



Single Electricity Market Committee

Trading & Settlement Code

**I-SEM Operational Parameters
Credit Cover and Imbalance Settlement**

Decision Paper

SEM-17-034

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Table of Contents

Table of Contents	2
1. INTRODUCTION	3
2. CREDIT COVER PARAMETERS	5
2.1 BACKGROUND	5
2.2 CREDIT COVER PARAMETERS – GENERAL COMMENTS	5
2.3 FIXED CREDIT REQUIREMENTS	9
2.4 UNDEFINED EXPOSURE PERIOD.....	10
2.5 HISTORICAL ASSESSMENT PERIOD.....	11
2.6 ANALYSIS PERCENTILE PARAMETER	13
2.7 CREDIT COVER ADJUSTMENT TRIGGER	14
2.8 LEVEL OF WARNING LIMIT	15
2.9 LEVEL OF THE BREACH LIMIT.....	16
3. CREDIT COVER PARAMETERS – SEM COMMITTEE DECISION.....	18
3.1 FIXED CREDIT REQUIREMENT.....	18
3.2 DYNAMIC CREDIT REQUIREMENT	19
3.4 CREDIT COVER CHANGING PROCESS	24
3.5 CREDIT COVER PARAMETERS – SUMMARY OF DECISIONS	26
4. IMBALANCE SETTLEMENT PARAMETERS	27
4.1. BACKGROUND TO IMBALANCE SETTLEMENT PARAMETERS	27
4.2. COMMENTS RECEIVED AND SEM COMMITTEE RESPONSE	28
4.3. MW TOLERANCE, ENGINEERING TOLERANCE AND SYSTEM PER UNIT REGULATION FACTOR.....	28
4.4. DISCOUNT FOR OVER GENERATION FACTOR AND PREMIUM FOR UNDER GENERATION FACTOR	30
4.5. IMBALANCE WEIGHTING FACTOR	32
4.6. SETTLEMENT RECALCULATION THRESHOLD.....	34
4.7. INFORMATION IMBALANCE PARAMETERS.....	37
5. SEM COMMITTEE DECISION ON IMBALANCE PARAMETERS.....	40
6. NEXT STEPS	42

1. INTRODUCTION

The Single Electricity Market (SEM) on the island of Ireland is undergoing a radical transformation arising from the need to facilitate the development of a pan-European electricity market and common arrangements for trading electricity. The project to implement these revised arrangements is referred to as the I-SEM project. The I-SEM will take the wholesale electricity market to a new level of operational effectiveness and efficiency by making best use of the resources of the system, using interconnectors in the most efficient way and ensuring that market arrangements send out the right signals to existing or potential investors.

Under the terms of the SEM Trading and Settlement Code (TSC) Part B, the Regulatory Authorities (RAs) shall determine certain parameters proposed by the Market Operator in relation to the calculation and treatment of participants' Required Credit Cover and matters related to Imbalance Settlement.

As required by the TSC, the RAs received reports from SEMO which recommended proposed values for the parameters utilised in the calculation of required credit cover and imbalance settlement for the I-SEM. The RAs then published a consultation paper on 3 February 2017 (SEM-17-009)¹, consulting on the SEMO's recommendations, and appending the SEMO reports. This paper presents the SEM Committee's decision in relation to these parameters in light of stakeholder comment.

The paper is structured as follows. The suite of Credit Cover parameters are considered in Section 2. In each case the proposal by SEMO in their recommendation report is briefly restated. The feedback from participants is then summarised, followed by a response to the issues raised from the SEM Committee. The SEM Committee decision on the parameters used in the calculation of required credit cover is set out Section 3, and summarised in Section 3.5. The credit parameters are considered separately in terms of the SEMO proposal and consultation responses, but as the parameters interact closely the final SEM Committee decision on these are decided upon together.

¹ SEM-17-009a was the SEMO Recommendation Report on Credit Cover Parameters; SEM-17-009b was the SEMO Recommendation Report on Imbalance Settlement.

A similar structure is adopted for the parameters used in imbalance settlement whereby the SEMO proposal is restated in Section 4, followed by some commentary from the SEM Committee. A decision on each parameter is set out in Section 5, with a summary of the SEM Committee Decision in Section 5.1.

The SEM Committee received 11 responses to SEM-17-009, none of which were labelled confidential. These are published in conjunction with this decision

1. Aughinish Alumina Ltd
2. Bord Gáis Energy
3. Brookfield
4. Electric Ireland
5. Energia
6. ESB GWM
7. Gaelectric
8. Power NI
9. Power Procurement Business
10. Prepay Power
11. Tynagh Energy Limited

2. CREDIT COVER PARAMETERS

2.1 BACKGROUND

SEMO's report, published along with the consultation, proposed values to apply for the following parameters in I-SEM for the calculation of participants' Required Credit Cover. These include fixed elements (Fixed Credit Requirement), the number of days for which credit needs to be provided to cover the period required for a defaulting participant to be removed from the market; and inputs to the Credit Assessment Price used for calculating the variable component of participants' credit cover. The other parameters in the SEMO report, "Recommended Values for I-SEM Credit Parameters" (SEM-17-009a), concern particular limits (Warning Limit and Breach Limit) which trigger specific events in the credit assessment process.

2.2 CREDIT COVER PARAMETERS – GENERAL COMMENTS

2.2.1 General Comments

The majority of respondents recognised the importance of a sufficiently collateralised market and viewed it as a key element of the I-SEM design. Respondents acknowledged that achieving this requires striking a balance between ensuring that credit cover is adequate and ensuring that credit requirements are not excessive or overly burdensome on market participants. Respondents stated that the initial credit cover estimation based on the proposed parameters significantly increase credit requirements. Some respondents expressed concern at the proposed increased credit cover and collateral requirements and stated that it would place an excessive financial and administrative burden on all market participants.

Some respondents were concerned that no prototyping of different credit scenarios in the I-SEM had taken place, while others noted that, in the absence of historical data for I-SEM, it is extremely difficult to predict behaviour and outcomes in the new market. It was requested by one respondent that additional analysis should be conducted before I-SEM Go Live. Other respondents suggested that SEM historical data is not a valid basis from which to predict future I-SEM prices and requested that the current 2017 SEM parameters are

maintained for I-SEM until such a time that detailed analysis can be completed using actual I-SEM data.

Respondents also stressed the importance that each credit parameter is not assessed in isolation, but instead any consideration of parameters should be holistic in order to reflect the aggregate effect that these various parameters will have on the collateral requirement for each market participant.

2.2.2 SEM Committee Response

The SEM Committee has considered respondents' concerns that the proposed parameters are overtly risk adverse and the fact that it may pose a barrier to market entry. The SEM Committee is minded to balance the level of collateralisation, with the risk that too high a credit cover hurdle for current participants and new entrants on the other. Consequently, the SEM Committee has considered the impact of specific parameters in the context of the overall level of market collateralisation. This principle is broadly consistent with the current approach adopted in the SEM.

In relation to the prototyping of the credit cover arrangements generally, the SEM Committee notes that the basic approach to the calculation of credit cover in the Balancing Market (BM) in I-SEM follows very closely the approach used in the SEM. Hence, the consultation has focused on setting the inputs to a largely unchanged mechanism, and consequently the SEM Committee does not consider that prototyping of the credit arrangements for I-SEM was necessary.

The SEM Committee also notes market participants' concerns regarding using SMP as a proxy for BM price prediction, and acknowledges that I-SEM price volatility may deviate from the volatility exhibited in the current market. While the relative price volatility of the SEM and I-SEM cannot be assessed at this time, the SEM Committee has considered the relative level of volatility of the gross pool SEM, and of European markets that adopt a balancing market design.

The analysis of SMP data compared to other European Markets set out in Table [1] below demonstrates that price volatility, as measured by the coefficient of variance², in the SEM is

² The coefficient of variance is calculated by dividing the standard deviation by the mean and is expressed as a percentage or ratio. A standard deviation approximately equal to the mean would indicate a highly dispersed prices and would have a coefficient of variance of close to one or 100%. Conversely, low variance or prices would give a coefficient of variance close to zero or 0%.

higher than many of the comparator markets. It should be noted that a number of markets adopt a dual imbalance pricing approach, where participants are exposed to different imbalance prices depending on whether they are ‘long’ or ‘short’, i.e. its physical position was greater than, or less than its contractual position in the market. The table shows that, for the sample data, the imbalance prices in Denmark for ‘short’ generators were the least volatile of the examples examined. Conversely, of the regions using single-imbalance prices, with long and short price the same in any given period, the table shows that GB has the lowest price volatility, Germany has the highest variance, although it should be noted that, due to differing data publication timelines, the data for Germany incorporates data for January and February 2017 only, as opposed to January to April for all other countries.

Table 1 - Volatility of Different European Electricity Markets

Region	Coefficient of Variance
Denmark -ve gen	27.7%
Spain -ve	30.5%
Denmark +ve gen	31.7%
Denmark consumption	32.0%
Portugal -ve	38.8%
Spain +ve	44.0%
SEM - Shadow	44.8%
Poland	47.1%
Portugal +ve	51.3%
France +ve	56.0%
GB	59.8%
SEM - SMP	60.7%
France -ve	61.0%
Estonia +ve	82.8%
Estonia -ve	93.8%
Germany³	127.9%

³ German imbalance price data based on 15 minute intervals, simple average used to derive average 30 minute imbalance price. As noted, this data is for January and February 2017 only.

The analysis demonstrates a wide range in the co-efficients of variance of prices. The SEM, while a gross Pool, is towards the higher end of the volatility range, presented in Table 1. The SEM Committee recognises that there will be differences between the I-SEM BM price profiles and those of other BMs as a consequence of differences in market design, structure, participant behaviour and regulation between the comparator markets. Consequently, at this stage, the level of I-SEM BM volatility is not known. However, the analysis, whilst limited, suggests that SEM volatility is relatively high compared to the levels exhibited in markets adopting a BM design, falling towards the higher end, but not the top, of the range.

On this basis, the SEM Committee is of the view that the SEM price profile is of reasonable variance, and is within a comparable range of the coefficients of price variance exhibited in other European markets. Therefore, in the absence of modelled I-SEM outturn price data and the limitations associated with assuming I-SEM outcomes will be comparable with the balancing market price outcomes in other markets, the SEM Committee considers that the use of SEM data as a proxy for future imbalance prices in this initial parameter setting exercise is reasonable at this stage.

2.3 FIXED CREDIT REQUIREMENTS

2.3.1 SEMO Recommendation

This parameter relates to the Fixed Credit Requirement for Generator Units and Supplier Units, and is the amount of credit cover required to allow for payments that become due as a result of Settlement Reruns. Table 2.1 below sets out the current and proposed values.

Parameter	2017 Current SEM Value (where applicable)	I-SEM Go-Live Value Proposed by SEMO
Fixed Credit Requirement for Generator Units	€5,000	€5,000
Fixed Credit Requirement for Capacity Market Units	n/a	€0
Fixed Credit Requirement for Supplier Units	based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000	based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000

Table 2.1 Proposed Values for Fixed Credit Requirements

2.3.2 Comments Received

All of the respondents that expressed a view indicated that they were in agreement with SEMO's proposals for the fixed credit requirements parameters. No respondent objected to the proposed values.

2.3.3 SEM Committee Response

SEMO has proposed that the Fixed Credit Cover parameters are set at €5,000 for each generator unit and a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000, and a maximum of €15,000 for each supplier unit, which is the level at which they are presently set in the SEM. The SEM Committee notes that no objections were raised in relation this proposal in the responses to the consultation.

2.4 UNDEFINED EXPOSURE PERIOD

2.4.1 SEMO Recommendation

SEMO’s report proposed that the number of days in the Undefined Exposure Period is 16 days. The number of days in the Undefined Exposure Period (known as UEPBDg in the Trading and Settlement Code) is the period for which settlement amounts are not known, but where participants have the ability to incur further liability until they are removed from the market.

Table 2.2 below sets out the current and proposed values for the parameter related to Undefined Exposure Period.

Parameter	2017 Current SEM Value (where applicable)	I-SEM Go-Live Value Proposed by SEMO
Number of days in the Undefined Exposure Period for each Undefined Exposure Period, UEPBD_g	16	16

Table 2.2 Proposed Values for Undefined Exposure Period

2.4.2 Comments Received

Respondents were generally of the view that a single Undefined Exposure Period across all market participants is not appropriate as different Unit types have different risk profiles. One respondent noted the key differences between Generator Units and Supplier Units in this regard, i.e. Generators can be removed from the market more quickly than Suppliers, who will continue to incur significant further liabilities until their customer portfolio is transferred to a Supplier of Last Resort (SOLR).

Some respondents referred to a SOLR event which had recently occurred in Northern Ireland. It was pointed out that the Supplier in question ceased to incur liabilities in the market within three days of the issuing of the Suspension Order. . Within this context, respondents viewed the proposed parameter to be excessive, and considered that setting it at 16 days would lead to over-collateralisation.

2.4.3 SEM Committee Response

The majority of the responses received focused primarily on the principle of the number of days that they would be obliged to hold credit cover in place, rather than on the derivation of the Undefined Exposure Period (which was the concern of the SEMO Recommendation Report). The SEM Committee notes the comments received that the current SEM value of sixteen days is excessive and results in over collateralisation. The SEM Committee is also cognisant of comments that a single value for both generation and supply units may not reflect the different risk profiles they might have.

2.5 HISTORICAL ASSESSMENT PERIOD

2.5.1 SEMO Recommendation

The Historical Assessment Period (DINHAP) 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. In other words, the DINHAP is the number of historical days over which the analysis of quantities, prices, or settlement values will be carried out for the purposes of forecasting values for the calculation of exposure over the Undefined Exposure Period.

Table 2.3 below sets out the current and proposed values for the parameter related to Historic Assessment Period.

Parameter	2017 Current SEM Value (where applicable)	I-SEM Go-Live Value Proposed by SEMO
Historical Assessment Period for Billing Period DINHAP	100 days (NB 90 days for capacity Period)	30 days

Table 2.3 Proposed Value for Historical Assessment Period for Billing Period

2.5.2 Comments Received

Two respondents agreed with the proposed change to the Historical Assessment Period for both the Billing and Capacity Period. One respondent noted the importance of an adequately collateralised market and commented that a shorter Historical Assessment Period duration allows the system to react more quickly therefore reducing risk. Another respondent agreed that a Historical Assessment Period of 30 days, rather than 100 days, better captures seasonal variations and participant trading strategies, thus allowing the market to be sufficiently collateralised at all times.

A number of other respondents requested that the current values be retained, and proposed that these parameter could be re-assessed post Go-Live, at which time market data would be available to better inform the decision. Two respondents suggested that the Historical Assessment Period be set at a value of 100 days.

Many respondents expressed concerns that the proposed reduction of the Historical Assessment Period duration may lead to increased levels of volatility in credit cover requirements. One respondent expressed the view that credit volatility is disruptive, while others noted that the greater the volatility, the greater “headroom” or excess collateral a market participant may choose to post, and that this might lead to additional costs to market participants as a consequence of the over collateralisation of the market.

A number of respondents expressed opposition to the proposed parameters but offered no alternative proposed value.

2.5.3 SEM Committee Response

The SEM Committee notes concerns relating to the shorter DINHAP and the impact this may have on credit cover volatility, but also notes the validity of the comment that a shorter DINHAP ensures that seasonal variations and participant trading strategies are fully captured. The SEM Committee concurs with the remark in the SEMO Recommendation Report that there may be trade-offs to consider with regard to the number of days in the DINHAP (SEM-17-009b p.20).

2.6 ANALYSIS PERCENTILE PARAMETER

2.6.1 SEMO Recommendation

The Analysis Percentile Parameter (AnPP) 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. In application, the AnPP is a multiplier used in the calculation of undefined exposures for all units and the Credit Assessment Price. The Credit Assessment Price is equal to the mean value of imbalance settlement prices over a period, plus the AnPP multiplied by the standard deviation of imbalance prices over the same period. The AnPP therefore interacts closely with the DINHAP parameter which determines the historic period for the imbalance prices used in the calculation.

Table 2.4 below sets out the current and proposed values for the parameter related to Analysis Percentile Parameter.

Parameter	2017 Current SEM Value (where applicable)	I-SEM Go-Live Value Proposed by SEMO
Analysis Percentile Parameter AnPP	1.96	2.33

Table 2.4 Proposed Value for Analysis Percentile Parameter

2.6.2 Comments Received

Generally, respondents were of the view that the current SEM value for Analysis Percentile Parameter be retained. A number of respondents expressed the view that the data available and the analysis to date was not a sufficient basis on which to make a decision. A number of respondents requested that the current value of Analysis Percentile Parameter be retained at 1.96 until Balancing Market data becomes available after Go-Live.

2.6.3 SEM Committee Response

The SEM Committee notes respondents' concerns both that SEMO's proposed Analysis Percentile Parameter of 2.33 increases collateral requirements, and that the current SEM value of 1.96 exposes the market to a reasonable level of residual credit risk. The SEM Committee also notes the remark that the move to a balancing regime does not seem, of itself, to justify a change to the AnPP.

2.7 CREDIT COVER ADJUSTMENT TRIGGER

2.7.1 SEMO Recommendation

The Credit Cover Adjustment Trigger is the percentage change in expected future generation or demand which requires 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 rather than analysis of historical data. SEMO noted in their report that such a trigger might be activated by a participant purchasing new generation assets, a supplier winning a significant number of new customers in the retail market, or a generator going on an extended planned outage.

Table 2.5 below sets out the current and proposed values for the parameter related to Credit Cover Adjustment Trigger.

Parameters	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
Credit Cover Adjustment Trigger	30%	10%

Table 2.5 Proposed Value for Credit Cover Adjustment Trigger

2.7.2 Comments Received

The majority of respondents disagreed with the proposal to set the Credit Cover Adjustment Trigger at 10%, with many suggesting that the current value for the Credit Cover Adjustment Trigger of 30% should be retained. Some respondents expressed the view that a 10% value would be unreasonable and would impose an unnecessary operational burden on suppliers. One market participant suggested that the I-SEM is likely to take a period of time to stabilise post Go-Live, and suggested that a decision on revising the parameter should be postponed until I-SEM data was available. Others disagreed with the proposed value but did not offer an alternative suggestion. One respondent supported the proposed parameter for the Credit Cover Adjustment Trigger.

2.7.3 SEM Committee Response

The SEM Committee notes the concern from participants that a 10% adjustment trigger might be overly dynamic. The SEM Committee also notes that the purpose of the Credit

Cover Adjustment Trigger is to avoid the systematic under-collateralisation of the market in the event of a marked increase in a participant’s exposure arising from an increase in customer demand or the acquisition of new generation assets. This can occur as the calculation of credit requirement is based on a historical analysis, and will not take into account the step-change in a participant’s exposure.

2.8 LEVEL OF WARNING LIMIT

2.8.1 SEMO Recommendation

The level of the Warning Limit parameter is the limit that will be used for all participants to notify them that they are above an identified ratio in relation to their required credit cover. This is a change from SEM, insofar that participants will no longer be able to set their own warning limit instead of the default level of 75% that would otherwise apply. The Warning Limit is a parameter used to trigger the issuing of a Warning Notice by SEMO to a Participant whose Credit Cover Requirement ratio is approaching its Posted Credit Cover.

Table 2.6 below sets out the current and proposed values for the parameter related to Warning Limit.

Parameters	2017 Equivalent SEM Value	I-SEM Go-Live Value Proposed by SEMO
Level of the Warning Limit	75% (default if participant doesn't set limit)	77.92%

Table 2.6 Proposed Value for Level of Warning Limit

2.8.2 Comments Received

One respondent supported the proposed Warning Limit, noting that it provided the correct balance between giving sufficient notice to market participants of any potential credit cover concerns without leading to an unnecessary number of warning notices being issued.

Some respondents expressed the view that SEMO should not be assigning a pre-set Warning Limit Level, but instead favoured setting their own internal flag for managing their collateral position.

One respondent argued that the Warning Limit should be a rounded value, as this would provide greater clarity to participants. It noted that, in GB, Elexon’s equivalent parameter is 80% and suggested rounding the proposed value to 80%.

2.8.3 SEM Committee Response

The SEM Committee notes the comments received from participants in relation to the loss of the ability to set their own warning limits, and also the extent to which the recommended level is not a round number which could cause unnecessary complications for participants. The SEM Committee concurs with the comment that the level of the Warning Limit requires a trade-off to be made between participants receiving a potentially large number of warning notices and SEMO giving participants sufficient notice of any potential developing credit cover concerns. The SEM Committee is particularly cognisant of the need for transparency around warnings related to credit cover, particularly given the contract refusal process set out in Chapter G of Part B of the Trading and Settlement Code.

2.9 LEVEL OF THE BREACH LIMIT

2.9.1 SEMO Recommendation

The Level of the Breach Limit is a predefined level which if the ratio of a Participant’s Required Credit Cover to its Posted Credit Cover exceeds will result in a Credit Cover Increase Notice which will require remedy by the Participant either by trading out of their position or by providing additional credit cover. Table 2.7 below sets out the current and proposed values for the parameter related to Breach Limit.

Parameters	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
Level of the Breach Limit	100% (A participant is issued a CCIN at 100%)	92.59%

Table 2.7 Proposed Value for Level of Breach Limit

2.9.2 Comments Received

One respondent supported the proposed Breach Limit based on the understanding that the suggested value for the parameter (92.59%) takes into account a two day remedy period

during which a party has an opportunity to increase its credit cover once a Credit Cover Increase Notice (CCIN) has been received. Another respondent proposed that the CCIN be issued when the Breach Limit is at 80% based on the assumption that market participants have two days to arrange transfer of collateral to reduce exposure below the Breach Limit.

Some respondents expressed the view that a Breach Limit below 100% would result in the over collateralisation of the market, while some respondents argued that the calculation of the Undefined Exposure and Analysis Percentile is designed to ensure that the market is sufficiently collateralised and a Breach Limit under 100% would not, therefore, be justifiable.

One respondent argued that the Breach Limit should be a rounded percentage value, as this would provide greater clarity to participants.

2.9.3 SEM Committee Response

The SEM Committee notes respondents' concerns that a breach limit below 100% would result in an overall increase in collateralisation for the I-SEM compared to the SEM. The SEM Committee notes also the differing view, that a Breach Limit of 80% be used to ensure that market participants have sufficient time to arrange for a transfer of collateral to reduce their exposure below the Breach Limit. The SEM Committee also notes the similar comment made regarding the Warning Limit, that the use of a non-rounded number presented potential implementation risks and confusion for participants, and the preference for a rounded number to be used in any case.

3. CREDIT COVER PARAMETERS – SEM COMMITTEE DECISION

This section sets out the SEM Committee’s reasoning and decision for each of the credit cover parameters consulted on. The SEM Committee recognises the significant analysis that has been performed by the SEMO in the development of the proposals. It is also cognisant of the need to consider the interaction of the parameters.

The SEM Committee has considered respondents’ concerns that some of the proposed parameter values are overtly risk averse and may pose a barrier to market entry. The SEM Committee is minded to balance the level of collateralisation on one hand, with the risk of too high a credit cover hurdle for current participants and new entrants on the other. Consequently, while the analysis does consider the specific detail of SEMO’s recommendations, in reaching its decisions the SEM Committee has considered the balance between each specific proposed parameter value, and the overall impact of the recommendations in aggregate.

The SEM Committee has also considered market participants’ concerns regarding using SMP as a proxy for Balancing Market price prediction, and acknowledges that I-SEM price volatility may deviate from the volatility exhibited in the current market. While the relative price volatility of the SEM and I-SEM cannot be assessed at present, the relative level of volatility of the gross pool SEM and European markets that adopt a balancing market design has been considered, with the data suggesting that volatility in the SEM is comparable to other markets, and therefore is a reasonable proxy at this point..

The SEM Committee decisions on the parameters are grouped under the headings fixed dynamic requirement, dynamic credit requirement, and credit changing process.

3.1 FIXED CREDIT REQUIREMENT

SEMO has proposed that the Fixed Credit Cover parameters are set at €5,000 for each generator unit and a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000, and a maximum of €15,000 for each supplier unit, which is the level at which they are presently set in the SEM. The SEM Committee notes that no objections were raised in relation this proposal in the responses to the consultation. The SEM Committee is

of the view that level at which these parameters have been set in the SEM has struck a balance between maintaining a low level of risk of bad debt while not unduly imposing a level collateral costs on participants that would not over burdening Participants with credit cover requirements which could be seen as a barrier to new entry, or a barrier to the continuation of trade. It believes that these considerations will remain valid in the I-SEM. Consequently, the SEM Committee has decided that the values for the Fixed Credit Requirements shall be as proposed by SEMO for I-SEM, and as set out in Table 3.1 below.

Parameter	2017 Current SEM Value	I-SEM Value Proposed by SEMO	I-SEM Go-Live Decision	Go-Live
Fixed Credit Requirement for Generator Units	€5,000	€5,000	€5,000	
Fixed Credit Requirement for Capacity Market Units	n/a	€0	€0	
Fixed Credit Requirement for Supplier Units	based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000	based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000	based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000	

Table 3.1: Current, proposed and decision values for the parameters related to fixed credit requirements

3.2 DYNAMIC CREDIT REQUIREMENT

As part of the consultation, views were sought on the Undefined Exposure Period (UEPBDg), with SEMO proposing that this should be 16 days; consisting of a 14 day Suspension Delay Period and two further days for which Settlement Statements are not available at the time of carrying out the credit assessment.

Under the TSC, this variable is determined, as per G.9.12(c) of Part B, by the SEMO from the applicable Supplier Suspension Delay Period (SSDP). Whilst UEPBDg was the focus of

SEMO's Recommendation Report, B.18.4.1 of Part B of the TSC requires the SEM Committee to determine the parameters SSDP and GSDP for each Jurisdiction.

As noted, while the consultation sought comments on UEPBDg, respondents also commented on the wider principle that impact on the number of days collateral they must hold. Consequently, the SEM Committee considers that separate consultation on the length of Suspension Delay Periods would be unlikely to elicit differing views than those already received. The SEM Committee is also cognisant that the SEM Committee would not be in a position to confirm the derivation of the UEPBDg without having considered the level of the relevant Suspension Delay Periods. On this basis, the SEM Committee considers that it is necessary, and that it has sufficient information from responses, to decide on the derivation of the UEPBDg, and the levels of the SSDP and GSDP such that the SEMO can determine UEPBDg. The SEM Committee decision is based upon the fact that the broad principle of the number of days collateral must be held by a participant has been consulted and commented upon.

Part B of Trading and Settlement Code published on 12 April 2017, defines the Undefined Exposure Period as:

"...the period from the end of the most recent Imbalance Settlement Period included in any Settlement Statement relating to Billing Period charges, until the time at which the Participant can be removed from incurring further liability as determined applying the applicable Supplier Suspension Delay Period or, where that time is not on a Working Day, the next Working Day thereafter. The Undefined Exposure Period may differ depending on the nature of the Unit and the Jurisdiction in which it is located."

This drafting is unchanged from that in current Trading and Settlement Code (Part A of the Amended TSC for I-SEM). Because of the different structure in I-SEM (Part A vs. Part B), separate Undefined Exposure Periods for Generator Units and Supplier Units are now reflected in Part B. The SEM Committee notes that a Modification to Part B of the Trading and Settlement Code is thus necessary in order to implement this decision in advance of Go-Live to include the Generator Suspension Delay Period (GSDP) which is not covered in the existing TSC provisions. The SEM Committee thus requests SEMO to propose a Modification prior to Go Live to give effect to this decision.

The GSDP for SEM is currently seven days, as determined in SEM-07-460. Taking into account the general agreement from respondents on the duration of the GSDP in the

responses, and the potential for exposures to accrue from “house load” (i.e. the Generator’s own demand at its power stations when not supplying to the grid), the SEM Committee, considers that there is no evidence at this time to justify changing this parameter from the current level of seven days. The Undefined Exposure Period for Generators would thus be expected to be determined by SEMO to be nine days, this being equal to the GSDP, plus an additional two days for which Settlement Statements are not available at the time of carrying out the credit assessment consistent with SEM arrangements.

With regard to the Undefined Exposure Period for Suppliers, the SEM Committee notes the comments received that the current SEM value of sixteen days is excessive and results in over collateralisation. As described above, the Undefined Exposure Period for Suppliers is derived from the SSDP. The SSDP is currently 14 days in both jurisdictions; set at the reasonable expectation of the number of days it would take the Regulatory Authorities to approve the issuing of a Suspension Order by SEMO, essentially removing a Participant from the market. Once a Suspension Order takes effect, the relevant Regulatory Authority may instruct a Supplier of Last Resort to supply the customers of the defaulting Supplier.

In Northern Ireland, the Supplier of Last Resort (SOLR) procedures are currently well defined and tested. If the SSDP for Northern Ireland were reduced to seven days, it would not adversely impact the timely implementation of the SOLR procedures and the reduction in required credit cover would not be expected to lead to increased exposures to other participants arising from a default of a Northern Ireland supplier and its removal from the market.

The SEM Committee has therefore decided to reflect the retail market process in place, and reduce the SSDP in Northern Ireland to seven days. This will reduce the Undefined Exposure Period for Suppliers in Northern Ireland to nine days (seven days’ SSDP plus an additional two days for which Settlement Statements are not available at the time of carrying out the credit assessment).

In Ireland, the SOLR procedures are currently under review by the Commission for Energy Regulation. The SSDP is therefore being maintained at 14 days for suppliers in Ireland. The SSDP may be amended subject to the findings of the review.

In summary for the I-SEM, the SEM Committee has decided that:

- the Generator Suspension Delay Period is seven days (in Ireland and Northern Ireland).
- the Supplier Suspension Delay Period will be reduced to seven days (in Northern Ireland)
- the Supplier Suspension Delay Period is maintained at 14 days (in Ireland) which may be amended following the review of the Supplier of Last Resort procedures.

The SEM Committee notes that SEMO adds two days to these values to determine the relevant Undefined Exposure Period, based on the timescale for which Settlement Statements are not available at the time of carrying out the credit assessment as per G.9.1.12 (c) in Part B of the TSC.

SEMO has proposed a 30 day Historical Assessment Period for Billing Period (DINHAP), stating that this has the benefit of providing sufficient collateral cover to the market, and providing a short term response to seasonal changes which drive the level and profile of demand and thus prices. While the SEM Committee understands the intention of SEMO in proposing a shorter, and thus more dynamic Historical Assessment Period, it is also cognisant of Participants' concerns that a shorter DINHAP may lead to more volatile credit cover requirements in the I-SEM, which would increase the requirements for unduly burdensome and costly active management of credit collateral or lead Participants instead, to over-collateralise. Indeed, the SEM Committee notes that such concerns led to a DINHAP of 30 days at SEM Go-Live being extended to the current 100 days. The SEM Committee considers that, based on Participants' concerns, that there is a reasonable expectation that there could be additional collateral costs resulting from a shorter, more dynamic DINHAP. Consequently, it has decided to retain the existing SEM assessment period of 100 days noting that this can be reviewed once I-SEM market data becomes available.

SEMO proposed that the Analysis Percentile Parameter should be set at 2.33 for the I-SEM. The SEM Committee notes respondents' concern that SEMO's proposed Analysis Percentile Parameter of 2.33 increases collateral requirements and that the current SEM value of 1.96 exposes the market to a reasonable level of residual credit risk. Also, the move to a balancing regime does not seem, of itself, to justify any increase in the level of collateral. The SEM Committee also notes that the Analysis Percentile Parameter of 1.96 provides a

I-SEM Credit Cover and Imbalance Settlement Parameters – Decision

97.5%, rather than 95%, level of confidence (assuming a normal distribution) given that only the likelihood of extremely high values and not of extremely low values impact credit requirements. Thus, the SEM Committee has decided to retain the current value of 1.96 noting that this, too, can be reviewed once I-SEM data becomes available.

Table 3.2 below sets out the current and proposed and decision values for the dynamic credit parameters.

Parameter	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO	I-SEM Go-Live Decision
Number of days in the Undefined Exposure Period for each Undefined Exposure Period, g, UEPBD _g	16 days (14 days suspension period + 2 days)	16 days (14 days suspension period + 2 days)	Supplier Suspension Delay Period Ireland: 14 days Supplier Suspension Delay Period, therefore 16 days UEPBD _g Northern Ireland: 7 days Supplier Suspension Delay Period, therefore 9 days UEPBD _g Generator Suspension Delay Period: 7 days, therefore 9 days UEPBD _g
Historical Assessment Period for Billing Period DINHAP	100 days	30 days	100 days
Analysis Percentile Parameter AnPP	1.96	2.33	1.96

Table 3.2: Current and proposed and decision values for the parameters related to dynamic credit requirements.

3.4. CREDIT COVER CHANGING PROCESS

SEMO's Recommendation Report proposed changing the Credit Cover Adjustment Trigger level from the SEM level of 30% to 10% for I-SEM. The SEM Committee agrees with the view expressed by respondents that a Cover Adjustment Trigger of 10% would be overly dynamic, and may lead to participants being adversely affected by short term events outside their control.

Further, the SEM Committee does not consider that the move from a gross pool to a balancing regime would provide a justification for any change to the frequency of such adjustments. Consequently, the SEM Committee has decided to retain the current Credit Cover Adjustment Trigger of 30%, noting that this can be reviewed once I-SEM data becomes available.

Based on its analysis, SEMO proposed that the Level of Warning Level be set at 77.92%. Respondents broadly accepted this recommendation, but suggested that a rounded number would be more comprehensible. The SEM Committee agrees with suggestion to round the number and has thus decided that the Level of the Warning Limit should be set at 80%. It is the SEM Committee's view that this level is sufficient to allow adequate time for participants to respond to their credit requirement while addressing the suggestion for a rounded number to provide comprehension.

SEMO proposed that the breach limit should be set at 92.59% on the basis that a participant has two days to respond to a Credit Cover Increase Notice. This would amount to building in a margin i.e. each participant would be required to maintain collateral such that their Posted Credit Cover was greater than 92.59% of their Required Credit Cover, as calculated by SEMO, thereby reducing the residual risk compared with the SEM.

The SEM Committee notes that SEMO's suggestion that the Breach Limit should be set below 100% to take into account the two days that participants' have to respond to the CCIN is in principle sound. This said, the SEM Committee is cognisant that a Breach Limit below 100% will result in an increase in the level of collateralisation in the market. The SEM Committee notes that using the Breach Limit to address the problem of the two days may have the effect of applying a multiplier (i.e. one divided by the Breach Limit) not only the Undefined Exposure but also to the Actual Exposure, thereby requiring Participants to post surplus collateral for an exposure that is already known. The SEM Committee is of the view

that, the two days to respond to the CCIN could equally be included in the Undefined Exposure Period.

Cognisant of the need for participants to familiarise themselves with the revised arrangements, and also noting the interaction between the level of the Breach Limit and the contract refusal and trading halt processes set out in the TSC and SEMOpx Rules respectively, the SEM Committee has determined that the Breach Limit should be set at 100% for Go Live. The SEM Committee will consider the appropriate approach to accounting for the two days to respond to the CCIN in future parameter setting processes.

Table 3.3 below sets out the current and proposed and decision values for the parameters related to changing credit requirements.

Parameter	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO	I-SEM Go-Live Decision
Credit Cover Adjustment Trigger	30%	10%	30%
Level of the Warning Limit	75%	77.92%	80%
Level of the Breach Limit	100%	92.59%	100%

Table 3.3: Current and proposed and decision values for the parameters related to changing credit requirements.

3.5 CREDIT COVER PARAMETERS – SUMMARY OF DECISIONS

In summary, the SEM Committee has decided upon the following credit parameters for I-SEM go live as per table 3.4 below.

Parameter	I-SEM Go-Live Decision
Fixed Credit Requirement for Generator Units	€5,000
Fixed Credit Requirement for Capacity Market Units	€0
Fixed Credit Requirement for Supplier Units	Based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000
Number of days in the Undefined Exposure Period for each Undefined Exposure Period, g, UEPBD _g	Ireland: 14 days Supplier Suspension Delay Period, therefore 16 days UEPBD _g Northern Ireland: 7 days Supplier Suspension Delay Period, therefore 9 days UEPBD _g 7 days Generator Suspension Delay Period, therefore 9 days UEPBD _g
Historical Assessment Period for Billing Period (DINHAP)	100 days
Analysis Percentile Parameter (AnPP)	1.96
Credit Cover Adjustment Trigger	30%
Level of the Warning Limit	80%
Level of the Breach Limit	100%

Table 3.4: Summary of decision values for the parameters related to credit cover requirements.

4. IMBALANCE SETTLEMENT PARAMETERS

4.1. BACKGROUND TO IMBALANCE SETTLEMENT PARAMETERS

In its report, SEMO recommended values to be applied for a number of imbalance settlement parameters in I-SEM. These parameters are applied in the calculation of Uninstructed Imbalance Quantities and Charges, and consisted of:

- (1) MW Tolerance (MWTOL), Engineering Tolerance (ENGTOL) and System per Unit Regulation Factor (FUREG), being parameters that determine the allowable deviation of a Generator Unit's Metered Quantity from its Dispatch Quantity before penalties are applied for over-generation and under-generation;
- (2) Discount for Over Generation (DOG) and Premium for Under Generation (PUG) being the incentive factors applied outside the respective tolerances, and applied to the imbalance price;
- (3) Imbalance Weighting Factor (WFIMB), being the weighting factor applied to the Imbalance Price for each Imbalance Settlement Period in the calculation of an average Imbalance Price to apply to imbalances for an Aggregate Settlement Period (in the event that the SEM Committee decides that the Aggregate Settlement Period should be longer than the Imbalance Settlement Period i.e. greater than 30 minutes);
- (4) Settlement Recalculation Threshold being the threshold which the materiality of any change in any Settlement Item must exceed before the Market Operator undertake an additional Settlement Rerun; and
- (5) Information Imbalance Price, Information Imbalance Quantity Weighting Factor, and Information Imbalance Tolerance, being parameters used in the calculation of Information Imbalance Charges.

4.2. COMMENTS RECEIVED AND SEM COMMITTEE RESPONSE

4.2.1 General Comments Received

Most respondents welcomed SEMO's recommendations that, in the majority of cases, there should be no changes to the imbalance settlement parameters from those used in the current SEM and those proposed in I-SEM. In particular, one respondent supported the SEMO's recommendations on the imbalance settlement parameters at least for the first year of operation, while another agreed with the approach of the SEMO in highlighting the design similarities between I-SEM Balancing Market and SEM.

4.2.2 SEM Committee Response

The SEM Committee acknowledges the comments from many respondents welcoming the SEMO's recommendations. The SEM Committee agrees that the processes with which many of the parameters are concerned have not been materially affected by the changes necessary to implement I-SEM, and hence that these parameters be unchanged, at least for the first year.

4.3. MW TOLERANCE, ENGINEERING TOLERANCE AND SYSTEM PER UNIT REGULATION FACTOR

4.3.1 SEMO Recommendation

SEMO's report stated that the MW Tolerance, Engineering Tolerance and System per Unit Regulation Factor parameters are largely based on fundamentals of the power system, such as the average size of the units in the market, the overall size of the market, and the operation of units to meet dispatch instructions, and these fundamentals are not changing with the change in the market arrangements. Therefore, SEMO proposed that the values for MW Tolerance and Engineering Tolerance are retained from Go-live of the I-SEM at 1MW and 0.01 (i.e. 1%) respectively. SEMO reported that the System Operators believe that this minimum tolerance band continues to be reflective of the acceptable practical limits within which dispatchable generation should be required to follow its instructions. The SEMO reported also that the System per Unit regulation Factor be retained at 0.04 (i.e. 4%).

Parameters	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
MW Tolerance	1 MW	1 MW
Engineering Tolerance	0.01 (1%)	0.01 (1%)
System per Unit Regulation Factor	0.04 (4%)	0.04 (4%)

Table 4.1: Current and proposed and decision values for the parameters related to imbalance tolerance requirements.

4.3.2 Comments Received

All four respondents who commented on this point were supportive of the proposal to retain MW Tolerance and Engineering Tolerance at the current values of 1MW and 0.01, respectively. One respondent agreed that the fundamentals that determine the appropriate values of these parameters have not changed and hence the current values are appropriate, whilst the others also agreed with the retention of the SEM values.

However, one respondent submitted that the settlement calculations should consider the specific droop characteristics of each individual unit to avoid machines having non-typical characteristics breaching the allowable tolerances more easily. A second respondent, argued that it is not always the case that over-generation outside of tolerance will result in the TSO having to move another participant, and that the net export of its Autoproducer site may not change if on-site demand increases or decreases in step with generation. The respondent suggested that the MW Tolerance and Engineering Tolerance allocated to Autoproducers should thus be reviewed.

4.3.3 SEM Committee Response

The SEM Committee acknowledges the support of respondents of the proposal to retain MW Tolerance and Engineering Tolerance at the current SEM values. The SEM Committee agrees with the view of the SEMO and respondents that the change to I-SEM does not affect the fundamentals on which the values of these parameters depend.

The SEM Committee acknowledges the view that there should be a value of System per Unit Regulation Factor for each individual unit. Whilst the SEM Committee can see merit in this suggestion, the SEM Committee notes that having a system-wide value has proved adequate in the SEM over the last ten years and that the introduction of I-SEM should not affect this.

The SEM Committee also acknowledges the view that, in the case of Autoproducers, any over or under generation may be matched by changes in on-site demand. Whilst the SEM Committee understands the motivation for this view, the SEM Committee considers that the argument could also be made that under or over generation of a Generator Unit at a Generation Site may be offset by over or under generation at another Generator Unit at the Generation Site. Moreover, where the System Operator is concerned only with energy imbalances, rather than system constraints, under or over generation of a Generator Unit at a Generation Site may be offset by over or under generation of a Generating Unit at any other Generation Site or even matched by changes in demand elsewhere on the system. Thus, whilst net imbalances only may be important in some circumstances, in practice the system is operated on the basis of individual unit dispatch, and there are technical reasons why the System Operator requires individual control of the large machines connected to the power system, even in instances where, at a particular site, these are financially settled on a net basis.

4.4. DISCOUNT FOR OVER GENERATION FACTOR AND PREMIUM FOR UNDER GENERATION FACTOR

4.4.1 SEMO Recommendation

The SEMO report explained that the Discount for Over Generation and Premium for Under Generation can, in principle, be based on the typical cost of replacement generation (in the case of under-generation) and the typical cost saving of displaced generation (in the event of over-generation). The report pointed out that, with the changed structure for Commercial Offer Data in I-SEM, it is possible that these typical costs may change. However, SEMO argued that, in the absence of operational data for I-SEM, it may be most appropriate to retain the current signals. Therefore, SEMO recommended from I-SEM Go-live that a value of 0.2 is used for both FPUGuy and FDOGuy for all situations, with the exception of Interconnectors under test.

SEMO also noted that, in the SEM, the Interconnector Error Unit has been assigned a value of zero for both FDOG and FPUG, for an Interconnector under Test. SEMO stated that this has been on the basis that the SEM market design did not provide for an interconnector test profile to be submitted and it would be unduly penal to apply discounts and premia for imbalances arising as a result of flows required for testing. SEMO stated that this situation will remain under the I-SEM design, and that while Generating Units will be able to submit a

test profile through their PN data, the PN data for interconnectors under test will be created by the System Operators to reflect ex-ante trading.

Parameters	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
Discount for Over Generation Factor	0.2	0.2
Premium for Under Generation Factor	0.2	0.2

Table 4.2: Current and proposed and decision values for the parameters related to imbalance under and over generation parameters.

4.4.2 Comments Received

Five respondents commented on the DOG and PUG parameters. Of these respondents, three agreed with the proposal to retain the factor of 0.2 for each, as per the current SEM. One of these respondents said that it was important to emphasise that these values should not apply to intermittent renewable, whilst a second argued that the reasonable advance notice should be given to market participants if any review and the application of potential new values.

This second respondent also disagreed with the proposal for the DOG and PUG parameters for interconnector units under test to be set to zero. This respondent argued that the move from SEM to I-SEM provides an opportunity to amend the systems to cater for interconnector test profiles, and that zero DOG and PUG factors for interconnectors under test will not incentivise any interconnector to follow its test profile, even though interconnectors are capable of causing large uninstructed imbalances which will ultimately be paid for by the consumer through imperfection charges.

A third respondent argued that, under I-SEM, generators, which are operating below dispatch instruction due to high system frequency but within tolerances, will be charged the imbalance price when they should be charged only their avoided fuel costs.

4.4.3 SEM Committee Response

The SEM Committee acknowledges the comments supporting the retention of the current FDOG and FPUG parameters. The SEM Committee agrees that, in the absence of operational data under I-SEM, the current values remain an appropriate estimate of the

replacement or avoided costs. As regards the comment that DOG and PUG should not apply to intermittent renewables, the SEM Committee notes that, for Generator Units which have Priority Dispatch and which are not Dispatchable, both the Final Physical Notification and the Dispatch Quantity is set equal to the Outturn Availability Quantity. Hence, the SEM Committee considers that DOG and PUG will not apply to these Generator Units.

As regards, the comment that Interconnectors under Test should not be exempted from DOG and PUG, the SEM Committee notes that the Interconnectors are fully operated by the TSOs under agreement and there are no plans for this set of arrangements to be revised for I-SEM Go Live. The issue of DOG and PUG factors applying to interconnectors under test was considered in 2012 and the SEM Committee (SEM-12-011) decided that no factors would apply when testing. This decision has been maintained in subsequent SEM Committee decisions on Operational Parameters since this point, and the SEM Committee does not see any material change in the arrangements to necessitate amending this approach as part of the transition to the revised SEM arrangements.

The SEM Committee notes the comment that generators, which are operating within the DOG/PUG tolerances but below the dispatch quantity, should be charged at the avoidable fuel cost rather than at the imbalance price. However, addressing this issue would require a change in the design of the imbalance mechanism, which has already been concluded on by the SEM Committee, and cannot be addressed by the choice of FDOG and FPUG parameters, which are the scope of the current consultation.

4.5. IMBALANCE WEIGHTING FACTOR

4.5.1 SEMO Recommendation

The SEMO recommended that the value of WFIMBy shall be equal to one for all Imbalance Settlement Periods from Go-Live of the I-SEM, on the basis that:

- It would be the easiest to forecast ahead of time, and because there would be no difference between forecast and actual values it would not distort the ability of Participants to forecast their effective Imbalance Settlement Price;

- It would allow for the easiest assessment of the ex-ante position of a generator in each Imbalance Settlement Period while ex-ante trading is still open so that it would not represent an element of uncertainty which would be present from other weighting factors, which could have impeded liquidity;
- It addresses a lack of operational data to draw conclusions about the relationships between cost reflectivity and different weighting factors;
- It most consistently prioritises weighting the average price towards the higher priced period, maintaining the balancing signal provided by that price; and
- It does not increase the influence of the highest price period in the average such that it could be seen as unfair to those Participants who were balanced in those periods, as could be the case by weighting by the Imbalance Settlement Price itself.

Parameters	2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
Imbalance Weighting Factor for each Imbalance Settlement Period	N/A	1

Table 4.3: Current and proposed and decision values for the imbalance weighting parameter.

4.5.2 Comments Received

Four respondents comment on the Imbalance Weighting Factor. Two of these respondents supported the proposal that from I-SEM go live, the Imbalance Weighting Factor should be set one for all Imbalance Settlement Periods. One of these two said that, should imbalance settlement periods of ex-ante trading periods change in granularity at some point the future, then this factor should be re-visited, while the other expressed concerns that the calculation of ex-ante quantities has potentially negative repercussions in the calculation of certain settlement components, and urged the RAs to consider these repercussions before applying the Imbalance Weighting Factor.

Of the other two respondents, one expressed significant concerns in relation to the choice of an imbalance settlement period of 30 minutes, as balance responsibility is more difficult with participants required to trade imbalances created from DAM positions being split into half hourly quantities. The second of these two respondents stated that it believes that all the I-SEM markets should be traded at the same level of granularity or where this is not possible,

that PNs are used for Generators since they are already required to allocate into more discrete periods.

4.5.3 SEM Committee Response

The SEM Committee acknowledges the comments supporting an Imbalance Weighting Factor of one. The SEM Committee notes that many of the alternative weightings involve weighting factors that will not be known ex-ante by participants. Although trading decisions necessarily involve expectations of a quantity that is not known ex-ante, i.e. the imbalance price, it is possible that involving further quantities that are not known ex-ante could make trading decisions more difficult for participants than a weighting factor of one.

That said, whilst the Aggregated Settlement Period is set at 30 minutes the weighting factor has no effect. Thus, the SEM Committee is of the view that any consultation on an Aggregated Settlement Period duration of more than 30 minutes could be accompanied by a consultation on possible alternative weighting factors.

The SEM Committee acknowledges the concern regarding an Imbalance Settlement Period duration of 30 minutes, necessitating the splitting of hourly DAM quantities into half-hourly quantities, and the comment that all I-SEM markets should trade with the same granularity. However, the SEM Committee notes that the purpose of the Imbalance Weighting Factor mechanism is to allow imbalances to be settled on an hourly basis, without requiring that the whole of the balancing market be settled on an hourly basis which could, amongst other things, blunt signals to balancing service providers. Moreover, the SEM Committee notes that, whilst using PNs could have been used to allocate hourly quantities between Imbalance Settlement Periods, where the Metered Quantity follows the PN (as modified by any accepted offers and bids) this would amount to the same thing. Moreover, the Imbalance Weighting Factor mechanism has the advantage of additionally accounting for uninstructed imbalances.

4.6. SETTLEMENT RECALCULATION THRESHOLD

4.6.1 SEMO Recommendation

The SEMO report explained that, under the SEM, a value of 3% was selected for this value to reflect the fact that it was also acting as the threshold for recalculating the SMP, whilst attempting to achieve a balance between the resettlement of a material data error and the

operational overhead. In the current market, the 3% Settlement Recalculation Threshold was based on an approximate value of €250,000 change in settlement amounts across the whole market.

The SEMO report recommended a value of €15,000 for the Settlement Recalculation Threshold from Go-Live of the I-SEM on the basis that this is a value which:

- is in excess of the likely costs to the market of administering a Settlement Rerun (with a value larger than the estimated amount to recognise that individual reruns would have varying costs, some below and some above the estimated amount; and
- is at the lower end of the range of acceptable values, recognising the value to smaller market participants of corrections to smaller settlement amounts.

Parameters		2017 Current SEM Value	I-SEM Go-Live Value Proposed by SEMO
Settlement Threshold	Recalculation	3%	€15,000

Table 4.4: Current and proposed values for the Settlement Recalculation Threshold parameter.

4.6.2 Comments Received

Four respondents commented on the Settlement Recalculation Threshold. All four agreed with the proposal to set the Settlement Recalculation Threshold to €15,000.

One of these respondents said it is not in favour of regular, unnecessary settlement re-runs occurring given the administrative burden of such for market participants. It accepted the proposed threshold on the basis that a value of €15,000 adequately takes into account the avoidance of arbitrary triggering of Settlement Reruns, while being low enough to reflect the value to smaller participants of the change in settlement amounts.. However, it said that this was on the basis that the assessment of the impact of a settlement re-run is calculated as against the settlement amounts of the party raising the query (and not against settlement amounts across the market). This respondent also submitted that the RAs should reserve the right to review the Settlement Recalculation Threshold if it becomes apparent that the number of settlement re-runs in I-SEM materially increases compared to current numbers.

A second respondent also agreed with the proposed value. However, it saw merit in a higher threshold during the transition years from SEM to I-SEM, which could be reduced to €15,000 as participants become more comfortable with the complex settlement. This respondent noted that the experience of SEM was that several resettlements were required for the first few months due to system errors.

Another respondent commented that the Settlement Recalculation Threshold was the only changed parameter proposed by SEMO. It noted that the recalculation threshold is particularly important to small participants who have been subject to some form of error in the marketplace and the threshold should seek to balance a timely response and correct against the administrative burden that ad hoc resettlement places on all participants. This respondent said it saw merit in the threshold being changed to a monetary amount and that it considered €15,000 to be a reasonable amount. A further respondent said that, as the Settlement Recalculation Threshold was now being assessed at a participant level, it saw merit in changing the adjustment to a monetary value (from a percentage), and that, given the importance of the level to small participants, agreed with the €15,000 value.

4.6.3 SEM Committee Response

The SEM Committee acknowledges the comments agreeing with the SEMO's recommendation, and also agrees that this recommendation represents a sensible compromise between the administrative burden of undertaking additional Settlement Reruns and the materiality to participants of correcting settlement errors.

The SEM Committee notes and is sympathetic to the suggestion that the threshold be set at a higher level during the initial stages of I-SEM, in order to limit the number of Settlement Reruns. However, the SEM Committee does not agree with the suggestion as, regardless of the number of Settlement Reruns, the trade-off between the burden of undertaking an additional Settlement Rerun and the materiality to participants of settlement errors is the same for each potential Settlement Rerun. Therefore, the SEM Committee considers €15,000 to be a reasonable value for the Settlement Recalculation Threshold for the initial period of I-SEM, as well as on an on-going basis.

4.7. INFORMATION IMBALANCE PARAMETERS

4.7.1 SEMO Recommendation

The SEM Committee decided in the I-SEM ETA Markets Decision paper to initially set the value of the Information Imbalance Charge to zero. Hence, the SEMO has proposed:

- (1) an Information Imbalance Price of zero
- (2) an Imbalance Quantity Weighting Factor of zero; and
- (3) an Information Imbalance Tolerance of zero,

for all Generator Units, u , for all Imbalance Settlement Periods, γ , from I-SEM Go-live until such a time as a decision is made to have non-zero Information Imbalance Charges.

Parameter	2017 Equivalent SEM Value	I-SEM Go-Live Value Proposed by SEMO
Information Imbalance Price	n/a	0
Information Imbalance Quantity Weighting Factor	n/a	0
Information Imbalance Tolerance	n/a	0

Table 4.5: Current and proposed and decision values for the imbalance information parameter.

4.7.2 Comments Received

Four respondents commented on Information Imbalance Price, Information Imbalance Quantity Weighting Factors and Information Imbalance Tolerance.

One respondent said that, in light of the existence of imbalance price exposure, uninstructed imbalance charges and generator performance incentives, another layer of charging in the guise of information imbalances may result in I-SEM trading being viewed as prohibitively risky which is not conducive to market liquidity, competition or security of supply. While the respondent agreed that it is important that the TSOs have the best possible available information (i.e. accurate PNs), the application of the Information Imbalance charge should not interfere with market dynamics. The respondent said that, furthermore, setting values

based on a unit's ability to respond to short notice decreases/ increases in demand may erode the desirability to participate in the market on short notice if such reactions and consequential PN changes will attract a penal information imbalance charge. Moreover, levying a higher charge for PN changes that occur closer to Gate Closure 2 will have the effect of undermining intraday market liquidity to the detriment of balancing responsible parties and ultimately consumers, and changes to PNs at the intraday stage that incur charges may be absorbed in intraday bidding increasing the costs of adjustments for balance responsible parties, which will eventually impact consumer prices. Hence, this respondent agreed that the factor should be zero for Go-Live, and that before consideration of its application in the future, it urged the RAs to undertake an in-depth analysis and industry consultation to fully understand the costs/ benefits of its application and mitigate potential impacts where possible. A second respondent strongly supported keeping the information imbalance price at zero, and argued that a non-zero value for the information imbalance would only serve to reduce intraday liquidity with little material gain, while generators need to be incentivised to increase their flexibility and through setting the information imbalance charge to zero.

Two more respondents said they appreciated that information imbalance charging will not be introduced at I-SEM go live and that the parameters are proposed to be zero, but were concerned that the provisions facilitating its introduction were included within the market rules and implemented within the central market systems. One of these respondents also expressed concern that EirGrid may be subject to a perceived potential conflict of interest if requested by the SEM Committee to provide a recommendation regarding the value of charges. This potential conflict arises because information imbalance charging is intended to make dispatching the system easier for the System Operator by improving the quality of information received via PNs but having a detrimental impact on the efficiency of the ex-ante energy markets. The second of these respondents said that Intra-day trading is necessary to improve on the schedule received from Euphemia and to allow participants to respond to commodity price movements, changes to wind generation levels, plant availability, demand errors and the behaviours of other participants. Charging for a movement of a PN is not going to change participant behaviour as they have no control over these events as they are a product of the market design. If charging is introduced participants will reflect this in their bid/offer prices and ultimately the consumer will pay. These two respondents therefore recommended that information imbalance charging is not introduced at any time under I-SEM trading arrangements.

4.7.3 SEM Committee Response

The SEM Committee notes the considerable comment from participants in relation to the potential methodology for the parameters related to the information imbalance charge and recognises the need for further consideration of the parameters and their calculation in advance of any proposal to apply it.

5. SEM COMMITTEE DECISION ON IMBALANCE PARAMETERS

In respect of the MW Tolerance, Engineering Tolerance and System per Unit Regulation Factor, the SEM Committee has decided that these parameters should be equal to the current SEM values. Therefore, the values for Go-Live shall be as follows:

MW Tolerance = 1MW

Engineering Tolerance = 1%

System per Unit Regulation Factor = 4%

In respect of the Discount for Over Generation Factor and Premium for Under Generation Factor, the SEM Committee has decided that these parameters, except in the case of Interconnector Error Units for interconnector units under test, should be equal to the current SEM values. Therefore the values for Go-Live shall be as follows:

Discount for Over Generation Factor = 0.2

Premium for Under Generation Factor = 0.2

The SEM Committee has decided that the Imbalance Weighting Factor shall be 1.

In respect of the Settlement Recalculation Threshold, the SEM Committee has decided that this parameter shall be €15,000.

The SEM Committee have decided to continue with a value of zero as previously decided in SEM-15-065 for the information imbalance charge.

The SEM Committee's decisions on the values for the imbalance parameters for Go-Live are summarised in Table 5.1 which follows:

I-SEM Credit Cover and Imbalance Settlement Parameters – Decision

Parameter	SEM Variable / Term	2017 Current Value	I-SEM Variable/Term ⁴	I-SEM Go-Live Decision
Engineering Tolerance, TOLENG	ENGTOL	0.01	TOLENG	0.01
MW Tolerance for each Trading Day, t, TOLMWt	MWTOL	1	TOLMW	1
System per Unit Regulation Factor, FUREG	UREG	0.04	FUREG	0.04
Discount for Over Generation Factor for each Generator Unit, u, except for Interconnector Error Units, FDOGuy	DOG	0.2	FDOG	0.2
Discount for Over Generation Factor for each Interconnector Error Unit, u, FDOGuy	DOG	0	FDOG	0
Premium for Under Generation Factor for each Generator Unit, u, except for Interconnector Error Units, FPUGuy	Premium for Under Generation	0.2	FPUG	0.2
Premium for Under Generation Factor for each Interconnector Error Unit, u, FPUGuy	Premium for Under Generation	0	FPUG	0
Settlement Recalculation Threshold	Settlement Recalculation Threshold	3%	Settlement Recalculation Threshold	€15,000
Imbalance Weighting Factor for each Imbalance Settlement Period, γ , WFIMBy	n/a	n/a	WFIMB	1
Information Imbalance Price PIIuy	n/a	n/a	PII	0
Information Imbalance Quantity Weighting Factor WFQII	n/a	n/a	WFQII	0
Information Imbalance Tolerance TOLIIu β y	n/a	n/a	TOLII	0

Table 5.1 Summary of values for the I-SEM imbalance parameters.

⁴ The abbreviations and terms listed in this column are those used in SEMO's proposal as consulted-on. These are the terms used in Part B of the Trading and Settlement Code and are provided for ease of reference.

6. NEXT STEPS

The values set out in this paper shall apply from Go-Live of the revised SEM arrangements. These parameters will apply from Go-Live until 31 December 2019. A consultation will be carried out in May 2019 to determine the values to apply from January 2020, based on a year's data being available.

The Trading and Settlement Code provides for the RAs amending the values of parameters where necessary outside the normal parameter-setting process. While this would only arise in exceptional circumstances, the SEM Committee has obligations to balance regulatory certainty with ensuring that no unnecessary consumer harm arises. On this basis, the RAs will keep all parameters under observation and may propose changes in the interim if necessary via consultation.