Paper to the SSMG
Determination of CALF Values for Interconnector Users

(by S.M. Drummond)

Introduction

Over the past six months I and colleagues within EdF Trading Ltd and EdF(Generation)have become increasingly concerned about an ongoing problem with the representativeness of the Credited Energy Indebtedness calculation when applied to Interconnector BM Units. By their very nature, these BM Units are less likely to act in accordance with their historical patterns than other kinds of BMUs, due to volatility caused by pricing differences between E&W and the neighbouring system(s)and in the case of the Anglo-French Interconnector, the ongoing auctioning of interconnector capacity. This means that traditional CALF methodologies - which look at historical patterns - are often irrelevant to an Interconnector Users current position.

The consequence of this is that Interconnector Users are given CALF values which are unfairly low and require an undue amount of Credit Cover to be lodged in order to trade. No account is taken of the actual credit worthiness of the company concerned or, indeed, of the performance of the company in meetings its commitments in the past. In other words, it does not reflect the risks imposed on the market by the Interconnector User.

We have tried to address the difficulty through the ISG mechanism and specifically by way of Spring 2003 CALF appeals, but this has proved far from easy and very time consuming for all concerned. Both the ISG and the Elexon Service Delivery have concerns about their ability to get a workable ongoing CEI solution for Interconnectors.

The SSMG is therefore asked to consider this issue and to try to determine a methodology that might be considered more representative and to suggest a way that any proposed revised methodology might be implemented.

Use of CALF and GC/DC in the Energy Indebtedness Calculation

The system parameter of Credit Assessment Load Factor (CALF), as described in section M.1.5 of the BSC, is central to the determination of a Trading Party's Energy Indebtedness. The amount of Credit Cover that a BSC Party is required to lodge to cover their Energy Indebtedness is calculated from a combination of Actual Energy Indebtedness (AEI) and Credited Energy Indebtedness (CEI), with the latter used for that portion of the 29 day period for which Interim Information Settlement Run data is not available. This calculation is prescribed in Section M, 'Credit Cover and Credit Default', of the BSC, and is briefly outlined below.

Credited Energy Indebtedness is calculated as:

$$CEI_{pj} = - (\sum_{a,i} CAQCE_{iaj} - \sum_{a} QABC_{aj})$$

With Credit Assessment Credited Energy Volume (CAQCE) for the Lead Energy Account for a Production BM Unit defined as:

$$CAQCE_{iaj} = (SPD * BMCAEC_{i}) - \sum_{a} CAQCE_{iaj}$$

With CAQCE for the Lead Energy Account for a Consumption BM Unit defined as:

$$CAQCE_{iaj} = (SPD * BMCAIC_i) - \sum_a CAQCE_{iaj}$$

With BM Unit Credit Assessment Export Capability (BMCAEC) defined as:

$$BMCAEC_i = CALF_i * GC_i$$

With BM Unit Credit Assessment Import Capability (BMCAIC) defined as:

$$BMCAIC_i = CALF_i * DC_i$$

With Generation Capacity (GC) defined as:

$$GC = G / SPD$$

Where G is the value of positive QM_{ij} notified under clause K 3.4.1(a) in relation to the relevant BSC Season.

With Demand Capacity (DC) defined as:

$$DC = D / SPD$$

Where D is the value of negative QM_{ij} notified under clause K 3.4.1(b) in relation to the relevant BSC Season.

A CALF value is determined for each BM Unit in relation to every BSC Season and the principles by which CALF values are calculated for each BM Unit are defined in the CALF Guidelines document, which is published on the ELEXON website.
The magnitude of BMCAEC or BMCAIC will be dependent on the CALF value calculated (using the GC/DC values of last year) and the magnitude of GC and DC values submitted for the current season.

Current Interconnector CALF methodology

Up until the Winter 2002/03 BSC Season, CALF values for Interconnector BM Units were calculated using the following methodology:

CALF values for Production Interconnector Error Administrator BM Units and Production Interconnector User BM Units were determined from the metered Production of that BM Unit and in the equivalent BSC Season of the previous year.

$$CALF = \frac{\text{average metered Production for the BSC Season (MWh)}}{\text{maximum metered Production for the BSC Season (MWh)}}$$

Where the average metered Production is defined as the total Production over the BSC Season divided by the number of Settlement Periods within that season. The maximum metered Production is defined as the maximum Production in any one Settlement Period during that BSC Season.

CALF values for Consumption Interconnector Error Administrator BM Units and Consumption Interconnector User BM Units were determined from the metered Consumption of that BM Unit in the equivalent BSC Season of the previous year.

$$CALF = \frac{\text{average metered Consumption for the BSC Season (MWh)}}{\text{maximum metered Consumption for the BSC Season (MWh)}}$$

Where the average metered Consumption is defined as the total Consumption over the BSC Season divided by the number of Settlement Periods within that season. The

maximum metered Consumption is defined as the maximum Consumption in any one Settlement Period during that BSC Season.

ISG meeting 12 actioned ELEXON to review the methodology for determining CALF values for Interconnector BM Units, in order to identify potential changes to prevent significant over estimation of the maximum Generation or Demand on the Interconnector. ELEXON invited any guidance from ISG members on this action. At ISG meeting 16 it was agreed that CALF values for Interconnector BM Units should be calculated using the following methodologies:

CALF values for Production Interconnector Error Administrator BM Units and Production Interconnector User BM Units were determined from the metered Production of that BM Unit and its declared GC in the equivalent BSC Season of the previous year.

$$\text{CALF} = \frac{\text{average metered Production for the BSC Season (MWh)}}{\text{declared Generation Capacity for the BSC Season (MW)}}$$

Where the average metered Production is defined as the total Production over the BSC Season divided by the number of Settlement Periods within that season.

CALF values for Consumption Interconnector Error Administrator BM Units and Consumption Interconnector User BM Units were determined from the metered Consumption of that BM Unit and its declared DC in the equivalent BSC Season of the previous year.

$$\text{CALF} = \frac{\text{average metered Consumption for the BSC Season (MWh)}}{\text{declared Demand Capacity for the BSC Season (MW)}}$$

Where the average metered Consumption is defined as the total Consumption over the BSC Season divided by the number of Settlement Periods within that season.

The Interconnector methodology was reviewed when it became apparent that some Interconnector Users had set the GC/DC for their Interconnector BM Units to the full capacity of the Interconnector, even though not all Users can utilise the full capacity at any one time. ISG expressed concerns that unrealistically large GC/DC values would effectively give a false impression of credit requirements when multiplied by CALF values calculated from the previous methodology. It was felt that determining CALF using GC and DC instead of maximum metered volume would eliminate the problem as it would make the credit calculation entirely dependent on historic average performance. This was implemented with effect from the Winter 2002/03 BSC Season.

Problems With The Current Interconnector Calf Methodology

The estimation of an Interconnector User's Credited Energy Indebtedness for the current season is based upon their performance in the equivalent BSC Season of the previous year. Whilst this may be reasonable for some (if not most) classes of BM Unit, for Interconnector Users it can bear no relation to current performance, and may produce very low CALF values. The Interconnector User's past, present and future trading activity can vary significantly. This may be due to higher or lower

Interconnector capacities won in the auctions, different trading strategies, or a reversal of marginal system costs in the two interconnected systems (as has been more regularly the case between England and Wales and France).

CALF values are generated from average volumes traded over a three month period, whereas the CEI is effectively calculated based on volumes for 7-10 days. This invariably leads to relatively low load factors and CALF values for those Interconnector Users who actively trade on the interconnector by optimising between the two markets. This activity is inherently volatile and is reflected in their metered volumes, which may make a static CALF value assigned throughout a BSC Season vary in its representativeness at any individual point during that season. This is especially so when parties reverse trade, but during which time the other BM Units are set to zero.

The current Interconnector methodology is also generating low CALF values for those Interconnector Users that have submitted higher capacity GC values in previous seasons. New values of GC/DC relating to the forthcoming BSC Season cannot be used in the Interconnector CALF methodology as they are not available until 10 days prior to the start of the BSC Season (the deadline for value submission specified within BSCP15). The implication of this is that Energy Indebtedness will be calculated using new values relating to the applicable BSC Season, but using CALF values defined using historical GC/DC values for the equivalent BSC Season for the previous year. This also means that if an Interconnector User, who has previously submitted high GC/DC values for the full capacity of their Interconnector BM Units, seeks to submit lower values this will take four seasons to flow through to their Credit Cover calculation (due to the use of the previous year's GC/DC values). This is to the benefit of those who predominately use 'C' Status Interconnector BM Units but to the detriment of those predominately use 'P' Status Interconnector BM Units.

The current methodology incentivises accurate DC submission for C Status BM Units but inaccurate GC submission for P Status BM Units. If an inaccurate GC value is submitted for a P Status BM Unit ELEXON is not easily able to address this issue as the BSC precludes downward revision of a GC value within season by the Party or by ELEXON.

Possible New Methodologies

Ideally the CALF methodology for interconnectors should be changed to better reflect the actual trading volumes and the risks imposed by the specific parties onto the market, either individually or as a class. However, it is realised that this is not an easy task, but it is important that Interconnector Users are not unduly discriminated against or that cross border trade is unduly hindered, by the imposition of common rules.

The best overall solution would be to move the CALF towards a marginal and more dynamic version of credit recovery and away from the current (static) CALF view. You will then switch from average metered seasonal consumption to actual average metered trading volumes. This would lead to a more efficient use of capital and the market would know quickly and accurately if a party has not maintained its creditworthiness. However and assuming this to be a long term aim, other measures could be taken in the short term.

One possibility would be to remove the issue of current GC/DC values being applied to historical GC/DC values in calculating BMCAEC / BMCAIC values for Interconnector BM Units by removing GC/DC from the CALF calculation. This would effectively revert to the pre-Winter 2002/03 BSC Season CALF methodology for Interconnectors and would remove the lag time between accurate GC/DC submission and the values being used in the Credit Cover calculation.

Another may be to choose to assign generic Class CALF values that reflect the physical availability of the Interconnector. NGC publish statistics on the availability of the Interconnectors in its Annual reports and taking an average of the three years for which data was published gives an average availability of 96.67% for the French Interconnector and 98.97% for the Scottish Interconnector. These could be considered to be load factors for the E&W Interconnectors.

Another method would be to utilise the Information Imbalance data ie based upon the difference between expected and actual metered volumes for Interconnector Users. The level of absolute Information Imbalance for each Interconnector Class could be given as a proportion of combined absolute FPNs and Bid-Offer Acceptances within that Class. This is currently under review by the ISG. Were it to be accepted then the CALF values for the Production and Consumption Accounts would be 0.98 and 0.12 respectively. The important point is that this could be regarded as better reflecting the likelihood of non-delivery of expected volumes.

Another might be to compensate for new GC/DC values by multiplying by a factor which negates the effect of the seasonal GC and DC change.

Another would be to try to match the time period for the CEI calculation with that for the CALF calculation, ie. CALF gets calculated using a representative 7-10 days from the Season in question and using the average flow during that period.

Finally, Credit Ratings could be used in this instance, thus avoiding linking credit worthiness with trading volumes, which have been shown to be inherently volatile.

In Conclusion

The interconnector methodology is acknowledged as being flawed. It imposes unnecessary costs if the interconnector trading party is to cover the worst case scenario ie when it trades at a higher level during the last 7-10 days as compared to the average trading volume over the whole of the corresponding season last year, which is in fact a likely scenario.

A new methodology is sought that might fairly reflect the risks imposed by the Interconnector User on the E&W market and the SSMG is asked to reflect on the possible options identified or on any other methodology that might be appropriate.

Should such a methodology be found then the SSMG is also asked to identify how it should be implemented, whether by changes to the CALF Guidelines or by raising a BSC modification.

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