation of the Transmission System. However, it was noted this was dependent on the behaviour of the participants.

The Transmission Company did not envisage any required changes to Core Industry documents, but did state changes to their computer systems and processes would be needed. Three issues were raised:

- Processes surrounding the submission MEL/MIL would require amending in order to provide suitable assurance were the data to be used in Settlement calculations (see section 1.8.2);
- Change required to despatch systems;
- Requirement to support new variation of SAA-I014 flow (Settlement Report);

The estimated time-scale for implementation of P167 was ten calendar months following the latter of either Authority Approval or the BETTA Effective Date. The estimated costs for the amendment of processes on implementation of P167 were £470,000.

7 DOCUMENT CONTROL

7.1 Authorities

Version	Date	Author	Reviewer	Change Reference
0.1	01/10/04	Change Delivery	SSMG	For review
0.2	08/10/04	Change Delivery	Change Delivery	Technical Review
0.3	08/10/04	Change Delivery	Change Delivery	Final Review
1.0	08/10/04	Change Delivery	SSMG	For review

7.2 References

Ref No.	Document Title	Owner	Issue Date	Version
1	Paper: Potential Anomaly in respect of Bid Offer Acceptance (BOA) Volume	BGT		1.0
2	SSMG Issue 7 -Meeting notes 23/04/04	ELEXON	23/04/04	1.0
3	SSMG Issue 7- Analysis of impact on Energy Imbalance Prices	ELEXON	26/04/04	1.0
4	Panel Paper 78/001 (e) SSMG Issue 7: Potential anomaly in respect of Bid Offer Acceptance (BOA) volume	ELEXON	10/06/04	1.0
5	Requirements Specification for P167 Erroneous Calculation of Bid Offer Acceptance (BOA) Volume	ELEXON	09/08/04	2.0
6	Modification Proposal P167 Erroneous Calculation of Bid Offer Acceptance (BOA) Volume	ELEXON	28/06/04	1.0
7	Initial Written Assessment: P167 Erroneous Calculation of Bid Offer Acceptance (BOA) Volume	ELEXON	08/07/04	1.0

Issue 7 documentation is available for published on the BSC Website at:

www.elexon.co.uk/changeimplementation/ModificationProcess/groups/issues/issues.aspx?issueID=7

P167 documentation is available on the BSC Website at:
www.elexon.co.uk/changeimplementation/ModificationProcess/ModificationDocumentation/modProposalView.aspx?propID=176

ANNEX 1 DRAFT LEGAL TEXT

This document forms Annex 3 to the P167 Modification Report, therefore legal text is not attached and the reader should refer to the Modification Report.

ANNEX 2 MODIFICATION GROUP DETAILS

NAME	POSITION	MEMBER	MEETING ATTENDANCE			
			15/07/04	05/08/04	27/09/04	05/10/04
Sarah Parsons	ELEXON (Chairman)	Y	Y	Y	Y	N
Tom Bowcutt	ELEXON (Lead Analyst)	Y	Y	Y	Y	Y
Mark Manley	British Gas Trading (Proposer)	Y	Y	Y	Y	Y
Man Kwong Liu	SAIC Limited	Y	Y	Y	N	Y
Andrew Colley	Scottish and Southern	Y	Y	Y	N	N
Helen Bray	EDF Energy	Y	Y	Y	Y	Y
Steve Drummond	EDF Trading	Y	Y	Y	N	N
Tim Johnson	E.ON UK	Y	Y	Y	Y	Y (Tele-conference)
Lisa Waters	Waters Wye Associates	Y	Y	N	N	N
Martin Mate	British Energy	Y	Y	Y	N	N
Sanjukta Round	Cornwall Consulting	Y	Y	N	N	N
Ben Willis	Npower	Y	Y	Y	Y	N
Ndidi Njuko	Ofgem	N	Y	Y	Y	Y
Rob Smith	National Grid	N	Y	Y	Y	Y
Sam Wither	National Grid	N	Y	Y	Y	N
Louisa Gilchrist	Npower	N	Y	N	N	N
Fred Barasi	ELEXON (Operations)	N	Y	Y	Y	N
Roger Salomone	ELEXON (Chairman)	N	N	N	N	Y
Melanie Henry	ELEXON (Legal)	N	Y	Y	Y	Y

ANNEX 3 CLARIFICATION OF COSTS

There are several different types of costs relating to the implementation of Modification Proposals. ELEXON implements the majority of Approved Modifications under its CVA or SVA Release Programmes. These Programmes incur a base overhead which is broadly stable whatever the content of the Release. On top of this each Approved Modification incurs an incremental implementation cost. In order to give Stakeholders a feel for the estimated cost of implementing an Approved Modification the templates included in this report have three columns:

- **Stand Alone Cost** – the cost of delivering the Modification as a stand alone project outside of a CVA or SVA Release, or the cost of a CVA or SVA Release with no other changes included in the Release scope. This is the estimated maximum cost that could be attributed to any one Modification implementation.

- **Incremental Cost** - the cost of adding that Modification Proposal to the scope of an existing release. This cost would also represent the potential saving if the Modification Proposal was to be removed from the scope of a release before development had started.

- **Tolerance** – the predicted limits of how certain the cost estimates included in the template are. The tolerance will be dependent on the complexity and certainty of the solution and the time allowed for the provision of an impact assessment by the Service Provider(s).

The cost breakdowns are shown below:

PROGRESSING MODIFICATION PROPOSAL	
Demand Led Cost	This is the third party cost of progressing a Modification Proposal through the Modification Procedures in accordance with Section F of the Code. Service Provider Impact Assessments are covered by a contractual charge and so the Demand Led cost will typically be zero unless external legal assistance or external consultancy is required.
ELEXON Resource	This is the ELEXON Resource requirement to progress the Modification Proposal through the Modification Procedures. This is estimated using a standard formula based on the length of the Modification Procedures.

SERVICE PROVIDER[7] COSTS	
Change Specific Cost	Cost of the Service Provider(s) Systems development and other activities relating specifically to the Modification Proposal.
Release Cost	Fixed cost associated with the development of the Service Provider(s) Systems as part of a release. This cost encompasses all the activities that would be undertaken regardless of the number or complexity of changes in the scope of a release. These activities include Project Management, the production of testing and deployment specifications and reports and

[7] A Service Provider can be a BSC Agent or a non-BSC Agent, which provides a service or software as part of the BSC and BSC Agent Systems. The Service Provider cost will be the sum of the costs for all Service Providers who are impacted by the release.

	various other standard release activities.
Incremental Release Cost	Additional costs on top of base Release Costs for delivering the specific Modification Proposal. For instance, the production of a Test Strategy and Test Report requires a certain amount of effort regardless of the number of changes to be tested, but the addition of a specific Modification Proposal may increase the scope of the Test Strategy and Test Report and hence incur additional costs.

IMPLEMENTATION COSTS	
External Audit	Allowance for the cost of external audit of the delivery of the release. For CVA BSC Systems Releases this is typically estimated as 8% of the total Service Provider Costs, with a tolerance of +/- 20%. At present the SVA Programme does not use an external auditor, so there is no External Audit cost associated with an SVA BSC Systems Release.
Design Clarifications	Allowance to cover the potential cost of making any amendments to the proposed solution to clarify any ambiguities identified during implementation. This is typically estimated as 5% of the total Service Provider Costs, with a tolerance of +/- 100%.
Additional Resource Costs	Any short-term resource requirements in addition to the ELEXON resource available. For CVA BSC Systems Releases, this is typically only necessary if the proposed solution for a Modification Proposal would require more extensive testing than normal, procurements or 'in-house' development. For SVA BSC Systems Releases, this will include the management and operation of the Acceptance Testing and the associated testing environment. This cost relates solely to the short-term employment of contract staff to assist in the implementation of the release.
Additional Testing and Audit Support Costs	Allowance for external assistance from the Service Provider(s) with testing, test environment and audit activities. Includes such activities as the creation of test environments and the operation of the Participant Test Service (PTS). For CVA BSC Systems Releases, this is typically estimated as £40k per release with at tolerance of +/-25%. For SVA BSC Systems Releases this is estimated on a Modification Proposal basis.

TOTAL DEMAND LED IMPLEMENTATION COSTS
This is calculated as the sum of the total Service Provider(s) Cost and the total Implementation Cost. The tolerance associated with the Total Demand Led Implementation Cost is calculated as the weighted average of the individual Service Provider(s) Costs and Implementation Costs tolerances. This tolerance will be rounded to the nearest 5%.

ELEXON IMPLEMENTATION RESOURCE COSTS
Cost quoted in man days multiplied by project average daily rate, which represents the resources utilised by ELEXON in supporting the implementation of the release. This cost is typically funded from the "ELEXON Operational" budget using existing staff, but there may be instances where the total resources required to deliver a release exceeds the level of available ELEXON resources, in which case additional Demand Led Resources will be required. The ELEXON Implementation Resource Cost will typically have a tolerance of +/- 5% associated with it.

ONGOING SUPPORT AND MAINTENANCE COSTS	
ELEXON Operational Cost	Cost, in man days per annum multiplied by project average daily rate, of operating the revised systems and processes post implementation.
Service Provider Operation Cost	Cost in £ per annum payable to the Service Provider(s) to cover staffing requirements, software or hardware licensing fees, communications charges or any hardware storage fees associated with the ongoing operation of the revised systems and processes.
Service Provider Maintenance Cost	Cost quoted in £ per annum payable to the Service Provider(s) to cover the maintenance of the amended BSC Systems.

The following sections are included in a separate attachment:

ANNEX 4 BSC AGENT IMPACT ASSESSMENTS

ANNEX 5 PARTY AND PARTY AGENT IMPACT ASSESSMENTS

ANNEX 6 RESPONSES FROM P167 ASSESSMENT CONSULTATION

ANNEX 7 TRANSMISSION COMPANY ANALYSIS AND ASSESSMENT RESPONSE