



Single Electricity Market Committee

**Trading & Settlement Code
Annual Operational Parameters
for 2011**

Decision Paper

SEM-10-077

17th November 2010

Introduction

The SEM Trading and Settlement Code (the Code) specifies that the Market Operator (SEMO) and the System Operators (TSOs) shall make reports to the Regulatory Authorities proposing values for five groups of parameters used in the settlement systems for each Year at least four months before the start of that Year. The groups of parameters concerned are:

1. Parameters for the determination of Required Credit Cover¹ (SEMO);
2. MSP Software Penalty Cost Parameters² (SEMO);
3. Annual Capacity Exchange Rate³ (SEMO);
4. Parameters used in the calculation of Uninstructed Imbalances⁴ (TSOs); and
5. Flattening Power Factor⁵ (TSOs).

In accordance with the Code, these reports were provided to the RAs by the TSOs and SEMO on 31st August 2010. Subsequently, on 21st September 2010, the RAs published the reports, in addition to a Consultation Paper⁶ summarising the reports on these parameters and seeking views on the TSO's and SEMO's proposals.

Two sets of comments were received by the deadline of 19th October 2010. The comments were received from AES and from NIE Energy Limited Power Procurement Business (PPB). These comments have been shared with SEMO and the TSOs, as appropriate and have been published along with this decision paper.

The remainder of this paper contains the details of the proposals set out in the consultation paper, the two sets of comments received, SEMO's response to these comments and the SEM Committee decision and revised proposal on the parameters to apply for 2011.

¹ See paragraph 6.174 of the Code

² See paragraph N.25 of the Code

³ See paragraph 4.96 of the Code

⁴ See paragraph 4.142 of the Code

⁵ See paragraph M.30 of the Code

⁶ SEM-10-065 http://www.allislandproject.org/en/TS_Current_Consultations.aspx?article=356d0517-01b2-4ac0-b677-7749962cfe99

1. Parameters for the determination of Required Credit Cover

SEMO's report addressed the values that should apply for the following parameters in 2010:

- the Fixed Credit Requirement for Generator Units and for Supplier Units – this is the amount of credit cover required to allow for payments that become due as a result of Settlement Reruns;
- the Historical Assessment Period for the Billing Period – this is the number of Settlement Days prior to the issue of the latest Settlement Statement for Energy Payments over which a statistical analysis of a Participant's incurred liabilities (in relation to Energy Payments) shall be undertaken to support the forecasting of the future Undefined Potential Exposure for that Participant;
- the Historical Assessment Period for the Capacity Period - this is the number of Settlement Days prior to the issue of the latest Settlement Statement for Capacity Payments over which a statistical analysis of a Participant's incurred liabilities (in relation to Capacity Payments) shall be undertaken to support the forecasting of the future Undefined Potential Exposure for that Participant;
- the Analysis Percentile Parameter - this is the factor that determines the expected probability that the Actual Exposure for each Participant, once determined, will fall below the estimate of Undefined Potential Exposure (a value of 1.96 is equivalent to 95% confidence);
- the Credit Cover Adjustment Trigger - this is the expected percentage change in future generation or demand which leads a Participant to report to SEMO that it should become an Adjusted Participant, rather than a Standard Participant and have its Credit Cover requirements calculated on the basis of its forecasts of future demand or generation; and
- the level of the Warning Limit – this is the default level of the Warning Limit which will apply if a Participant Fails to set its own. The Warning Limit is a parameter used to trigger the issuing of a Warning Notice by SEMO to a Participants whose Credit Cover Requirement is approaching its Posted Credit Cover.

The values of these parameters in 2010 and those proposed by SEMO for 2011 are shown in the table below:

Credit Cover Parameter	2010 value	2011 proposed
Fixed Credit Requirement for Generator Units	€5,000	€5,000
Fixed Credit Requirement for Supplier Units	€20,000	€10,000
Historical Assessment Period for Billing Period	100 days	100 days
Historical Assessment Period for Capacity Period	90 days	90 days
Analysis Percentile Parameter	1.96	1.96
Credit Cover Adjustment Trigger	30%	30%
Warning Limit	75%	75%

Comments Received

In their consultation response, PPB expressed the following views:

PPB agrees that the current Fixed Credit Requirement for Generator Units of €5,000 should be retained for 2011

PPB agrees that the Fixed Credit Requirement for Supplier Units should be reduced to €10,000 for 2011.

PPB agrees that the current Historical Assessment Period for Billing Period of 100 days should be retained for 2011.

PPB agrees that the current Historical Assessment Period for Capacity Period of 90 days should be retained for 2011.

PPB agrees that the current Analysis Percentile Parameter of 1.96 should be retained for 2011.

PPB agrees that the current Credit Cover Adjustment Trigger of 30% should be retained for 2011.

SEM Committee Decision

Based upon the above, the SEM Committee has decided that the values for the Credit Cover Parameters for 2011 shall be as set out below (as proposed by SEMO):

Credit Cover Parameter	2011 value
Fixed Credit Requirement for Generator Units	€5,000
Fixed Credit Requirement for Supplier Units	€10,000
Historical Assessment Period for Billing Period	100 days
Historical Assessment Period for Capacity Period	90 days
Analysis Percentile Parameter	1.96
Credit Cover Adjustment Trigger	30%
Warning Limit	75%

2. MSP Software Penalty Cost Parameters

The core algorithm of the MSP Software attempts to optimise for a non-linear mixed integer constrained objective with non-linear constraints. On occasions the mathematical problem posed may be infeasible (i.e. there will be no solution which will satisfy every constraint). In these cases, rather than return no answer, it is customary in numerical solutions to produce an answer where one or more of the constraints has been breached slightly. To enable this “slack variables” are introduced with suitably chosen coefficients to ensure that these constraints are only breached in the case of infeasibility. The MSP Penalty Cost Parameters relate to:

- the Over-Generation MSP Constraint Cost - this is the parameter that sets the cost used by the MSP Software for reducing the generation to the level of demand;

- the Under-Generation MSP Constraint Cost -
this is the parameter that sets the cost used by the MSP Software for increasing the generation to meet the demand;
- the Aggregate Interconnector Ramp rate MSP Constraint Cost -
this is the parameter that sets the cost used by the MSP Software for breaching the Interconnector Ramp Rate;
- the Energy Limit MSP Constraint Cost -
this is the parameter that sets the cost used by the MSP Software for breaching the Energy Limit constraints; and
- the Tie-Breaking Adder -
this is the value used by the MSP Software for determining which of two tied Price/Volume pairs to use in the case of a tie.

SEMO proposed that the values of these parameters in 2011 should be the same as in 2010.

Comments Received

In their response, PPB expressed the view that it has no reason to dispute SEMO's analysis and therefore agree that the existing values should be retained for 2011.

SEM Committee Decision

Based upon the above, the SEM Committee has decided that the values for the MSP Software Penalty Cost Parameters for 2011 shall be unchanged from those in 2010 as set out below:

MSP Software Penalty Cost Parameters	2011 value
Over-Generation MSP Constraint Cost	73
Under-Generation MSP Constraint Cost	73
Aggregate Interconnector Ramp rate MSP Constraint Cost	292
Energy Limit MSP Constraint Cost	38
Tie-Breaking Adder	0.001

3. Annual Capacity Exchange Rate

SEMO's report proposed the values that should apply for the Annual Capacity Exchange Rate in 2011. The proposed exchange rate was based upon the average SEM Bank forecast for 2011 of 0.8210 €/£. Note that the value for the year 2010 was 0.8586 €/£.

Comments Received

AES commented that while it considered the adopted methodology to determine the Annual Capacity Exchange rate to be reasonable in respect of managing exchange rate exposure in the next period, they fundamentally disagreed with the selection of spot and forward points so far in advance of the start of the year to which they relate. They believed that the selection of a rate at such a premature date means that it will almost certainly be out of date by the time it is applied. They felt that this is particularly noteworthy during periods of extreme volatility. AES noted that at the time of writing their response to the consultation paper, the spot rate was approximately 0.88 which is a variance of 7.3% against the spot rate of 0.82 used in the consultation paper. AES therefore strongly requests that SEMO recalculate the Annual Capacity Exchange Rate at the end of December so that it is more closely aligned with the period to which it relates. AES also suggests that SEMO consider using an average of the rates for the last week of December in order to reduce the volatility associated with the selection of a rate on a particular day.

PPB stated that it agreed with the basis underlying the methodology proposed by SEMO to determine the appropriate Annual Capacity Exchange Rate (i.e. using forward rates). However, PPB does not agree with the calculated Exchange Rate value of 0.8210 as it is determined based on a spot value of 0.8200 (which appears to coincide with the rate published by SEMO for the 30 June 2010 trading day). PPB note that value to be lower than the rate used in the calculation of the BNE cost (Decision paper quoted a rate of £1 = €1.184, sourced on 20 July 2010 from www.oanda.com) and hence the Capacity Pot. In addition, PPB argues that it is considerably lower than the current exchange rate (e.g. 0.8747 published by SEMO for 20 October 2010). PPB stated that if the BNE rate were used as the spot rate in this methodology, an average value of 0.8456 would be calculated while the 20 October 2010 rate would generate a value of 0.8757 for 2011.

PPB further stated that adopting SEMO's proposed rate effectively reduces capacity payments to Northern Ireland generators by circa 3%, representing the difference between the rate used in the determination of the capacity pot (that was based on a Northern Ireland sited BNE) and SEMO's proposed rate. The difference between SEMO's proposed rate of 0.821 and 0.8757 calculated from today's actual exchange rate means capacity revenue to NI generators will reduce further with a variance of circa 6.7%. This is a material change in revenues for any generator.

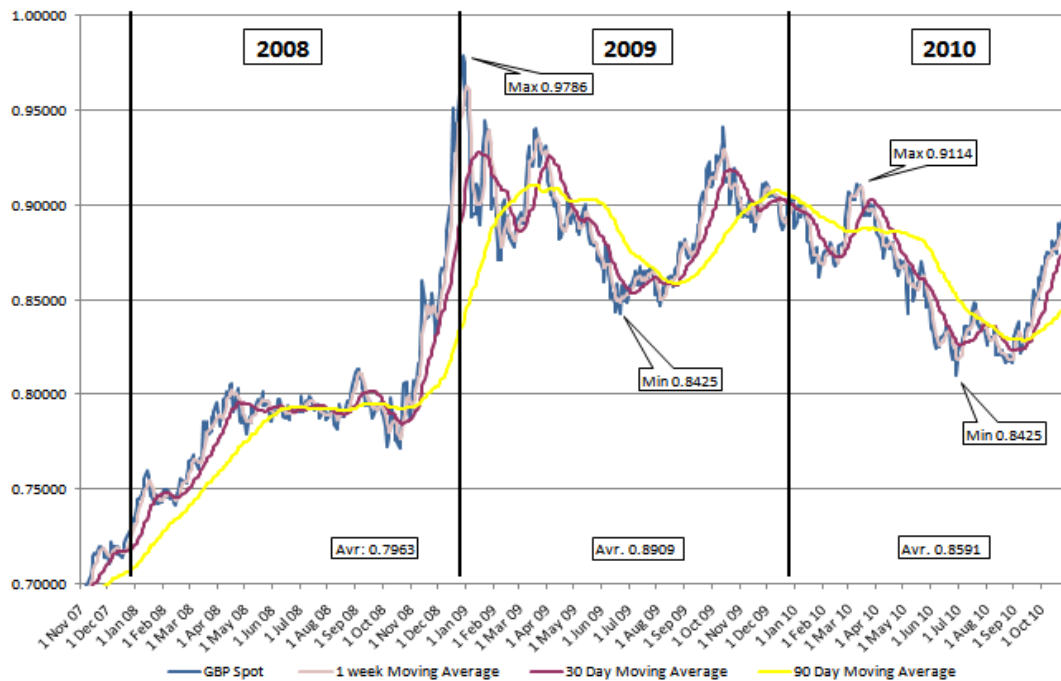
PPB considers that at minimum, the exchange rate should be consistent with that used in determination of the CPM pot, or if it is different, the rate, determined in accordance with SEMO's methodology on the last banking day prior to the commencement of the new capacity year.

SEMO's Response to Comments

Following consideration of participant's comments, SEMO suggest that one way of trying to get a more representative view of the 2011 exchange rate is to take a smoothed average of exchange rates with the purpose of reducing the effect of selecting a specific rate on a specific date which can be more volatile on any one day.

SEMO note that it is impossible to forecast movements and while there have been some significant movements in the EUR/GBP rates, selecting an average of rates is generally more representative than selecting the rate on a particular date.

SEMO prepared the following graph which shows the volatility in the EUR/GBP rates on a particular day (i.e. the spot rate):



Furthermore, as the date on which the rate is selected should be closer to year end (rather than at end August), SEMO propose selecting the rate on the last business day of November. The table below includes the actual average rate for the calendar year and compares it against the ACER rate selected in the previous August and used during the year. It also compared this rate with what the 30-day and 90-day moving averages would have been.

As the table shows it is impossible to forecast the exchange rate for the following year, however using the moving average method should be more representative rather than selecting the spot rate on a specific date.

	2008	2009	2010
Average for Year	0.7963	0.8909	0.8591
Selected	0.6851	0.7944	0.8586
<i>Difference to average</i>	14%	11%	0%
As at end Nov Y-1:			
30 Day Moving Average	0.7105	0.8306	0.8987
<i>Difference to average</i>	11%	7%	-5%
90 Day Moving Average	0.7001	0.8038	0.9042
<i>Difference to average</i>	12%	10%	-5%

If the moving day average is used for 2011, the proposed rate as of 27th October would be 0.8762 (30 day moving average) or 0.8463 (90 day moving average) depending on what timeframe is used.

On that basis, using the 30-day moving average, SEMO would arrive at a figure of 0.8762 as of 27th October (i.e. moving average of the 30 days up to 27th October). Note that SEMO's analysis above relates to spot rates without any adjustment for future (i.e. no inclusion of forward points).

SEM Committee Decision

The RAs agree with participants comments concerning the large volatility in the EUR/GBP in recent years. The RAs also recognise that a balance must be struck between setting the price as close to the period as possible and the certainty of the rate. Based upon the above, the SEM Committee have revised their original proposal for the Annual Capacity Exchange Rate for 2011 and have decided the following.

- Date on which the value is determined: The RAs see merit in the value being determined closer to the beginning of the period to which it applies (1st January 2011). The RAs also wish to give some certainty to the market about what value will apply in 2011. Therefore it has been decided that the rate up to end November is appropriate;
- Period over which value is determined: Given the volatility in the GBP/EUR exchange rate in recent months, the RAs decided that the value for 2011 should be calculated as an average of the rate over a 5-day period; and,
- Methodology adopted (spot rate versus spot rate with forward point adjustment): The RAs ultimately conclusion was that, as stated by the respondents, that the current methodology is fit-for-purpose as it takes the exchange rate on a particular day and adds forward points for each month of the following year and an average is taken of that.

Therefore, the RAs believe the correct balance is struck by using a 5-day moving average of the spot rate with the forward point adjustment for the last five business days of November (i.e. up to 30th November 2010). Note that this decision is being taken in light of the comments received to the consultation paper.

Following receipt of this information from SEMO, the RAs intend to publish the Market Operator's calculation of this value and will confirm this as being the 2011 value for the Annual Capacity Exchange Rate in early December.

Note that the issue regarding the volatility of the Annual Capacity Exchange Rate is being considered as part of the Capacity Payments Mechanism Medium Term Review and more significant changes to the methodology of calculating the Annual Capacity Exchange Rate may come out of that consultation process.

4. Parameters used in the calculation of Uninstructed Imbalances

The TSOs' report addressed the values that should apply for the following parameters in 2010:

- Tolerance band around the Dispatch Quantity:
These tolerances are designed to provide a band around the Dispatch Quantity to which a Generator Unit is dispatched. The tolerance band is the maximum of the MW tolerance and the Engineering Tolerance multiplied by the Dispatch Quantity
 - the Engineering Tolerance, ENGTOL (where $0 \leq \text{ENGTOL} \leq 1$)
 - the MW Tolerance for each Trading Day t , MWTOL t (where $0 \leq \text{MWTOL}t$);
- the System per Unit Regulation, UREG -
this is the factor that reflects the automatic response of a generating unit to variations in the system frequency (the governor "droop" setting, which is normally 4%) ;
- the Discount for Over Generation -
this is the element of the costs incurred by the generator when generating outside the tolerance band; which it is not permitted to recover; and
- the Premium for Under Generation -
this is the element of the saving incurred by the generator when generating below the tolerance band; which it is required to repay.

The values of these parameters proposed by the TSOs for 2011 are shown in the table below and are identical to those for 2010.

Uninstructed Imbalance Parameters	2010 value	2011 proposed
Engineering Tolerance	0.01	0.01
MW Tolerance	1	1
System per Unit Regulation	0.04	0.04
Discount for Over Generation	0.20	0.20
Premium for Under Generation	0.20	0.20

Comments Received

PPB stated that it agrees that the current parameters should remain for 2011.

SEM Committee Decision

Based upon the above, the SEM Committee has decided that the values for the Annual Capacity Exchange Rate for 2011 shall be the same as for 2010, as set out below:

Uninstructed Imbalance Parameters	2011 value
Engineering Tolerance	0.01
MW Tolerance	1
System per Unit Regulation	0.04
Discount for Over Generation	0.20
Premium for Under Generation	0.20

5. Flattening Power Factor

The TSOs' report addressed the value that should apply for the Flattening Power Factor in 2011. The Flattening Power Factor in the Loss of Load Probability Table calculation has the objective of reducing the volatility in the Capacity Payments mechanism. The TSOs proposed the same value (0.35) for the Flattening Power Factor in 2011 as in 2010.

Comments Received

PPB expressed the view that it agrees with the TSOs that it would be inappropriate to change the FPF at this time

SEM Committee Decision

Based upon the above, the SEM Committee has decided that the value for the Flattening Power Factor for 2011 shall remain at the same value as in 2010; that is, 0.35.