ISG/27/309

Meeting name	ISG
Date of meeting	22 April 2003
Paper Title	MODELLING OF ALTERNATIVE INTERCONNECTOR METHODOLOGIES
Purpose of Paper	For Information
Synopsis	This paper reports the results of modelling of alternative Interconnector CALF methodologies. ISG are invited to note the results of the modelling.

1. INTRODUCTION

1.1 ISG paper ISG/24/267 questioned whether the methodologies used to generate Interconnector BM Units CALF values that were in force for the Winter 2002/03 BSC Season were creating realistic estimates of Energy Indebtedness. The paper proposed some alternative methodologies that ISG might wish to adopt to address this issue, and is attached to this paper for reference purposes.

1.2 ISG directed that an alternative methodology be adopted that applied a factor of two to address an anomaly between the units used in the numerator and denominator in the CALF calculation.

1.3 ISG additionally directed that ELEXON conduct modelling upon the effects of Methodologies 1, 2 and 4 that were proposed in the paper.

1.4 At ISG meeting 26 it was agreed that the modelling would be considered in the Standing Settlements Modifications Group (SSMG) against issue three. SSMG further clarified the modelling that it wished ELEXON to conduct.

2. SSMG INVOLVEMENT IN THIS ISSUE

2.1 Separately from ISG's request, the Standing Settlements Modifications Group has received a request from a BSC Party to consider whether there is scope for a modification to address the Energy Indebtedness treatment of Interconnector Users. This is SSMG issue 3. SSMG papers are published at the following location on the ELEXON website: http://www.elexon.co.uk/ta/modifications/mods_group.html

2.2 SSMG has directed that ELEXON should conduct modelling for two potential options as follows:

Option 1:

2.2.1 Reverting back to the CALF methodology for Interconnectors of pre-Winter 2002/03 and using CDCA data to calculate the average and maximum volumes during the latest full three months. The average metered volumes for Production Status Interconnector BM Units are to exclude Settlement Periods when these volumes are nil, but the metered volumes of the Consumption

Status BM Unit within the pair are not – and vice versa. This option would require a change to the CALF Guidelines and principles.

Option 2:

2.2.2 Extrapolate a linear extension of current Actual Energy Indebtedness (AEI) across the 29 Energy Indebtedness window with estimates for the circa eight days that are currently based upon CEI being mechanically estimated from the circa 21 days of Interim Information Settlement Run data. This option would require a Modification to the BSC.

2.3 The latter of these two options was proposed as the alternative P2 modification. The authority decision letter on P2 reflects the following on the alternative modification:

'It is understood that Modification Proposal P2 does not entirely remove the inaccuracies in the credit-checking methodology and consideration has been given to the implementation of an Alternative Modification Proposal that reduced still further the unnecessary costs and risks arising from participation in the balancing and settlement arrangements. However having had regard to this, the view of the Modification Group and their recommendations on such an Alternative Modification Proposal, Ofgem agrees that it would not further facilitate the Applicable BSC Objectives. It is felt that the additional cost savings achievable through the Alternative Modification approach are relatively minor. As such they do not justify the additional cost of implementation.'

2.4 ELEXON has incorporated the former of these methodologies proposed by SSMG in the modelling for this paper. As agreed with SSMG, Option 2 will be progressed via SSMG in less urgent timescales. All other methodologies were either put on hold or rejected by SSMG.

2.5 Option 1 has been compared to the values that would have been calculated from the current operational method, as defined in the CALF Guidelines.

3. ADDITIONAL METHODOLOGIES MODELLED

3.1 ELEXON has additionally modelled three further methodologies, two suggested by ISG paper ISG/24/267 (referred to as Methodology 2a and Methodology 4 respectively) and a further one that blends the calculation suggested in Methodology 2a against the date range suggested in Methodology 2b (this is referred to as Methodology 2c) – which may have been perceived as a compromise between these methodologies.

3.2 The intention of this additional modelling was to cover all alternative Interconnector methodologies thus far suggested at ISG, in order to illustrate the potential impact of each. It was efficient to conduct this modelling now, as little additional effort was required.

3.3 Methodology one as defined within ISG/24/267 has not been modelled as SSMG directed ELEXON not to do so.

4. THE MODELLED METHODOLOGIES

4.1 ELEXON has prepared the attached spreadsheets showing the results of modelling.

4.2 The methodologies are briefly summarised in Table 1:

Table 1 – Summary of methodologies modelled

Worksheet title	Methodology
Current methodology	As defined in the CALF Guidelines
Methodology 2a	Defined as Methodology 2 in ISG/24/267
Methodology 2b	Option 1 from SSMG
Methodology 2c	Methodology 2a calculation applied to Methodology 2b date range
Methodology 4	Defined as Methodology 4 in ISG/24/267

The following assumptions and notes are common to all models:

4.3 In each case, the CALF values modelled are those that would have been applied for the Summer 2003 BSC Season, had this methodology been in place at the time of seasonal CALF calculation.

4.4 Metered volumes and GC/DC values have been provided as well as the CALF results derived from these, in order that ISG members have the facility to see how these have been calculated and how they might change should the components of the calculation change.

4.5 The Party IDs and BM Unit names have been sanitised to respect the confidentiality of the Parties involved. An exception has been made for the Interconnector Error Administrator BM Units as these clearly may be subject to different metered volume patterns from those of Trading Parties.

4.6 The Credited Energy Volume [CAQCE] has been calculated from CALF multiplied by GC or DC (dependent upon P/C Status of the BM Unit), in accordance with Section M of the BSC.

4.7 CEI is calculated as CEI =-(CAQCE – QABC), in accordance with Section M of the BSC. The average QABC per Settlement Period has been assumed to be equivalent to the average metered volume per Settlement Period between the analysed dates in each example.

4.8 The modelling has purely concentrated upon the CEI impacts upon affected Parties' Interconnector BM Units. It is acknowledged that each Party may also accrue positive or negative Actual Energy Indebtedness (AEI) and may have any number of non Interconnector BM Units that will also be included in the calculation of their overall Energy Indebtedness (EI). However it was felt that providing modelling based upon each Party's entire BM Unit portfolio, including the modelling of AEI, might result in a loss of visibility of the effects of CALF Interconnector methodology changes being suggested. For this reason, modelling has concentrated purely on CEI issues.

4.9 CEI has been modelled over both one Settlement Period and over eight days. The definition of CEI means that it's application during the 29 day Energy Indebtedness Period can vary between

seven complete Settlement Days plus one Settlement Period, and 11 complete Settlement Days – dependent upon public holidays and upon the Settlement Period assessed on any given day.

Scenario specific additional assumptions and explanatory notes:

4.10 'Current methodology' sets out the current methodology according to the CALF Guidelines. It is assumed that where there is either no historical data, or incomplete historical data, for a Interconnector BM Unit within the date range analysed, that a generic Class CALF value should be assigned to the BM Unit. This generic Class CALF will represent the average CALF value achieved by all those Interconnector BM Units for which there was sufficient historical data within their class. For the avoidance of doubt, the four Interconnector Classes are: France Production Status, France Consumption Status, Scotland Production Status and Scotland Consumption Status. It is further assumed that there will be no GC/DC changes between Spring 2003 and Summer 2003 BSC Seasons.

4.11 'Methodology 2a' shows the methodology 2 suggested in ISG/24/167. This methodology derives CALF values by dividing average metered volumes by maximum over the equivalent BSC Season of the preceding year. It is assumed that where there is either no historical data, or incomplete historical data, for a Interconnector BM Unit within the date range analysed, that a generic Class CALF value should be assigned to the BM Unit. This generic Class CALF will represent the average CALF value achieved by all those Interconnector BM Units for which there was sufficient historical data within their class.

4.12 'Methodology 2b' shows a variant on the methodology 2 suggested in ISG/24/167 that has been modelled at SSMG's request. This methodology derives CALF values by dividing average metered volumes by maximum metered volumes over the most recent three calendar months for which ELEXON has CDCA data for each day. In this example, the date range from 01/01/03 to 31/03/03 is used as agreed with SSMG. Where the energy flows for an Interconnector User have been purely over its Production Status BM Unit, the nil metered volume for the Consumption Status Interconnector BM Unit has been excluded from the average metered volumes of the Consumption Status Interconnector BM Unit – and vice versa. In Settlement Periods where an Interconnector User has had nil metered volumes for both Production and Consumption Status BM Units – or non nil metered volumes for both Production and Consumption Status BM Units – these volumes will be included in the average metered volumes for both BM Units. The worksheet includes a column detailing the number of Settlement Periods from which the average metered volume has been calculated for each BM Unit.

4.13 'Methodology 2c' shows a blended variant of Methodologies 2a and 2b. This methodology derives CALF values by dividing average metered volumes by maximum metered volumes over the most recent three calendar months for which ELEXON has CDCA data for each day.

4.14 'Methodology 4' shows the impact of assigning Generic Class CALFs to all Interconnector BM Units. The Generic Class CALFs represent the absolute Information Imbalance over the Interconnector during the Autumn 2002 BSC Season.

4.15 'Changing GCDCs' shows the GC/DC values currently declared (Spring 2003), along with those for Winter 2002/03 and Spring 2002 BSC Seasons. It includes comparison of magnitude changes between these seasons.

4.16 The modelling results in the attached spreadsheet have not yet been subject to independent review.

5. OBSERVATIONS ON THE MODELLING RESULTS

5.1 Taking the Interconnector Users as an aggregated group, the current operational methodology results in comparatively small amounts of Credit Cover needing to be lodged by Interconnector Users to cover their positions. Requirements for Credit Cover are restricted to the Interconnector Error Administrator Accounts, and those Interconnector Users who have changed their GC/DC values between BSC Seasons.

5.2 Methodology 2a resulted in the incurrence of high negative Credited Energy Indebtedness across the Interconnector Users as an aggregated group. This may make it unlikely that such a methodology would adequately reflect the credit risk that Interconnector Users present to other BSC Parties, however small this risk may be in practice. For this reason, ELEXON does not consider it would be appropriate to re-adopt this methodology.

5.3 Methodology 2b produces higher CALF values as it inflates the average metered volumes of Interconnector Users, bringing these closer to their maximum metered volumes. This is to the benefit of Interconnector Users whose volumes are predominately over their P Status BM Units, and to the detriment of Interconnector Users whose volumes are predominately over their C Status BM Units. It can also lead to extreme CALF values where the sample size of Settlement Periods is small: as an example, Party R's French C Status BM Unit only experienced metered volumes for 48 Settlement Periods, all of which were of the same volume – this resulted in a CALF value of 1.0000. This methodology resulted in the occurrence of high negative Credited Energy Indebtedness across the Interconnector Users as an aggregated group. This may make it unlikely that such a methodology would adequately reflect the credit risk that Interconnector Users present to other BSC Parties, however small this risk may be in practice. For this reason, ELEXON does not consider it would be appropriate to adopt this methodology.

5.4 Methodology 2c produces lower CALF values than Methodology 2b, but significantly higher than Methodology 1. This is because Interconnector Users average metered volumes are closer to their maximum metered volumes than to their GC/DC submissions in most cases. The overall levels of negative CEI incurred by Interconnector Users are similar to those incurred under Methodology 2b but with fewer individual extremes. It is unlikely that such a methodology would adequately reflect the credit risk that Interconnector Users present to other BSC Parties, however small this risk may be in practice. For this reason, ELEXON does not consider it would be appropriate to adopt this methodology.

5.5 Methodology 4, which is based upon assigning Class CALF values based upon levels of absolute Information Imbalance for each Interconnector Class, resulted in the incurrence of extremely high negative Credited Energy Indebtedness across the Interconnector Users as an aggregated group. No Interconnector User incurred any positive Energy Indebtedness under this methodology and a number incurred huge levels of negative CEI. This may make it extremely unlikely that such a methodology would adequately reflect the credit risk that Interconnector Users present to other BSC Parties, however small this risk may be in practice. For this reason, ELEXON does not consider it would be appropriate to adopt this methodology.

5.6 The worksheet entitled 'Changing GCDCs' shows that there was an average 5% drop in GC/DC magnitudes between both Winter 2002/03 to Spring 2003 BSC Seasons, and between Spring 2002 to Spring 2003 BSC Seasons. This might suggest that there is no significant difference between the use of most recent declared GC/DC and equivalent GC/DC as the denominator in the current CALF calculation. It should be noted however, that this is in the context of broadly static seasonal GC/DC declarations by Interconnector Users. Should there be more volatility in future GC/DC declarations, the disparity between one-season lag and four season lag in GC/DC values used may become more apparent.

6. SUMMARY

6.1 The modelling indicates that the current methodology is more appropriate than any of the suggested alternatives in providing representative levels of CEI for Interconnector Users.

7. RECOMMENDATIONS

7.1 ISG is invited to NOTE:

a) The results of modelling of alternative Interconnector CALF methodologies

Richard Hall
ELEXON Service Delivery

Attachments:

Attachment one – ISG paper ISG/24/267 entitled, 'Suggested amendments to Credit Assessment Load Factor (CALF) treatment of Interconnector BM Units'.

Attachment two – Spreadsheet showing results for each modelled methodology.