REQUIREMENTS SPECIFICATION
for Correction of MEL vs FPN Acceptance Volume Discrepancies

Prepared in discussion with: Settlement Standing Modification Group

Date of Issue	18 May 2004	**Document reference**	041RBR
Reason for Issue	For Impact Assessment	**Issue/Version Number**	**FINAL V1.1**

PURPOSE OF THIS DOCUMENT

The primary purpose of this document is to specify the requirements for the requisite change to BMRA and SAA functionality in sufficient detail to allow the BSC Central Service Agent to undertake an impact assessment of the amendments and to provide an indication of the development and implementation costs associated with the amendments.

For the purposes of this assessment, the reader should assume that the changes will be implemented as a standalone development project managed by BSCCo.

I CONTENTS TABLE

SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

The following parties/documents have been identified as being potentially impacted by the correction of Maximum Export Limit (MEL) vs Final Physical Notification (FPN) Acceptance Volume Discrepancies.

Parties	
BSC Parties **GENERAL**	☒
Suppliers	☐
Generators	☐
Licence Exemptable Generators	☐
Transmission Company	☐
Interconnector	☐
Distribution System Operators	☐
Party Agents	
Data Aggregators	☐
Data Collectors	☐
Meter Operator Agents	☐
ECVNA	☐
MVRNA	☐
BSC Agents	
SAA	☒
FAA	☐
BMRA	☒
ECVAA	☐
CDCA	☐
TAA	☐
CRA	☐
Teleswitch Agent	☐
SVAA	☐
BSC Auditor	☐
Profile Administrator	☐
Certification Agent	☐
MIDP	☐
Other Agents	
SMRA	☐
Data Transmission Provider	☐

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

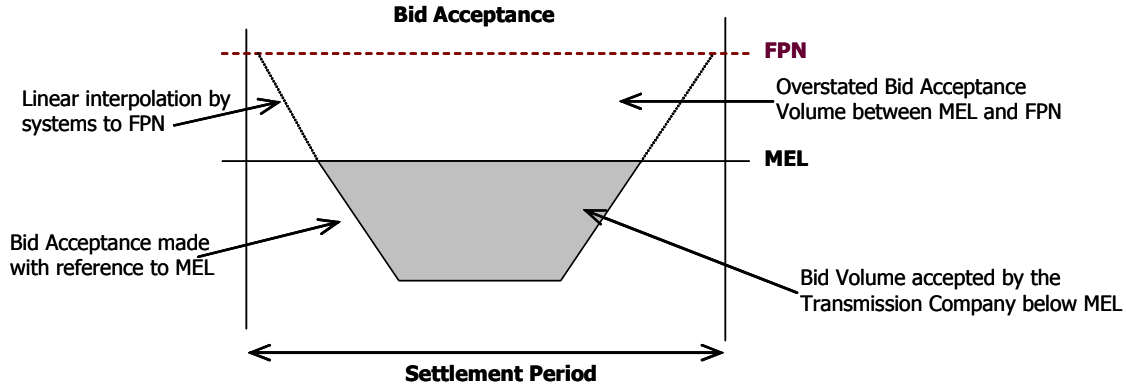
Code Subsidiary Documents	
BSC Procedures	☐
Codes of Practice	☐
BSC Service Descriptions	☒
Service Lines	☐
Data Catalogues	☐
Communication Requirements Documents	☐
Reporting Catalogue	☐
MIDS	☐
Core Industry Documents	
Grid Code	☐
Supplemental Agreements	☐
Ancillary Services Agreements	☐
Master Registration Agreement	☐
Data Transfer Services Agreement	☐
British Grid Systems Agreement	☐
Use of Interconnector Agreement	☐
Settlement Agreement for Scotland	☐
Distribution Codes	☐
Distribution Use of System Agreements	☐
Distribution Connection Agreements	☐
BSCCo	
Internal Working Procedures	☐
Other Documents	
Transmission Licence	☐

1 INTRODUCTION

1.1 Proposed Amendment: Issue Amendment Addresses

1.1.1 Summary

In summary, an issue arises where a Party re-declares its Maximum Export Limit (MEL) below its Final Physical Notification (FPN) after Gate Closure (i.e. cannot amend the FPN), and has a Bid Acceptance made. The Transmission Company accept the Bid with reference to the MEL at the time the Bid was taken. However, the Acceptance Volume is calculated by the Settlement systems, (in accordance with the Code), with reference to the FPN prevailing at Gate Closure for the Settlement Period, illustrated diagrammatically below.



This has the effect of overstating the Accepted Bid Volume for the BM Unit, which has consequential effects on the Credited Energy for the Party (by removing some, or all, of the imbalance between FPN and MEL, assuming for simplicity that FPN is equal to the contracted level). Furthermore, overstating of the Accepted Bid Volume has implications on the Net Imbalance Volume (NIV) calculation, and therefore on the resulting Energy Imbalance Price.

It should be noted that re-declarations to MEL are not an issue where no Bid is taken, as the MEL will reflect the metered volume for the BM Unit, and therefore the BM Unit will be in imbalance for the difference between FPN, assuming (for simplicity) the Party has contracted to FPN, and MEL.

For the avoidance of doubt, the Transmission Company is operating in line with its obligations and the Code, and the Settlement Calculations are being run in accordance with the Code. Given that the Transmission Company takes Bid – Offer Acceptances in line with the physical attributes of the BM Unit at the point of making the Acceptance, it appears that this is potentially a Settlement issue in respect of the way Bid – Offer Acceptance volumes are calculated, rather than an issue with the way in which Bid – Offer Acceptances are taken and reported.

1.1.2 Detail of the Issue

The following explores this issue in more detail:

The Code, Section Q 5.1.3(a)(ii)(1) obliges the Transmission Company to ensure that Bid – Offer Acceptance data for Bid – Offer Acceptances made is consistent with the following data, prevailing at the time the Bid – Offer Acceptance is made (data is specified in Q 5.2.1): The Physical Notification, Dynamic Data set, Maximum Export Limit (MEL) and Maximum Import Limit (MIL), and Quiescent Physical Notification (QPN).

This effectively means that where MEL for a BM Unit is re-declared below FPN, and the Transmission Company accepts a Bid, the volume the Transmission Company expects to be delivered is from MEL (not FPN), and the implication is that the price the Bid is accepted in respect of is the Bid – Offer pair(s) at and below the re-declared MEL.

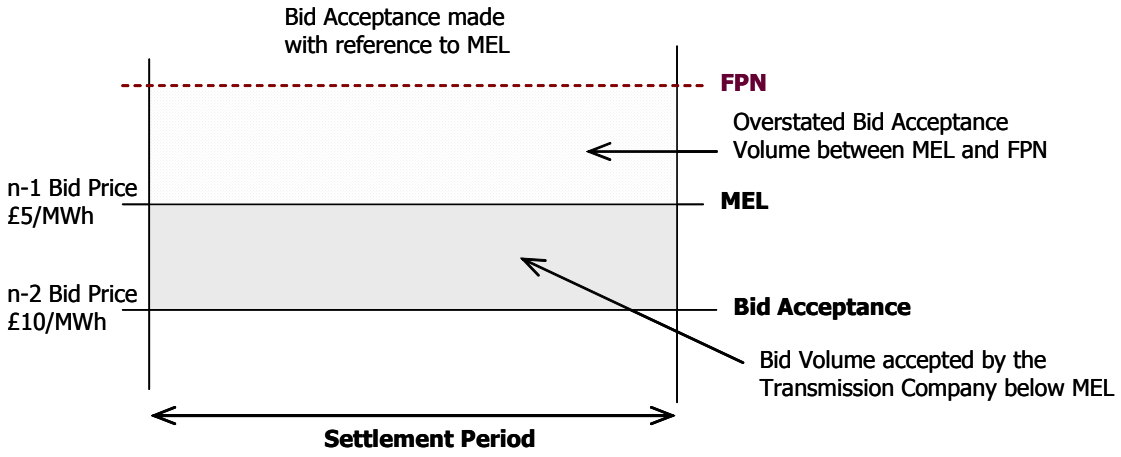
However, the Code derives Bid – Offer Acceptance data in relation to FPN, and does not take into consideration amendments to MEL (or other data specified in Q5.2.1). Thus overstating, as illustrated above, the Bid Acceptance volume.

Simplistic Example to Illustrate the Implications of the Issue on Settlement Calculations

Working through a simplistic example illustrates the effect this has on the Settlement calculations:

Assuming that the BM Unit is operating to the re-declared MEL;

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 accepted that takes the BM Unit down to 300 MW, illustrated below (noting that the example Bid Prices are not particularly realistic):



The Transmission Company has accepted a Bid volume of -50 MWh (100 MW / 2), i.e. MEL to Bid level, at a Bid Price of £5 / MWh, i.e. the Transmission Company 'expects' the Party to pay the system £250 for the Bid.

However, the Settlement systems calculate a Bid volume of -100 MWh (200 MW / 2) with 50 MWh at £5 / MWh and 50 MWh at £10 / MWh, i.e. the Party pays the system £750 for the Bid. Thus the Party has to pay the relevant Bid Price for the undelivered volume (i.e. FPN – MEL).

Had the Bid price have 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 portion of volume above MEL when taking the Acceptance. Therefore this may lead to issues where the Bid Price for the portion of volume between FPN and MEL is unfavourable, and which could have potentially led the Transmission Company to have taken a Bid on a different unit, had the Bid Price of the volume between FPN and MEL been considered.

Looking at the Settlement Calculations, and following the effect of overstating the Bid volume through them:

1. The Settlement systems calculate the Period BM Unit Balancing Services Volume (QBS) as -100 MWh (i.e. FPN 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 [FPN (250 MWh) + QBS (- 100 MWh)], instead of 200 MWh (FPN of 250MWh + QBS of -50 MWh);

3. Had the BM Unit been subject to any MVRNs, the volume MVRN'ed across is adjusted for the incorrect volume, so assuming a 100% MVRN, the recipient Subsidiary Party would receive 250 MWh (QM of 150 MWh minus a QBS of -100 MWh) instead of 200 MWh (150MWh - - 50 MWh), and the Lead Party would have a Credited Energy of - 100 MWh (QM of 150 MWh – QCE to Sub Party of 250 MWh) instead of -50 MWh (QM of 150 MWh – QCE of 200 MWh);

4. Otherwise, the Lead Party has a Credited Energy of 150 MWh (i.e. the QM for the BM Unit);

5. The Account Energy Imbalance Volume (QAEI) is calculated as QACE – QABS – QABC, assuming the Party contracted to FPN, the QAEI would be 150 - -100 – 250 = 0 MWh, instead of 150 - - 50 – 250 = -50 MWh;

6. Given the negative QAEI, the Party would have - 50MWh exposed to the SBP, (as they did not meet the contracted level). Assuming an average SBP of £18 / MWh (using the Credit Assessment Price (CAP)), the Party is protected from exposure to £900 worth of SBP. This more than offsets the 'over' payment of the Bid Price for the overstated Bid volume, and this is likely to be the case in the majority of circumstances (given that SBP is usually above contract price, and Bid Prices will be below contract price in order to maximise the commercial benefit of delivering a Bid). This will affect the amount of RCRC (Residual Cashflow Reallocation Cashflow) as there is 'missing' imbalance volume and thus an impact on Imbalance charges;

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

Furthermore, aside from the implications on Parties, the overstated Bid volume will be used in the derivation of the NIV, overstating the market length – the market will appear to be longer than it is in reality, and in extreme cases may be switched from short to long by the overstated Bid volume(s). The NIV will be incorrect, as the netting is including a Bid volume that was not instructed by the Transmission Company, and thus the Energy Imbalance Price calculated from the NIV will be incorrect.

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 be reflected in Balancing Services Use of System (BSUoS) charges.

1.1.3 Further Analysis of a 'Live' Occurrence of the Issue

The magnitude of this issue is not clear. However, analysis provided by Centrica (the Party that identified the issue) indicates that there were approximately 500 instances of this happening in January 2004 alone.

ELEXON attempted to undertake some analysis to determine / confirm the materiality of this issue, but discovered that it is difficult to determine accurately as a consequence of the dependence on the timing of the MEL re-declaration (which is not picked up in the data used). A random sample of Settlement Periods and BM Units where MEL was re-declared below FPN were (manually) investigated and indications were that approximately 25% of the instances investigated were not manifestations of the problem, for a number of reasons: MEL re-declared after the Acceptance was instructed, MEL re-declared back to FPN before the Acceptance was instructed, or MEL re-declared below FPN following the end of the Acceptance.

However, even this analysis was flawed, as a consequence of BMRA not holding the time of the MEL re-declaration; an assumption was made that the time of the change in MEL equated to the time of the re-declaration. Therefore without accurate data (which is currently unavailable), it is impossible to assess

the materiality in terms of number of occurrences and the magnitude of overstated Acceptance volumes.

A specific example of DRAXX-5, on 20 January 2004 Settlement Period 32 was provided by Centrica (noting that this is a randomly selected example which does not exhibit all of the attributes discussed in section 1.1.2), and ELEXON looked at the Settlement calculations for this example and followed through the impact of the overstated Bid Acceptance volume.

FPN was 645 MW, with a MEL of 510 MW. A Bid to 465 MW was accepted across the entire Settlement Period. The Bid volume was calculated as 90 MWh (180 MW, i.e. 645 – 465), as it was calculated relative to FPN.

The MEL at 510 MW means that only 22.5 MWh (45 MW, i.e. 510 – 465) of Bid was actually delivered.

Bid Price was £15.80 / MWh, which means that DRAXX-5 paid out (ignoring TLMs) £1422. The cashflow should have been £355.50, so DRAXX-5 paid out £1066.50 too much for delivering the Bid.

However, the SBP for Settlement Period 32 was £23.21. Assuming, for simplicity, that the contracted level is equivalent to FPN, that DRAXX-5 was protected from imbalance for the difference between FPN and MEL (645 – 510 = 135 MW) i.e. 67.5 MWh, DRAXX-5 should have paid out £1566.68 in imbalance charges.

Therefore the additional Bid payment was offset by the removal of exposure to imbalance, and thus DRAXX-5 "saved" £500.18.

However, in reality, the DRAXX Production Energy Account was long in the Settlement Period in question, by approximately 90 MWh, so DRAXX received £1,400 from application of the System Sell Price (SSP). Thus there is arbitrage between the Bid price of £15.80 and the SSP of £16.72. Consequently, DRAXX benefited by the difference between Bid Price (£15.80) and SSP (£16.72), so received £62.10 over what DRAXX should have received.

The Indicative NIV for Settlement Period 32 was -348.6685 MWh. Therefore given that the NIV contained -67.5 MWh too much (the overstated Bid Volume), (and assuming that DRAXX-5 was the only occurrence of this issue), the Indicative NIV should have been -281.1685 MWh, making the market less long, and potentially having quite an impact on the System Sell Price, by removing 67.5 MWh of the most expensive balancing actions in the NIV. The System Sell Price was re-calculated to take into account the overstated Bid Acceptance volume. The SSP for the Settlement Period was £16.723, and the re-calculated SSP, removing the overstated Bid Acceptance volume, would have been £16.945, a difference of £0.222 (22 pence).

1.1.4 Issue with MIL Re-declarations

There appears to be a converse issue, in terms of re-declarations of Maximum Import Limit (MIL) (i.e. the maximum demand limit in the Settlement Period), where the MIL is re-declared above the FPN (i.e. the MIL is less negative than the FPN). If the Transmission Company then takes an Offer on the BM Unit (perhaps to move it further away from MIL to allow more foot room), the Offer Acceptance volume is calculated from FPN, and the Offer volume is overstated. The Party is paid more than it should be for the Accepted Offer, but misses out in terms of the imbalance volume exposed to the System Sell Price (as the MIL re-declaration would make the Party longer). However, given the relative paucity of demand side participation in the Balancing Mechanism, it is suspected that this is not a material issue at this time.

1.1.5 Related Change Proposal

Change Proposal (CP) 921 'Changes to Ensure Correct Processing of MIL / MEL Messages by BMRS' (v2.0) is being implemented in the June 2004 BSC Systems Release, and it seeks to address an anomaly in the way in which MIL and MEL data is received and processed by the BMRA. There is the potential for post Gate Closure re-declarations to be made that cross with the Gate Closure notification of data for the Settlement Period, due to the relative size of the files, and the source (pre Gate Closure comes from EDT, and post from EDL). Thus the post Gate Closure re-declaration can be subsequently overwritten by the pre Gate Closure value, as the BMRA is obliged (by the Code, Section V, Annex V-1) to publish the MIL / MEL data 'as received'. Furthermore, BMRA cannot publish data for part of a Settlement Period (a re-declaration) until data for the whole Settlement Period has been loaded.

CP921 seeks to ensure that files are time and sequence stamped by the Transmission Company at the time the data was received from the Party so that they can be processed as received but applied correctly so that the correct net profile is displayed on the BMRA.

Although this CP is not directly related to the issue contained within this requirements specification, the mechanism being utilised to assist in the sequencing (and therefore publication) of MEL / MIL re-declarations may be of assistance when defining a solution to the issue.

1.1.6 Timing of the MEL Re-declaration

The timing of the MEL re-declaration in relation to the timing of the Acceptance instruction is key when considering the solution to this issue. The Transmission Company takes an Acceptance in relation to the physical dynamics of the BM Unit prevailing at the time of the Acceptance, and taking into consideration any 'future' changes to these physical dynamics that it is aware of at the point of making the Acceptance. Where any physical dynamics change after the Acceptance has been made, then the Transmission Company makes no amendment to the previous Acceptance / takes no further action in respect of the amended physical information.

For the avoidance of doubt, the timing for MEL re-declarations relates to the time of the re-declaration, not to the time the change in MEL became effective. Similarly the timing of Acceptances relates to the time the Acceptance was instructed, not the time the acceptance delivery starts.

The key is to determine what output level the Transmission Company took the Acceptance against, and use that as the level against which the Acceptance volumes are derived, in order to derive the 'correct' anticipated delivery volume for each Acceptance.

Considering the relative timings of the re-declaration:

1. Where the MEL is re-declared before the Bid – Offer Acceptance is taken, then the Acceptance volume should be calculated with reference to the re-declared MEL (not to FPN) for the whole or part of the Acceptance where MEL is below the FPN, as the Transmission Company made the acceptance with reference to the MEL re-declaration;

2. Where the MEL is re-declared after the Bid – Offer Acceptance is taken, then the Acceptance volume should be calculated with reference to the FPN (as currently defined) as the Transmission Company made the Acceptance with reference to FPN.

Effectively this timing comparison would have to be performed in relation to the Acceptance Time for each Acceptance, in order to cater for the circumstance where there are a number of Acceptances and / or multiple re-declarations of MEL through a Settlement Period.

1.2 Background and Scope

Correction of this issue would require a Modification Proposal to be raised, as the Acceptance volume calculations are currently being performed entirely in accordance with the Code. Therefore Centrica raised the issue (Issue 7) for discussion at the Settlement Standing Modification Group in order to determine whether other Parties believe there to be an issue, and if so, what the solution should be.

The SSMG met on 23 April 2004 to discuss Issue 7, and agreed that there is a discrepancy in the way in which Bid Acceptance volumes are calculated where there has been a MEL re-declaration below the FPN before the Bid is instructed by the Transmission Company. However, the SSMG noted that the cost of amending the BSC Systems to correct this discrepancy may be material, and therefore an issue was raised as to the cost benefit of making such an amendment.

Furthermore, it was noted that the costs of amending the BSC Systems to address the defect identified would be one of the factors in a Party's decision whether or not to raise a Modification Proposal in this area. It was noted that if a Party had cost information available it would allow a more informed judgment to be made and potentially avoid the expenditure of taking a Modification Proposal through the Modification Procedure when the implementation costs were restrictive.

Therefore it was agreed that an initial impact assessment (and therefore costing) should be obtained from the BSC Central Service Agent in order that the cost benefit aspect can be explored further. It was also agreed that the requirements specification and the impact assessment obtained thereon, should be consistent with those that would be required in the Modification Assessment Procedure, such that were a Modification Proposal to be raised, this effort would not be lost and could be used to inform the assessment of any such proposal.

2 REQUIREMENTS SPECIFICATION

There are effectively two ways of addressing this issue and ensuring that the Bid – Offer Acceptance volumes are calculated correctly. The following sections cover each option, noting that these are only potential solutions which are provided for discussion and impact assessment and which have not been agreed as definitive solutions.

For each option there are the following requirements:

1. Calculate the reference level against which the Bid – Offer Acceptance volumes will be calculated (referred to as the Acceptance Reference Level);
2. Calculate the Bid – Offer Acceptance volumes against this new Acceptance Reference Level;
3. Calculate any Bid – Offer Acceptance Non – Delivery against this new Acceptance Reference Level; and
4. Report the Acceptance Reference Level in a meaningful way (for transparency and for Party verification of trading charges / Settlement Calculations).

It should be noted that the solutions proposed address the MIL vs FPN issue as well, in order to have a symmetrical solution and to ensure that the solution is future proof.

For the avoidance of doubt, amendments to reflect MEL / MIL re-declarations, as detailed in the following sections, refers only to Bid – Offer Acceptance and Acceptance Non – Delivery calculations, under the circumstances detailed. All other Settlement Calculations should be performed with reference to the FPN, as notified by the Transmission Company at Gate Closure for each Settlement Period.

It should be noted that making this amendment to how the Acceptance volumes are calculated (and Non - Delivery applied) is the only amendment required. Once these volumes are derived 'correctly', then they flow through the remainder of the calculations reflected as being impacted in section 1.1 above. For example, the correct Bid – Offer Cashflows are calculated, the Energy Imbalance Price calculation has the 'correct' Acceptance volumes reflected in the calculation, and the Credited Energy for a Party is derived correctly. Therefore there is no requirement to amend any other aspect of the Settlement Calculations.

The options for the solutions can be summarised as follows:

The exception referred to is where the Acceptance points are inconsistent with the MIL / MEL re-declaration (see sections 3.1.3 and 4.1.3).

Option	Acceptance Reference Level	New Variable?	Reporting	Exception
Option 1A	Derived by BMRA / SAA	**YES** – ARL used instead of FPN	ARL reported on BMRA and in SAA-I014 with BOA data	Truncate / cap Acceptance to MIL / MEL
Option 1B	Derived by BMRA / SAA	**YES** – ARL used instead of FPN	ARL reported on BMRA and in SAA-I014 with BOA data	Calculate Acceptance with reference to FPN
Option 2A	Derived by the Transmission Company and notified to BMRA / SAA	**YES** – ARL received from TC and used instead of FPN	ARL reported on BMRA and in SAA-I014 with BOA data	Truncate / cap Acceptance to MIL / MEL
Option 2B	Derived by the Transmission Company and notified to BMRA / SAA	**YES** – ARL received from TC and used instead of FPN	ARL reported on BMRA and in SAA-I014 with BOA data	Calculate Acceptance with reference to FPN

3 PROPOSED SOLUTION FOR THE MEL ISSUE

3.1 MEL Option 1: Creation of a New Acceptance Reference Level Variable

Information from the Transmission Company is received as currently defined.

The BSC Central Service Agent creates a new variable – 'Acceptance Reference Level' (ARL), which is calculated for each Acceptance, and is used instead of FPN_{ij} through all the Bid – Offer Acceptance calculations. Acceptance Non – Delivery volumes will be calculated for each Acceptance using the new 'Acceptance Reference Level'.

This would be reported as a new variable on the BMRA with the physical BM Unit data, and in the Settlement Report (SAA – I014), where it would be reported as spot points with the Acceptance data.

The FPN, i.e. that provided at Gate Closure for the relevant Settlement Period by the Transmission Company, should be used in all other Settlement calculations, as currently defined.

For the avoidance of doubt, this process applies to all Acceptances instructed where MEL is below FPN, i.e. Bids and Offers. In the case of Offer Acceptances, it should be noted that where the Transmission Company takes an Offer Acceptance, the Offer will be made with reference to the physical dynamics prevailing at the time the Acceptance is instructed, and furthermore, the Offer cannot exceed MEL (with the exception of Acceptances made during Grid Code defined emergency circumstances). Therefore the solution proposed in the following sections is robust to all Acceptances, Bids and Offers, made where there has been a MEL re-declaration prior to the Acceptance Time, and furthermore it should be recognised that references to 'Acceptances' are to both Bids and Offers.

3.1.1 Calculating the Acceptance Reference Level

Whether the FPN or the MEL is used as the Acceptance Reference Level will depend on the relative timings of Bid – Offer Acceptances being made and the re-declarations of MEL. Therefore the BMRA / SAA would have, for each Acceptance, to determine these relative timings.

Currently the BMRA (and SAA by implication) receive MEL data in the form of spot point data with associated MW levels. Where there has been no re-declaration, then the MEL notified prior to Gate Closure for the Settlement Period is the level that prevails for the Settlement Period. Where MEL is re-declared, and there may be more than one re-declaration in the Settlement Period / during the Acceptance, then the file containing the re-declaration will provide a timestamp of the time the Party re-declared the MEL (see CP921 'Changes to Ensure Correct Processing of MIL / MEL Messages by BMRS').

The following implies a certain processing order, but it should be noted that this order is logical for describing the requirements, but may not be logical in respect of the system processing, and therefore it is not paramount that this order be followed if there is a more efficient (and system oriented) mechanism for achieving the same end.

Where FPN is a positive value, and:

1. Where there has been a Bid – Offer accepted on a BM Unit, then BMRA / SAA should determine whether, for any point during the Acceptance, the MEL was less than FPN;

2. Where the MEL was less than FPN for any point, then the time of the MEL re-declaration that took the MEL below FPN should be derived, and where there are multiple MEL re-declarations, then the MEL re-declaration that is of interest is still the one that initially takes the MEL below FPN, i.e. the relevant MEL re-declaration.

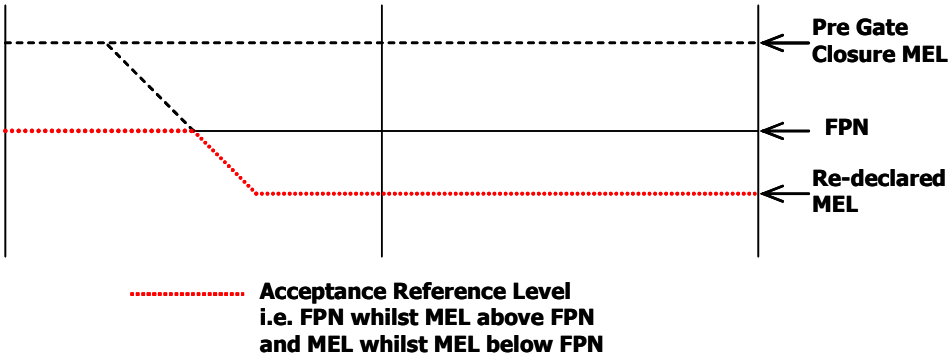
   Where there was a relevant MEL re-declaration, then the timestamp within the received re-declaration file (i.e. the time the Party made the relevant re-declaration) is the relevant time. Where there is no re-declaration (i.e. MEL was adjusted below FPN by a pre-Gate Closure notification), then the MEL re-declaration time can be assumed to be Gate Closure for the Settlement Period during which MEL first crosses the FPN level to go below it.

3. Where the relevant MEL re-declaration time is on[1] or later than the Acceptance Time (i.e. the time the Acceptance was instructed) then no further action need be taken, and the Acceptance volume should be calculated with reference to the FPN, as currently defined, i.e. the Acceptance Reference Level will be FPN.

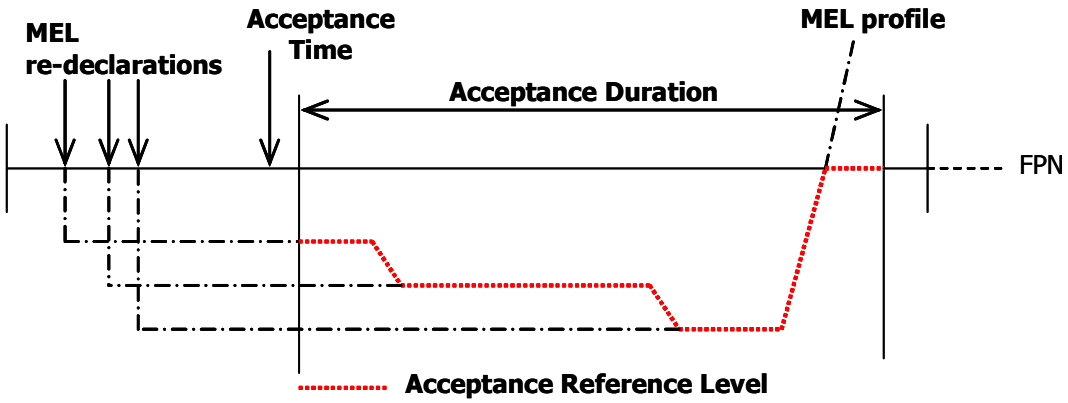
4. Where the MEL re-declaration time is earlier than the Acceptance Time, then the Acceptance has been issued with reference to the prevailing dynamics (including the MEL), and the Acceptance Reference Level should be derived. The Acceptance Reference Level will be equivalent to FPN for the times that the FPN is below MEL, and will be equivalent to MEL for the times that the FPN is

[1] Where the Acceptance Time is the same as the MEL re-declaration time, then an assumption is being made that the MEL has been re-declared immediately the Acceptance is instructed, in response to the Acceptance.

above MEL. Linear interpolation may be required to determine the cross over points, and thus join FPN to MEL where required. This is illustrated in the following example:



For the avoidance of doubt, where there are subsequent MEL re-declarations that have a re-declaration time before the Acceptance Time, then a MEL profile can be derived, and whilst the MEL profile for all MEL re-declarations made prior to the Acceptance Time remains below FPN, this MEL profile will form the Acceptance Reference Level. This is illustrated below.

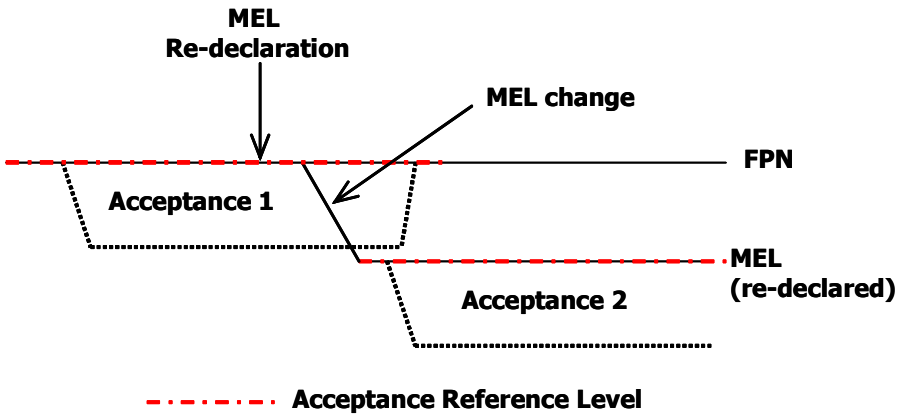


In this illustration it can be seen that the Acceptance Reference Level will follow the MEL profile, as derived from the re-declarations (noting that in the illustration the black dashed lines are there to tie the re-declaration time to the re-declared level, and are not meant to represent the MEL profile). When the re-declared MEL crosses and goes above FPN, then the Acceptance Reference Level follows FPN. **Throughout this document, where MEL re-declarations are referred to, then this should be interpreted as meaning the MEL profile derived from the MEL re-declaration(s) made prior to the Acceptance Time**.

5. This comparison should be done for each individual Acceptance, to ensure that the solution is robust to the situation where there is an Acceptance made against FPN, and then MEL is re-declared, and a subsequent (and potentially related / contiguous) Acceptance is made against the re-declared MEL.

6. Where there are overlapping Acceptances, illustrated diagrammatically below, then the Acceptance that was taken prior to the MEL re-declaration should be calculated with reference to FPN for the whole Acceptance. The volume of the second Acceptance should be calculated with reference to MEL for the whole Acceptance. This is illustrated by the redlined Acceptance Reference Levels below.

For the avoidance of doubt, this process should not affect the application of the Continuous Acceptance Duration Limit (CADL), as the Acceptances are still continuous, even if the volume is derived from differing reference levels).



3.1.2 Applying the Acceptance Reference Level

Bid – Offer Upper and Lower Range Derivation

The proposal to use a different reference level for calculating Bid – Offer Acceptance volumes and the associated Bid – Offer prices, affects the derivation of the Bid – Offer Upper and Lower range, which are 'normally' calculated with reference to FPN. Effectively for the Bid – Offer Upper and Lower range calculation, the Acceptance Reference Level should replace the FPN. This allows calculation of Acceptance Volumes and associated Bid – Offer cashflows for the Acceptances with reference to the level that the Transmission Company actually took the Acceptance from.

Bid – Offer Acceptance Volume Calculation

The Acceptance Reference Level should be substituted for FPN, such that the Acceptance Volume of the specific Acceptance is calculated in respect of the 'correct' level. Therefore, where FPN is referenced in the calculation of Acceptance volumes, this should be interpreted to be the Acceptance Reference Level for the relevant Acceptance.

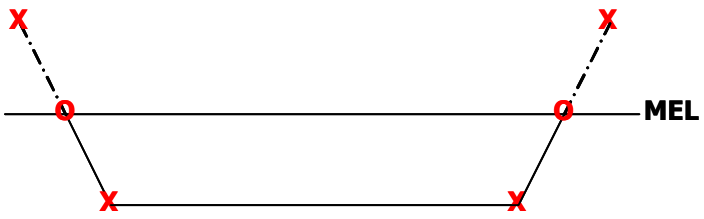
This should result in the 'correct' Bid – Offer Acceptance volume being calculated by BMRA and SAA.

For the avoidance of doubt, BMRA will perform this calculation using the latest data available at the point of running the derived data calculations following the end of the Settlement Period and will not re-perform any calculations in light of new / amended data. SAA will perform this calculation using the latest data available at the point of performing each Settlement Run.

3.1.3 Possible Exception Circumstances

Acceptance level spot points are above the re-declared MEL (and MEL was re-declared prior to the Acceptance Time, and has not been re-declared since): This should not happen, as the Transmission Company is obliged to take into consideration the physical dynamics at the point of issuing an acceptance. There are two possible ways of dealing with the exception.

Option A: Where this is found to be the case, then truncate / cap the Acceptance points to the Acceptance Reference Level (in this case it would be MEL). This is illustrated below, where the Acceptance points are above the re-declared MEL. In this instance, linear interpolation between the Acceptance points to the point where the MEL crosses them, gives new 'capped' spot points, which are the ones to be used when deriving the Acceptance volume.



X Acceptance spot points

O Capped spot points

Option B: Where this is found to be the case, then ignore the MEL re-declaration and use FPN as the Acceptance Reference Level for the entire Acceptance, i.e. no change to the current processing (other than using the Acceptance Reference Level, which will be equivalent to FPN).

3.1.4 Calculating Acceptance Non – Delivery Volumes

Currently Non – Delivery volume calculations are performed against the Period Expected Metered Volume for a BM Unit (QME_{ij}), where the Period Expected Metered Volume is defined as FPN_{ij} + QBS_{ij}, i.e. FPN for the BM Unit adjusted for Bid – Offer Acceptance volumes and delivered Applicable Balancing Services volumes.

However, use of FPN as the baseline for deriving the expected Acceptance delivery volumes could create discrepancies where the Transmission Company made an Acceptance against a level other then FPN. Where this occurs, then the expected Acceptance volume will be overstated if the comparison is made to FPN for all Acceptances. Therefore, as for Acceptance volumes, Non – Delivery should be determined according to the Acceptance volume the Transmission Company was expecting, and this means deriving the Non – Delivery volume for each Settlement Period with reference to the Acceptance Reference Level overlaid on MEL and FPN.

It is intended that the Non – Delivery charges be derived as they are now, namely a Settlement Period Non – Delivered volume will be derived, and the charges derived and applied as currently defined.

Period Expected Metered Volume Calculation:

For each Settlement Period, the Period Expected Metered Volume will need to be derived. There is a requirement for two different variables, one for Information Imbalance charging and one for Non Delivery, as a consequence of the differing intents of the two calculations:

- The Information Imbalance should be the difference between what was declared prior to Gate Closure and what was delivered post Gate Closure. Therefore, it is appropriate for Information Imbalance Charging that the expected metered volume be calculated as FPN adjusted for Bid – Offer Acceptance and Applicable Balancing Services Volumes; 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 it is appropriate that the Non – Delivery volume is calculated against the Acceptance Reference Level, rather than FPN.

Therefore the following amendments are required / proposed:

1. Information Imbalance Charging

Given that the Information Imbalance charging is a relatively minor bit of functionality, it is proposed that a new variable be used here (rather than for Non – Delivery, which is more substantial and for which, to minimise impact on Parties, the existing variable should be retained). The new variable could be referred to as the 'Period Information Expected Metered Volume', $QMEI_{ij}$, and defined as $FPN_{ij} + QBS_{ij}$. This amends Section T 4.3.3 accordingly.

Therefore, this feeds through into Section T 3.3.4 where the Period Information Imbalance Volume is determined, and the amended variable will be used there, i.e. the Period Information Imbalance Volume will be $|QM_{ij} - QMEI_{ij}|$.

2. Non – Delivery Volume Calculations: Period Expected Metered Volume

The Non – Delivery volume calculations will continue to use QME_{ij}, i.e. the Period Expected Metered Volume, but it will require a formulation other than $FPN_{ij} + QBS_{ij}$.

The formulation of Period Expected Metered Volume for Non – Delivery charging is problematic, as it is effectively the expected metered volume adjusted for the Bid – Offer Acceptance volume compared to the actual metered volume, and necessarily it can only be calculated at Settlement Period level, as this is the granularity of the actual metered volume for the BM Unit, i.e, the key component of the comparison.

The Period Expected Metered Volume for the Settlement Period will be, under certain circumstances, complex to derive, as it will effectively be the Acceptance levels across the Settlement Period, overlaid on the FPN and MEL re-declarations. Given that there is the potential for Acceptance Reference Levels to overlap, this creates the complexity.

One proposed approach could be to derive a volume for the Settlement Period, based on integrating the Acceptance Reference Level(s) for the Acceptances.

Thus the Period Expected Metered Volume QME_{ij} will be derived from integrating FPN, MEL and Acceptances, according to the relevant hierarchy of the levels, noting that a similar principle as that established for Bid – Offer Acceptance volume processing applies, namely that the Period Expected Metered Volume should reflect the output level of the BM Unit, as a reflection of both how the Transmission Company saw it, and how the BM Unit operated during the remainder of the Settlement Period. The resulting volume needs to be adjusted for BM Unit Applicable Balancing Services Volumes (QAS_{ij}) to get the Period Expected Metered Volume (QME_{ij}), i.e. it is a two stage process:

1. Derive the expected metered volume using the FPN, MEL and Acceptance profile; this interim volume will require a new variable to be created, which will be referred to as the Period Acceptance Expected Metered Volume, $QAME_{ij}$; and
2. Once the Period Acceptance Expected Metered Volume has been derived, then it will be adjusted for BM Unit Applicable Balancing Services Volume (QAS_{ij}) to derive the Period Expected Metered Volume, i.e. $QME_{ij} = QAME_{ij} + QAS_{ij}$.

Calculating Period Acceptance Expected Metered Volume ($QAME_{ij}$):

The intent of the Period Acceptance Expected Metered Volume is to reflect the operating level of the BM Unit, adjusted for Bid – Offer Acceptance volumes.

Therefore the operating profile across the Settlement Period (the Settlement Period profile) needs to be derived, so that the Period Acceptance Expected Metered Volume can be calculated as the volume, in MWh, associated with that profile.

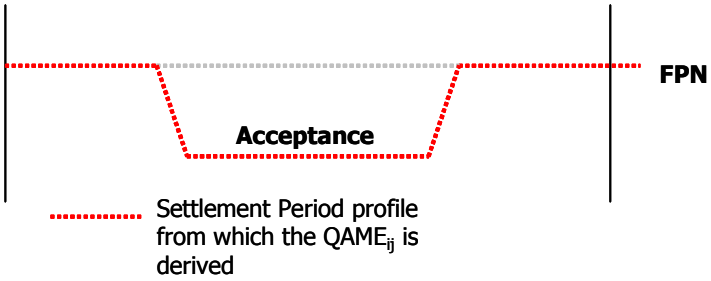
The Settlement Period profile will be a composite of FPN, MEL re-declaration levels and Acceptance spot points, and should be derived as follows (noting that this order is logical for describing the requirements, but may not be logical in respect of the system processing, and therefore it is not paramount that this order be followed if there is a more efficient (and system oriented) mechanism for achieving the same end):

1. Acceptance spot points should be plotted. If the Acceptance spot points encompass the whole Settlement Period, then this represents the Settlement Period profile, and is therefore the basis for calculating the Period Acceptance Expected Metered Volume;
2. Where there has been a MEL re-declaration(s) during the Settlement Period, and the re-declared MEL(s) was used as the Acceptance Reference Level, then the spot points for the MEL profile across the Settlement Period should be plotted (i.e. the profile of MEL taking into account any re-declarations in the Settlement Period). For the avoidance of doubt, MEL re-declarations that were not used as Acceptance Reference Levels should be ignored;
3. The spot points for the FPN profile across the Settlement Period should be plotted.

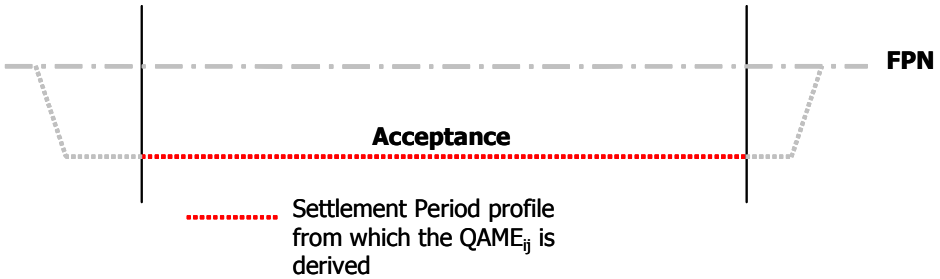
Then the Settlement Period profile can be established.

In a simple example, where an Acceptance has been made with reference to FPN, the Settlement Period profile will appear as follows:

It can be seen that the Acceptance profile is superimposed on to FPN, and the Settlement Period profile follows FPN and the Acceptance, where the Acceptance intersects FPN.

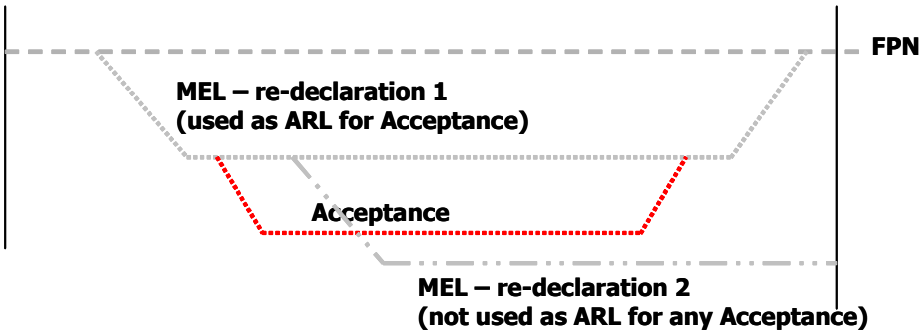


In another simple example, where the Acceptance lasts for the entire Settlement Period, it can be seen that the Acceptance profile becomes the Settlement Period profile, as shown below:

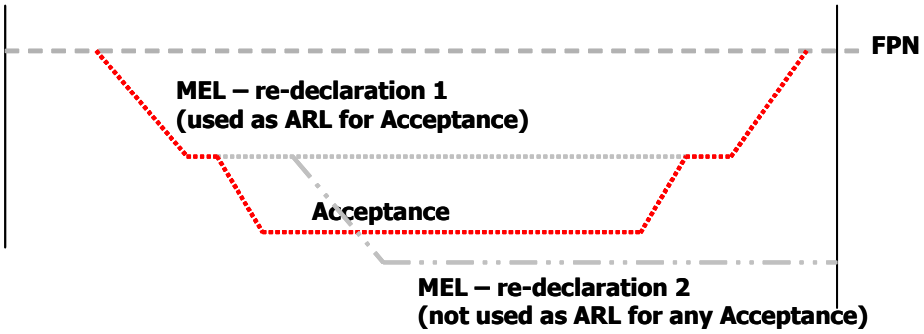


In the more complex example below, there have been two MEL re-declarations and an Acceptance. One MEL re-declaration was used as the Acceptance Reference Level for the Acceptance, and the other was not (due to the relative timings).

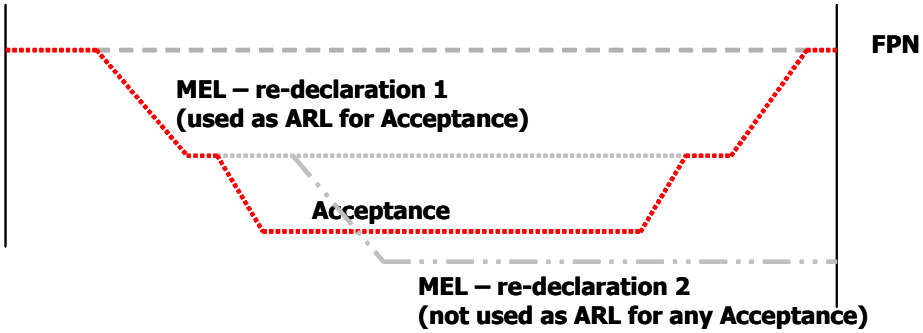
The Settlement Period can be built up as follows; the red lines show how the profile is built. The Acceptance spot points are established, as shown below:



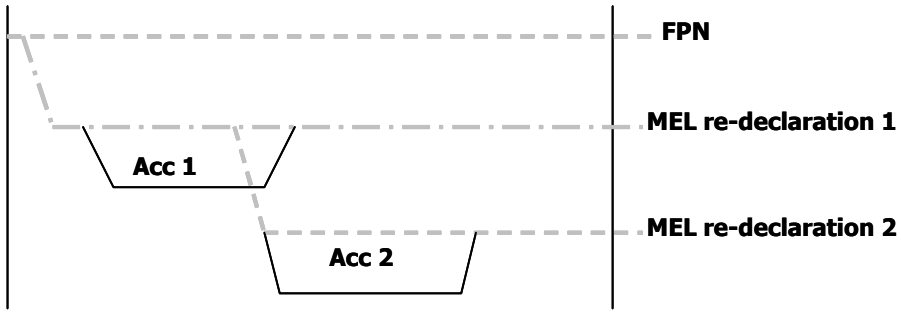
Then the MEL profile is established, and the Acceptance profile is superimposed onto the MEL profile, the Settlement Period profile will follow the Acceptance profile until it intersects MEL, and then will follow the MEL profile, as shown below:



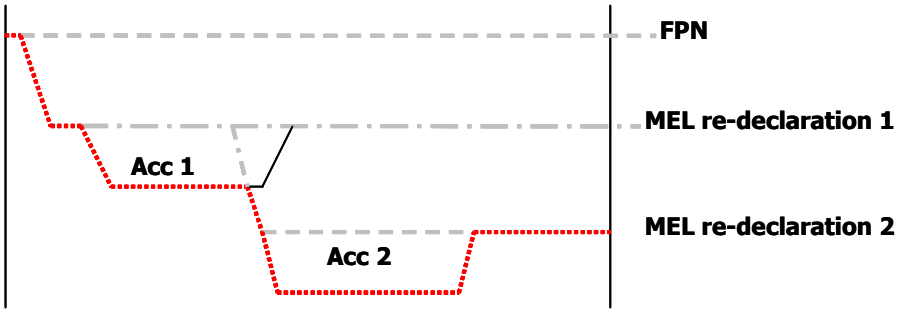
Then the FPN profile is established and the Settlement Period profile derived so far is superimposed onto the FPN profile, and the Settlement Period profile will follow the Acceptance and MEL profile established so far until it intersects FPN, and then will follow the FPN profile, as shown below:



In the situation where Acceptances overlap at different Acceptance Reference Levels, then where the first (relative to) Acceptance is intersected either by the second (relative to) Acceptance or by the MEL profile of the second re-declaration, then the Settlement Period profile will follow the intersection. This is illustrated in the following example, where there have been two Acceptances at differing Acceptance Reference Levels which overlap.



This example will result in a Settlement Period profile as follows:



For the avoidance of doubt, where the exception rules have been invoked, i.e. the Acceptance has been capped to MEL or to FPN, then the Settlement Period profile will reflect this cap / truncation of the Acceptance.

Once the Settlement Period profile has been established, then the Period Acceptance Expected Metered Volume ($QAME_{ij}$) can be established from this profile.

Once the Period Acceptance Expected Metered Volume ($QAME_{ij}$) has been calculated, the Period Expected Metered Volume (QME_{ij}) can be derived by adjusting $QAME_{ij}$ with QAS_{ij}, as described above.

3.1.5 Reporting the Acceptance Reference Level

Basic Reporting: Settlement Report

Given that the Acceptance Reference Level is relevant to each Acceptance and may be a profile of output, it seems appropriate to report the Acceptance Reference Level as a series of spot points against each Acceptance.

It should be noted that there may be a different Acceptance Reference Level for each Acceptance, and consequently there may be some overlap in the spot data.

An extract from the Settlement Report (SAA – I014, subflow 2) is provided below to indicate the type of amendment that could be made to report the Acceptance Reference Level spot points, against which the Acceptance volume was derived in the Settlement calculations. It should be noted that this is only an **example** of the format and structure of the report.

SAA – I014, subflow 2

BO3	**R**	**0-***	**G**				**BMU Period Bid-Offer Acceptance**
N0342	D			1		integer(10)	B-O Acceptance Number
N0390	D			O		boolean	Short Continuous Acceptance Flag
BO6	**R**	**0-***		**G**			**BMU Period Bid-Offer Acceptance Spot Point**
N0337	D				1	integer(3)	Acceptance From Time
N0026	D				O	decimal(10,3)	Bid Offer Acceptance Volume Value From

N0338	D			1	integer(3)	Acceptance To Time
N0027	D			O	decimal(10,3)	Bid Offer Acceptance Volume Value To
NEW	**R**	**0-***	**G**			**BMU Period ARL Spot Point**
N0220	D			1	integer(3)	Time From
NEW	D			1	decimal(10,3)	ARL Value From
N0221	D			1	integer(3)	Time To
NEW	D			1	decimal(10,3)	ARL Value To

It should be noted that, in the SAA – I014 subflow 1, Group B03 is equivalent to Group BOA and Group B06 is equivalent to Group BO5, and the amendments would be the same.

Group BP7 'BM Unit Period Data' in the SAA – I014 subflow 2 (equivalent to Group BPD in subflow 1) requires amendment to report the 'Period Information Expected Metered Volume' ($QMEI_{ij}$) and the 'Period Acceptance Expected Metered Volume' ($QAME_{ij}$) alongside the Period Expected Metered Volume (see the example provided in the 'Enhanced Reporting section below).

Enhanced Reporting: Settlement Report

The basic approach to reporting does not provide any confirmation of the relative timings of the MEL / MIL re-declaration and the Acceptance Time. Therefore Parties effectively cannot verify that that BMRA / SAA has created the Acceptance Reference Level correctly, unless the SAA – I014 is enhanced in other ways to report the relative timings, for example by:

1. Reporting an Acceptance Time for each Acceptance in Group B03 (subflow 2) / BOA (subflow 1); and

2. Amending the Settlement Report subflow 2 to include a 'Re-declaration Time' in the Group MEL and Group MIL (subflow 2) (noting that MIL and MEL data are specific to subflow 2, the Transmission Company variant of the Settlement Report). Subflow 1 would need to be amended to include the MIL and MEL data (using the same structure as subflow 2), along with the re-declaration time. The structure of the groups may require amendment to report the MEL / MIL against the relevant re-declaration, so that the association is clear.

The Settlement Report (SAA – I014) could also be amended to include the reporting of the spot points associated with the Period Expected Metered Volume (QME_{ij}) and the derived volume. The following provides **an example** of how this could be achieved, shown on the SAA – I014, subflow 2):

BP7	**R**	**0-***	**G**			**BM Unit Period Data**
N0034	D			1	text(11)	BM Unit Id
…						…
NEW	D			1	decimal(10,3)	Period Information Expected Metered Volume
NEW	D			1	decimal(10,3)	Period Acceptance Expected Metered Volume
N0173	D			1	decimal(10,3)	Period Expected Metered Volume
NEW	**R**	**0-***	**G**			**Period Acceptance Expected Metered Volume Spot Points**
N0220	D			1		Time From
NEW	D			1		QAME Value From
N0221	D			1		Time To
NEW	D			1		QAME Value To
N0035	D			1	decimal(10,3)	BM Unit Metered Volume
…						…
N0421	D			1	decimal(10,3)	BM Unit Applicable Balancing Services Volume

Basic Reporting: BMRA

The Acceptance Reference Level would be reported on the BMRA with the Bid – Offer Acceptance Level Data, in a similar way; as illustrated (as an example) below:

Acceptance Id	From Time (GMT)	From Level	To Time (GMT)	To Level
BMU Id, Type, Party Id, BMU Name				
1234	2004-05-10 15:55	450.000	2004-05-10 16:25	490.000
1234	2004-05-10 16:25	490.000	2004-05-10 16:30	510.000
1235	2004-05-10 16:28	500.000	2004-05-10 16:45	500.000

The Acceptance Reference Level could also be displayed pictorially and in (the above) tabular format on the **Physical Balancing Mechanism Data** screen for the relevant BM Unit.

4 PROPOSED SOLUTION FOR THE MIL ISSUE

4.1 MIL Option 1: Creation of a New Acceptance Reference Level Variable

Information from the Transmission Company is received as currently defined.

The BSC Central Service Agent creates a new variable – 'Acceptance Reference Level' (ARL), which is calculated for each Acceptance, and is used instead of FPN_{ij} through all the Bid – Offer Acceptance calculations.

This would be reported as a new variable on the BMRA with the physical BM Unit data, and in the Settlement Report (SAA – I014), where it would be reported as spot points with the Acceptance data.

The FPN, i.e. that provided at Gate Closure for the relevant Settlement Period by the Transmission Company, should be used in all other Settlement calculations, as currently defined.

For the avoidance of doubt, this process applies to all Acceptances instructed where MIL is above FPN, i.e. Bids and Offers. Therefore, in the same way as for Option 1 under the MEL vs FPN issue, it should be recognised that references to Acceptances is to Bids and Offers.

4.1.1 Calculating the Acceptance Reference Level

Whether the FPN or the MIL is used as the Acceptance Reference Level will depend on the relative timings of Bid – Offer Acceptances being made and the re-declarations of MIL. Therefore the BMRA / SAA would have, for each Acceptance, to determine these relative timings.

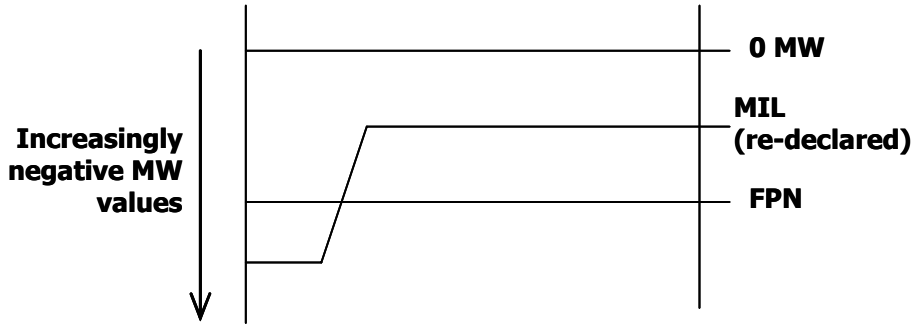
Currently the BMRA (and SAA by implication) receive MIL data in the form of spot point data with associated MW levels. Where there has been no re-declaration, then the MIL notified prior to Gate Closure for the Settlement Period is the level that prevails for the Settlement Period. Where MIL is re-declared, and there may be more than one re-declaration in the Settlement Period / during the Acceptance, then the file containing the re-declaration will provide a timestamp of the time the Party re-declared the MIL (see CP921 'Changes to Ensure Correct Processing of MIL / MEL Messages by BMRS').

The following implies a certain processing order, but it should be noted that this order is logical for describing the requirements, but may not be logical in respect of the system processing, and therefore

it is not paramount that this order be followed if there is a more efficient (and system oriented) mechanism for achieving the same end.

Where FPN is a negative value, and:

1. Where there has been a Bid – Offer accepted on a BM Unit, then BMRA / SAA should determine whether, for any point during the Acceptance, the MIL was higher than FPN (i.e. the MIL is less negative than the FPN, illustrated diagrammatically below);



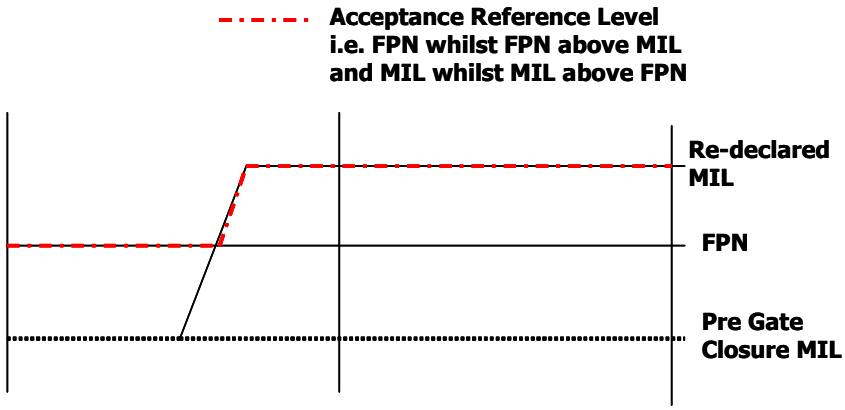
2. Where the MIL was higher than FPN for any point, then the time of the MIL re-declaration that took the MIL above FPN should be derived, and where there are multiple MIL re-declarations, then the MIL re-declaration that is of interest is the one that initially takes MIL above FPN, i.e. the relevant MIL re-declaration.

   Where there was a relevant MIL re-declaration, then the timestamp within the received re-declaration file (i.e. the time the Party made the relevant re-declaration) is the relevant time. Where there is no re-declaration (i.e. MIL was adjusted above FPN by a pre-Gate Closure notification), then the MIL re-declaration time can be assumed to be Gate Closure for the Settlement Period during which MIL first crosses the FPN level to go above it.

3. Where the relevant MIL re-declaration time is on[2] or later than the Acceptance Time (i.e. the time the Acceptance was instructed) then no further action need be taken, and the Acceptance volume should be calculated with reference to the FPN, as currently defined, i.e. the Acceptance Reference Level will be FPN.

4. Where the MIL re-declaration time is earlier than the Acceptance Time, then the Acceptance has been issued with reference to the prevailing dynamics (including the MIL), and the Acceptance Reference Level should be derived. The Acceptance Reference Level will be equivalent to FPN for the times that the FPN is above / higher than MIL, and will be equivalent to MIL for the times that the FPN is below / lower than MIL. Linear interpolation may be required to determine the cross over points, and thus join FPN to MIL where required. This is illustrated in the following example:

[2] Where the Acceptance Time is the same as the MIL re-declaration time, then an assumption is being made that the MIL has been re-declared immediately the Acceptance is instructed, in response to the Acceptance.



For the avoidance of doubt, (and in the same way as described for Option 1 MEL vs FPN issue (section 3.1.1)) where there are subsequent MIL re-declarations that have a re-declaration time before the Acceptance Time, then a MIL profile can be derived, and whilst the MIL profile for all MIL re-declarations made prior to the Acceptance Time remains below FPN, this MIL profile will form the Acceptance Reference Level.

Thus the Acceptance Reference Level will follow the MIL profile, as derived from the re-declarations until the re-declared MIL crosses and goes below FPN, then the Acceptance Reference Level follows FPN. **Throughout this document, where MIL re-declarations are referred to, then this should be interpreted as meaning the MIL profile derived from the MIL re-declaration(s) made prior to the Acceptance Time**.

5. This comparison should be done for each individual Acceptance, to ensure that the solution is robust to the situation where there is an Acceptance made against FPN, and then MIL is re-declared, and a subsequent (and potentially related / contiguous) Acceptance is made against the re-declared MIL.

6. Where there are overlapping Acceptances, then the Acceptance that was taken prior to the MIL re-declaration should be calculated with reference to FPN for the whole Acceptance. The volume of the second Acceptance should be calculated with reference to MIL for the whole Acceptance. This is similar to the illustration provided for bullet 6 in section 3.1.1.

   For the avoidance of doubt, this process should not affect the application of the Continuous Acceptance Duration Limit (CADL), as the Acceptances are still continuous, even if the volume is derived from differing reference levels).

4.1.2 Applying the Acceptance Reference Level

Bid – Offer Upper and Lower Range Derivation

The proposal to use a different reference level for calculating Bid – Offer Acceptance volumes and the associated Bid – Offer prices, affects the derivation of the Bid – Offer Upper and Lower range, which are 'normally' calculated with reference to FPN. Effectively for the Bid – Offer Upper and Lower range calculation, the Acceptance Reference Level should replace the FPN. This allows calculation of Acceptance Volumes and associated Bid – Offer cashflows for the Acceptances with reference to the level that the Transmission Company actually took the Acceptance from.

Bid – Offer Acceptance Volume Calculation

The Acceptance Reference Level should be substituted for FPN, such that the Acceptance Volume of the specific Acceptance is calculated in respect of the 'correct' level. Therefore, where FPN is referenced

in the calculation of Acceptance volumes, this should be interpreted to be the Acceptance Reference Level for the relevant Acceptance.

This should result in the 'correct' Bid – Offer Acceptance volume being calculated by BMRA and SAA.

For the avoidance of doubt, BMRA will perform this calculation using the latest data available at the point of running the derived data calculations following the end of the Settlement Period and will not re-perform any calculations in light of new / amended data. SAA will perform this calculation using the latest data available at the point of performing each Settlement Run.

4.1.3 Possible Exception Circumstances

Acceptance level spot points are below the re-declared MIL (and MIL was re-declared prior to the Acceptance Time, and has not been re-declared since): This should not happen, as the Transmission Company is obliged to take into consideration the physical dynamics at the point of issuing an acceptance. There are two possible ways of dealing with the exception.

Option A: Where this is found to be the case, then truncate / cap the Acceptance points to the Acceptance Reference Level (in this case it would be MIL), in the same way as described for Option 1 MEL vs FPN issue (section 3.1.3).

Option B: Where this is found to be the case, then ignore the MIL re-declaration and use FPN as the Acceptance Reference Level, for the entire Acceptance.

4.1.4 Calculating Acceptance Non – Delivery Volumes

The calculation of Acceptance Non – Delivery Volumes is covered in section 3.1.4, as the process / calculation would be the same, noting that the Period Expected Metered Volume would be calculated with reference to MIL, not MEL, as follows:

The Period Expected Metered Volume QME_{ij} will be derived from integrating FPN, MIL and Acceptances, according to the relevant hierarchy of the levels, noting that a similar principle as that established for Bid – Offer Acceptance volume processing applies, namely that the Period Expected Metered Volume should reflect the output level of the BM Unit, as a reflection of both how the Transmission Company saw it, and how the BM Unit operated during the remainder of the Settlement Period. The resulting volume needs to be adjusted for BM Unit Applicable Balancing Services Volumes (QAS_{ij}) to get the Period Expected Metered Volume (QME_{ij}), i.e. it is a two stage process:

1. Derive the expected metered volume using the FPN, MIL and Acceptance profile; this interim volume will require a new variable to be created, which will be referred to as the Period Acceptance Expected Metered Volume, $QAME_{ij}$; and
2. Once the Period Acceptance Expected Metered Volume has been derived, then it will be adjusted for BM Unit Applicable Balancing Services Volume (QAS_{ij}) to derive the Period Expected Metered Volume, i.e. $QME_{ij} = QAME_{ij} + QAS_{ij}$.

Calculating Period Acceptance Expected Metered Volume ($QAME_{ij}$):

The intent of the Period Acceptance Expected Metered Volume is to reflect the operating level of the BM Unit, adjusted for Bid – Offer Acceptance volumes.

Therefore the operating profile across the Settlement Period (the Settlement Period profile) needs to be derived, so that the Period Acceptance Expected Metered Volume can be calculated as the volume, in MWh, associated with that profile.

The Settlement Period profile will be a composite of FPN, MIL re-declaration levels and Acceptance spot points, and should be derived as follows (noting that this order is logical for describing the

requirements, but may not be logical in respect of the system processing, and therefore it is not paramount that this order be followed if there is a more efficient (and system oriented) mechanism for achieving the same end):

1. Acceptance spot points should be plotted. If the Acceptance spot points encompass the whole Settlement Period, then this represents the Settlement Period profile, and is therefore the basis for calculating the Period Acceptance Expected Metered Volume;
2. Where there has been a MIL re-declaration(s) during the Settlement Period, and the re-declared MIL(s) was used as the Acceptance Reference Level, then the spot points for the MIL profile across the Settlement Period should be plotted (i.e. the profile of MIL taking into account any re-declarations in the Settlement Period). For the avoidance of doubt, MIL re-declarations that were not used as Acceptance Reference Levels should be ignored;
3. The spot points for the FPN profile across the Settlement Period should be plotted.

Then the Settlement Period profile can be established, in the same way as described in section 3.1.4.

For the avoidance of doubt, where the exception rules have been invoked, i.e. the Acceptance has been capped to MIL or to FPN, then the Settlement Period profile will reflect this cap / truncation of the Acceptance.

Once the Settlement Period profile has been established, then the Period Acceptance Expected Metered Volume ($QAME_{ij}$) can be established from this profile.

Once the Period Acceptance Expected Metered Volume ($QAME_{ij}$) has been calculated, the Period Expected Metered Volume (QME_{ij}) can be derived by adjusting $QAME_{ij}$ with QAS_{ij}, as described above.

4.1.5 Reporting the Acceptance Reference Level

Reporting is covered in section 3.1.5, as there would be no difference in the reporting.

5 OTHER POTENTIAL SOLUTIONS TO THE MIL / MEL ISSUE: OPTION 2

Another possible solution is for the Transmission Company to create the new variable which reflects the reference output level that the Bid – Offer Acceptance was taken from, in the view of the Transmission Company. The new variable 'Acceptance Reference Level' would be an Acceptance BM Unit and Settlement Period ('$^{k}ij(t)$') variable, i.e. spot points and MW levels to give the ARL profile for each Acceptance, notified by the Transmission Company (to the BMRA (and SAA)) with each Acceptance. The calculations would then be performed by the BSC Central Service Agent in the same way as defined in sections 3 and 4 (with the exception of having to derive the Acceptance Reference Level), and the ARL reported as defined in 3.1.5.

6 PROPOSED AMENDMENT: IMPACTS

The following sections relate to the requirements for the implementation of the potential solutions.

6.1 Potential Changes to External Systems

The following table summarises the amendments required to external systems (i.e. Transmission Company, BSC Parties and Party Agents) for each implementation option:

Option	Transmission Company	BSC Parties	Party Agents
Option 1: New BSC CSA Variable	No change to BOA processing / reporting or to interfaces into BMRA. Change to Settlement Report processing for the new Acceptance Reference Level variable, for BOAs, and for Period Expected Metered Volume processing.	Change to Settlement Report processing. Impact on Trading Charge verification as FPN replaced by Acceptance Reference Level for BOA processing, and Non – Delivery charging amendments.	NO
Option 2: New Transmission Company Variable	Change to BOA processing to create new Acceptance Reference Level, and consequential changes to reporting and to interfaces into BMRA. Change to Settlement Report processing for the new Acceptance Reference Level variable with reference to BOAs, and for Period Expected Metered Volume processing.	Change to Settlement Report processing. Impact on Trading Charge verification as FPN replaced by Acceptance Reference Level for BOA processing, and Non – Delivery charging amendments.	NO

6.2 Potential Changes to Central Services Systems

The following table summarises the impact on the BSC Systems for each implementation option. This is believed to be the extent of the impact on the BSC Systems at this time.

Option	BMRA	SAA	Other BSC Systems
Option 1: New BSC CSA Variable	Derive new Acceptance Reference Level variable and populate a new variable with it. Use new variable in the calculations as if it were equivalent to FPN (i.e. replace FPN with ARL in calculations) for BOA processing. Change reporting to report ARL on BMRA with BM Unit physical and BOA data.	Derive new Acceptance Reference Level variable and populate a new variable with it. Use new variable in the calculations as if it were equivalent to FPN (i.e. replace FPN with ARL in calculations) for BOA processing. Change reporting to report ARL in the Settlement Report with BOA spot data. Derive amended Period Expected Metered Volume and	NO

		use it in Non – Delivery calculations. Change reporting (potentially) to report spot data for Period Expected Metered Volume profile.	
Option 2: New Transmission Company Variable	Receive new Acceptance Reference Level variable from the Transmission Company. Process and use new variable in the calculations as if it were equivalent to FPN (i.e. replace FPN with ARL in calculations) for BOA processing. Change reporting to report ARL on BMRA with BM Unit physical and BOA data.	Receive new Acceptance Reference Level variable from the Transmission Company. Process and use new variable in the calculations as if it were equivalent to FPN (i.e. replace FPN with ARL in calculations) for BOA processing. Change reporting to report ARL in the Settlement Report with BOA spot data. Derive amended Period Expected Metered Volume and use it in Non – Delivery calculations. Change reporting (potentially) to report spot data for Period Expected Metered Volume profile.	NO

6.3 Potential Changes to BSCCo Systems

The following table summarises the amendments required to BSCCo systems for each implementation option:

Option	TOMAS	Other BSCCo Systems
Option 1: New BSC CSA Variable	Reflect the amendments to (BMRA and) SAA by receiving the new Acceptance Reference Level variable. TOMAS performs ad hoc Acceptance volume calculations (as TOMAS does not normally calculate Acceptance volumes), and therefore amendment would be required to use the new Acceptance Reference Level variable in the calculations as the level to calculate BOA volumes from. However, it should be noted that TOMAS would not be able to verify the Acceptance Reference Level itself unless the relative timings of the MEL / MIL re-declarations and Acceptance Times were reported on BMRA / in the Settlement Report.	NO

Option 2: New Transmission Company Variable	As for Option 1, but with (potential) enhancements to receive the Acceptance Reference Level via BMRA messages, as the BMRA receives and reports Acceptance data including the new reference level variable.	NO

It should be noted that the following BSCCo departments may be impacted by these implementation options, as follows:

Option	BSCCo Departmental Impact
Option 1: New BSC CSA Variable **Option 2:** New Transmission Company Variable	All implementation options affect the following BSCCo Departments in the same way: 1. **Disputes Department:** Manifest Error disputes in respect of Bid – Offer Acceptances may be impacted by the amendments to the way in which Bid – Offer Acceptances are calculated. Furthermore, any lack of transparency in reporting may result in Trading Queries being raised in respect of the Acceptance Reference Level, where the Party does not agree with the level derived and used by BMRA / SAA; 2. **CVA Operations:** May be impacted by an increase in operational technical support in respect of queries raised on the settlement calculations; and 3. **Customer Services Management:** May be impacted by an increase in helpdesk queries in respect of the settlement calculations.

7 DEVELOPMENT PROCESS

The following sections give an indication of the control points required during design, testing and implementation and are supplied to provide a basis on which the BSC Central Service Agent can estimate.

7.1 Design

BSCCo intend that responsibility for the correctness of the design should remain with the BSC Central Service Agent, but that BSCCo should have the opportunity to review it, and identify apparent inconsistencies with the requirements.

7.2 Testing

BSCCo intend that responsibility for software testing should lie with the BSC Central Service Agent, but that BSCCo should have some visibility of the process, in order to gain assurance that the integrity of Trading and Settlement is maintained.

7.3 Implementation

For implementation option 2, BSCCo anticipate interaction with the Transmission Company's implementation process.

For implementation option 1, BSC Parties and the Transmission Company may be involved in implementation as a consequence of the amendments to BMRA reporting and to the Settlement Report (SAA-I014) to report the new Acceptance Reference Level variable.

8 GLOSSARY

The following acronyms have been used throughout this document:

Term	
ARL	Acceptance Reference Level
BM	Balancing Mechanism
BMRA	Balancing Mechanism Reporting Agent
BOA	Bid – Offer Acceptance
BSC	Balancing and Settlement Code
BSC CSA	BSC Central Service Agent
CADL	Continuous Acceptance Duration Limit
FPN	Final Physical Notification
MEL	Maximum Export Limit
MIL	Maximum Import Limit
NIV	Net Imbalance Volume
PN	Physical Notification
SAA	Settlement Administration Agent

9 DOCUMENT CONTROL

a Authorities

Version	Date	Author	Reviewer	Reason for review
0.1	30/04/04	Mandi Francis	SSMG	External Review
0.1	30/04/04	Mandi Francis	Thomas Bowcutt	Internal Peer Review
0.1	30/04/04	Mandi Francis	Fred Barasi	Internal Peer Review
0.1	30/04/04	Mandi Francis	John Lucas	Internal Peer Review
0.1	30/04/04	Mandi Francis	Paul Brodrick	Internal Peer Review
0.2	11/05/04	Mandi Francis	As for 0.1	For Information (redlined)
1.0	11/05/04	Change Planning		For BSC Central Service Agent Impact Assessment
1.1	18/05/04	Change Planning		For BSC Central Service Agent Impact Assessment: Incorporating amendment to Non – Delivery Rules

b Distribution

Recipient	Version	Date	Reason