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| **MODIFICATION PROPOSAL FORM** |
| **Proposer***(Company)* | **Date of receipt***(assigned by Secretariat)* | **Type of Proposal***(delete as appropriate)* | **Modification Proposal ID***(assigned by Secretariat)* |
| **SEMO** | **27 September 2011** | **Standard** | **Mod\_31\_11** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Nigel Thomson** | **+353 123 70322** | **nigel.thomson@sem-o.com** |
| **Modification Proposal Title** |
| **Calculation of Estimated Energy Price (EEP) and Estimated Capacity Price (ECP)** |
| **Documents affected***(delete as appropriate)* | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC** | **6.191 to 6.200** | **9.0** |
| **Explanation of Proposed Change***(mandatory by originator)* |
| During the development of the Intra-Day Trading design and associated Modification Proposal, a discrepancy between the Code and the actual calculation of Estimated Energy Price (EEP) and Estimated Capacity Price (ECP) has been identified. This Modification proposes to amend the existing calculations for EEP and ECP, to align with the calculations that have been utilised by SEMO since Market Go Live. There are no systems changes required, if this Modification Proposal is implemented and as is set out in the justification, the current method more accurately estimates the a new Participant’s exposure. |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
| Calculation of the Estimated Energy Price6.191 The Daily Average System Marginal Price (DASMPd) for Settlement Day d shall be calculated as follows: Where:1. SMPh is the System Marginal Price for Trading Period h;
2. is a summation over Trading Periods h in Settlement Day d.
3. is the number of all System Marginal Prices in Settlement Day d.

6.192 The number of all Daily Average System Marginal Prices (NDASMPg) in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where:1. is the number of all Daily Average System Marginal Prices in the Historical Assessment Period for Billing Periods γ.

6.193 The mean value of Daily Average System Marginal Prices (UMSMPg) in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where:1. DASMPd is the Daily Average System Marginal Price for Settlement Day d;
2. is a summation over all Settlement Days d in Historical Assessment Period for Billing Periods γ;
3. NDASMPg is the number of all Daily Average System Marginal Prices in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g.

6.194 The standard deviation of the Daily Average System Marginal Price (SDSMPg) in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where:1. NDASMPg is the number of all Daily Average System Marginal Prices in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g;
2. DASMPd is the Daily Average System Marginal Price for Settlement Day d;
3. is a summation over all Settlement Days d in Historical Assessment Period for Billing Periods γ.

6.195 The Estimated Energy Price (EEPg) for Undefined Exposure Period g shall be calculated as follows:Where:1. UMSMPg is the mean value of System Marginal Prices in the Historical Assessment Period for Billing Periods γ applied for the Undefined Exposure Period g;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 “Management of Credit Cover and Credit Default”;
3. SDSMPg is the standard deviation of the values of System Marginal Prices in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g.

Calculation of the Estimated Capacity Price6.196 The Daily Average Capacity Payments Demand Price (DAPDPd) for Settlement Day d shall be calculated as follows: Where:1. CPDPh is the Capacity Payments Demand Price for Trading Period h;
2. is a summation over Trading Periods h in Settlement Day d;
3. is the number of all the Capacity Payments Demand Prices in Settlement Day d.

6.197 The number of all Daily Average Capacity Payments Demand Prices (NDACPDPg) for the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where1. DACPDPh is the Capacity Payments Demand Price for Trading Period h;
2. is the count of all the Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods ρ.

6.198 The mean value of the Daily Average Capacity Payments Demand Price (HACPDPg) for the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where:1. DACPDPd is the Daily Average Capacity Payments Demand Price for Settlement Day d;
2. is a summation over each Settlement Day d in the Historical Assessment Period for Capacity Periods ρ;
3. NDACPDPg is the number of all Daily Average Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g;

6.199 The standard deviation of the Daily Average Capacity Payments Demand Prices (SDCPDPg) in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g shall be calculated as follows:Where:1. NDACPDPg is the number of all Daily Average Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g;
2. DACPDPd is the Daily Average Capacity Payments Demand Price for Settlement Day d;
3. is a summation over all Settlement Days d in Historical Assessment Period for Capacity Periods ρ.

6.200 The Estimated Capacity Price (ECPg) for the Undefined Exposure Period g shall be calculated as follows:Where1. UMCPDPg is the average Capacity Payments Demand Price in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g;
2. AnPP is the Analysis Percentile Parameter function in effect to determine the amount that must be added to the mean value in order that the required percentage of values shall fall below that value. The details of this function are defined in Agreed Procedure 9 “Management of Credit Cover and Credit Default”;
3. SDCPDPg is the standard deviation of the values of Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g.

**Glossary:**

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| **Daily Average System Marginal Price** | means the arithmetic time-weighted average of System Marginal Prices for a given Settlement Day. |
| **Daily Average Capacity Payments Demand Prices** | means the arithmetic time-weighted average of Capacity Payments Demand Prices for a given Settlement Day. |

**LIST OF VARIABLES, APPLICABLE SUBSCRIPTS AND UNITS**

| Name | Term | Subscripts | Units | Description |
| --- | --- | --- | --- | --- |
| Number of Daily Average Capacity Payments Demand Prices in the Historical Assessment Period | NDACPDP | g | Number | The number of Daily Average Capacity Payments Demand Prices in the Historical Assessment Period for Capacity Periods ρ to be applied for the Undefined Exposure Period g |
| **Number of Daily System Marginal Prices in the Historical Assessment Period** | NDASMP | g | Number | Number of Daily Average System Marginal Prices in the Historical Assessment Period for Billing Periods γ to be applied for the Undefined Exposure Period g |
| **Daily Average of the Capacity Payments Demand Prices** | DACPDP | d | €/MWh | Arithmetic time-weighted average of Capacity Payments Demand Prices for a given Settlement Day |
| Daily Average of System Marginal Prices | DASMP | d | €/MWh | Arithmetic time-weighted average of System Marginal Prices for a given Settlement Day |

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| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| The Code currently specifies the use of Trading Period SMP/CPDP values in the calculation of the standard deviation value as an input to the calculation of EEP/ECP. It has been identified that SEMO has since Go-Live (November 2007) been calculating the standard deviation values based on the daily average SMP (for EEP) and daily average CPDP (for ECP).These EEP and ECP values are used only for New or Adjusted Participants. The new/adjusted calculation only affects a small proportion of Participants at any one time, typically 5% of the market. In addition Participants are only classed as new/adjusted for approximately 100 days, until sufficient historical information is available for the Standard calculation to be valid.Under the Code, New Participants are those with insufficient historical data for the calculation of undefined exposure, therefore, Participants provided forecast data that is used for the first approximately 100 days.Adjusted Participants are those where their consumption/generation is planned to changed significantly from their historical data. Forecast data is used as for the New Participant case.Standard Participants are where sufficient historical data is available to allow the calculation of Required Credit Cover using this historical data as basis for future exposure. SEMO’s analysis, as below, indicates that the calculation as utilised by SEMO since Go Live produces in a better estimate of the actual SMP/CPDP than the calculation as specified in the Code currently. In the graph shown below:1. Line 1 relates to the calculation as currently defined in the Code (for New and Adjusted Participants).
2. Line 2 relates to the calculation that SEMO has implemented since Go Live (for New and Adjusted Participants).
3. Line 3 relates to the calculation for Standard Participants, to which the calculation for New and Adjusted Participants should closely align if it is an accurate prediction of future SMP/CPDP values.
4. Line 4 represents the actual exposure to the market of the Participant at the time. This is calculated retrospectively by using final historic settlement values. Estimated undefined exposure values are replaced with the actual exposures that arose during the Undefined Exposure Period.

**Figure 1 – Undefined Exposure calculations for new Participants based on Trading Period and Settlement Day calculations, the Undefined Exposure for Standard Participants and the Actual Exposure** The principle in the market is to be conservative in the approach to calculating Required Credit Cover for Participant, yet not unduly burden Participants with credit cover requirements. From figure 1, Line 4 indicates the actual exposure the market had for the Participant (based on retrospectively applying the settled amounts instead of using the estimation of undefined exposure). Line 2 uses the Average Daily calculation in the Required Credit Cover for new/adjusted Participants This provides a conservative estimate of the Participants exposure, being approximately 35% higher than the actual exposure. Line 1 uses the Trading Period calculation in the Required Credit Cover, and provides what appears to be an excessive overestimation of the Required Credit Cover in the order of 70%. This indicates that the Average Daily calculation meets the principle to use a conservative calculation of Required Credit Cover for new/adjusted Participants, while not being excessively conservative as occurs for the Trading Period calculation.Further more, the accuracy of the calculation for Standard Participants is reported on a quarterly basis. No concerns have received from Participants with the level of credit cover as calculated for Standard Participants. As the Daily Average calculation is in line with the standard calculation, this further indicates that the calculations as implemented are appropriate.As such SEMO proposes to amend the Code to reflect this more accurate methodology that has been in place since the beginning of the SEM. |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of T&SC for Code Objectives)* |
| This Modification Proposal aligns the provisions of the Code with the business process implemented by SEMO since Market Go Live. It therefore clarifies the calculations utilised by SEMO and furthers Code Objectives #1, #2 and #5, which are as follows:1. *to facilitate the efficient discharge by the Market Operator of the obligations imposed upon it by its Market Operator Licences;*
2. *to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;*
3. *to provide transparency in the operation of the Single Electricity Market;*
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| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| 1. SEMO’s calculation of EEP and ECP will need to be revised to match the provisions of the Code.
2. Future calculations will most likely overestimate the EEP/ECP and therefore result in an increased amount of Credit Cover being required to be posted for New and Adjusted Participants.
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| **Working Group***(State if Working Group considered necessary to develop proposal)* | **Impacts***(Indicate the impacts on systems, resources, processes and/or procedures)* |
| No | No impact if implemented. |
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| ***Please return this form to Secretariat by email to*** ***modifications@sem-o.com*** |

**Notes on completing Modification Proposal Form:**

1. **If a person submits a Modification Proposal on behalf of another person, that person who proposes the material of the change should be identified on the Modification Proposal Form as the Modification Proposal Originator.**
2. **Any person raising a Modification Proposal shall ensure that their proposal is clear and substantiated with the appropriate detail including the way in which it furthers the Code Objectives to enable it to be fully considered by the Modifications Committee.**
3. **Each Modification Proposal will include a draft text of the proposed Modification to the Code unless, if raising a Provisional Modification Proposal whereby legal drafting text is not imperative.**
4. **For the purposes of this Modification Proposal Form, the following terms shall have the following meanings:**

**Agreed Procedure(s): means the detailed procedures to be followed by Parties in performing their obligations and functions under the Code as listed in Appendix D “List of Agreed Procedures”.**

**T&SC / Code: means the Trading and Settlement Code for the Single Electricity Market**

**Modification Proposal: means the proposal to modify the Code as set out in the attached form**

**Derivative Work: means any text or work which incorporates or contains all or part of the Modification Proposal or any adaptation, abridgement, expansion or other modification of the Modification Proposal**

**The terms “Market Operator”, “Modifications Committee” and “Regulatory Authorities” shall have the meanings assigned to those terms in the Code.**

**In consideration for the right to submit, and have the Modification Proposal assessed in accordance with the terms of Section 2 of the Code (and Agreed Procedure 12), which I have read and understand, I agree as follows:**

**1. I hereby grant a worldwide, perpetual, royalty-free, non-exclusive licence:**

* 1. **to the Market Operator and the Regulatory Authorities to publish and/or distribute the Modification Proposal for free and unrestricted access;**
	2. **to the Regulatory Authorities, the Modifications Committee and each member of the Modifications Committee to amend, adapt, combine, abridge, expand or otherwise modify the Modification Proposal at their sole discretion for the purpose of developing the Modification Proposal in accordance with the Code;**
	3. **to the Market Operator and the Regulatory Authorities to incorporate the Modification Proposal into the Code;**

**1.4 to all Parties to the Code and the Regulatory Authorities to use, reproduce and distribute the Modification Proposal, whether as part of the Code or otherwise, for any purpose arising out of or in connection with the Code.**

**2. The licences set out in clause 1 shall equally apply to any Derivative Works.**

**3. I hereby waive in favour of the Parties to the Code and the Regulatory Authorities any and all moral rights I may have arising out of or in connection with the Modification Proposal or any Derivative Works.**

**4. I hereby warrant that, except where expressly indicated otherwise, I am the owner of the copyright and any other intellectual property and proprietary rights in the Modification Proposal and, where not the owner, I have the requisite permissions to grant the rights set out in this form.**

**5. I hereby acknowledge that the Modification Proposal may be rejected by the Modifications Committee and/or the Regulatory Authorities and that there is no guarantee that my Modification Proposal will be incorporated into the Code.**