

Single Electricity Market

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| Final REcommendation ReportMod\_22\_18 part b credit cover signage & subscript correction 24 August 2018  |

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Document History

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| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Comment** |
| 1.0 | 24 August 2018 | Modifications Committee Secretariat | Issued to Modifications Committee for review and approval |
| 2.0 | 05 September 2018 | Modifications Committee Secretariat | Issued to Regulatory Authorities for final decision |

Reference Documents

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| **Document Name** |
| [Trading and Settlement Code](http://www.sem-o.com/MarketDevelopment/MarketRules/TSC.docx) |
| [Modification Proposal](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_22_18%20Part%20B%20Credit%20Cover%20Signage%20and%20Subscript%20Correction.docx) |
| **[Presentation](%5C%5C%5C%5Cdo-scs-fsp01.aime.local%5C%5CCommon%24%5C%5CAime%5C%5CMarket%20Development%5C%5CMods%20Panel%5C%5CALL%20MOD%20DOCS%20BY%20MEETING%5C%5C2018%5C%5CMeeting%2084%5C%5CFRRs%5C%5CFRR%20MOD_22_18%20version%200.1.docx)** |
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# MODIFICATIONS COMMITTEE RECOMMENDATION

## Recommended for approval - unanimous Vote

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| --- |
| **Recommended for Approval by Majority Vote**  |
| Derek Scully | Generator Alternate | Approved |
| David Gascon | Generator Member  | Approved |
| Brian Mongan | Generator Member | Approved |
| William Steele | Supplier Member | Approved |
| Jim Wynne | Supplier Member | Approved |
| Julie-Anne Hannon (Chair) | Supplier member | Approved |
| Eamonn O’Donoghue | Interconnector Member | Approved |
| Paraic Higgins | Generator Alternate | Approved |
| Robert McCarthy | DSU Alternate | Approved |

# Background

This Modification Proposal was raised by SEMO and was received by the Secretariat on 7 June 2018. While reviewing the Credit Cover calculation rules within Section G for other Modification Proposals and against the application of these rules in the market systems we have identified an incorrect signage issue and an issue with a subscript which we propose corrections for here.

The subscript b, which is already used to denote a Billing Period in Part B, has been used to denote the Historical Assessment Period in error in paragraph G.14.2.2 where Part A used gamma (γ). Gamma is unavailable in Part B due to being used for Imbalance Settlement Period so that it was no longer available for Historical Assessment Period and this appears have resulted in the subscript b being used in error for calculations relating to the Credit Assessment Price. The Part B list of subscripts does not currently have a definition for a subscript for the Historical Assessment Period. We propose using a Capital H for this purpose noting that Lowercase h is already in use.

Note also that paragraphs G.14.2.3 and G.14.2.4 use the Undefined Exposure Period subscript g for a sum over a Historical Assessment Period and describe this as a sum over all days in the Historical Assessment Period *to be applied for the Undefined Exposure Period*. This is incorrect, or at the very least is unclear, so we propose to use H as the subscript for the Historical Assessment Period here also.

In terms of the signage issue, we aim to correct three instances where the application of the product of the Analysis Percentile Parameter and the Standard Deviation for a volume/Cash amount is prescriptively applied in a single direction which is incorrect for a number of scenarios.

In Part A, Metered Demand volumes were considered to be positive values labelled demand and similarly charges were considered positive values labelled as charges and it was under this approach that the credit algebra was developed. After the credit drafting in Part B Section G was completed paragraph A.4.2.1 was introduced which states that demand volumes and charges are a negative value which means that the application of standard deviation in paragraph G.14.7.6 is now in the wrong direction (added rather than taken away from a negative demand volume). We propose introducing a minus sign ahead of the standard deviation where demand is negative.

In paragraphs G.14.10.4 and G.14.12.4 standard deviation is applied to average Billing Period Cashflow amounts for Generator Units and Assetless Units respectively. There is no treatment in either these two paragraphs for Generator and Assetless Units or in paragraph G.14.7.6 for Supplier Units to apply the standard deviation in a different direction where demand is positive (e.g. in an export only supplier set up) or where Billing Period Cashflow for a Generator or Assetless Unit is negative for long imbalance positions. With the new Imbalance arrangements payables for Generator/Assetless Units will be more prevalent as will receivables for Supplier Units with the growth in export only Supplier Units.

Since the design intent here is unchanged from Part A in that the standard deviation is applied to a projected average figure to increase the credit liability or benefit in the Undefined Exposure Period, we propose a change which adheres to this principal by applying the standard deviation in the same direction as the volume or cash amount to which it is being applied. This is aligned to the approach in the current system build.

Note that, while the same issue could theoretically manifest for the calculation of the Credit Assessment Price we do not propose making a similar change there. This is because the average Imbalance Settlement Price would have to be negative over a Historical Assessment Period for the issue to manifest there which is extremely improbable. The market systems have been designed to calculate based on the change we propose for volumes and payment/charge amounts but have not been designed to calculate based on a similar change for the Credit Assessment Price. It would not be possible to make such a change on time for I-SEM go live and, in any event, the cost of making such a change is not justified in SEMOs view given that it would cater for a scenario which is unlikely ever to occur so that it would not be prudent to propose such a change.

# PURPOSE OF PROPOSED MODIFICATION

**3A.) justification of Modification**

This proposal aims to correct a subscript error contained within the Part B drafting to add clarity. It also seeks to address an issue whereby the application of standard deviation to average Billing Period Cashflow amounts and Metered Quantities for undefined exposure calculations does not account correctly for the signage of the average values or for the fact that the averages can be either positive or negative and will be more likely to apply in both directions under imbalance arrangements.

This change is intended to correct errors and enhance clarity in the affected paragraphs

**3B.) Impact of not Implementing a Solution**

If this proposal is not implemented the subscript issue it aims to address will remain resulting in inaccuracy and a lack of clarity in the paragraphs which use variables with a Historical Assessment Period subscript.

In addition, undefined exposure period calculations will contain algebra which applies the Standard deviation in the incorrect direction for scenarios where the credit requirement is negative indicating an exposure.

**3c.) Impact on Code Objectiv****es**

N/A

1. **Assessment of Alternatives**

N/A

# Working Group and/or Consultation

N/A

# impact on systems and resources

N/A

# Impact on other Codes/Documents

N/A

# MODIFICATION COMMITTEE VIEWS

## Meeting  **84 – 21 June 2018**

Proposer delivered a [presentation](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_22_18%20Part%20B%20Credit%20Cover%20Signage%20and%20Subscript%20Correction.pptx) summarising the requirement for this proposal. Proposer went into detail on the corrections as covered in the presentation.

The proposer explained that under Part A of the Trading & Settlement Code the convention is that

Charges, demand and other off takes from the pool are positive values labelled as

charges/demand/export whereas in Part B the convention is for charges

and off takes to be negative values. As this convention was introduced late in the drafting, signage

implications it had for some credit calculations were not addressed prior to designation of the rules so

that these now need to be corrected. Proposer also advised that the proposal seeks to address an

issue with the treatment of subscripts for Historical Assessment Periods which are incorrect in Part B.

Minor legal drafting changes to remove an incorrect sub paragraph (d) in the ‘where’ clause for paragraph G.14.2.4 which was unintentionally added in the proposal were discussed and agreed. Committee were in agreement to vote on this proposal subject to legal drafting.

# Proposed Legal Drafting

As set out in Appendix 1 subject to a minor change to remove item (d) from the ‘where’ clause which was added in error.

G.14.2.4 The standard deviation of the Daily Average Imbalance Settlement Price (SDPIMBg) in the Historical Assessment Period H to be applied for the Undefined Exposure Period g shall be calculated by the Market Operator as follows:

$$SDPIMB\_{g}=\sqrt{\frac{NDAPIMB\_{g}×\sum\_{d in g}^{}\left(DAPIMB\_{d}\right)^{2}-\left(\sum\_{d in }^{}DAPIMB\_{d}\right)^{2}}{NDAPIMB\_{g}×\left(NDAPIMB\_{g}-1\right)}}$$

where:

* + - * 1. NDAPIMBg is the number of all Daily Average Imbalance Settlement Prices in the Historical Assessment Period H to be applied for the Undefined Exposure Period g as calculated in accordance with paragraph ;
				2. DAPIMBd is the Daily Average Imbalance Settlement Price for Settlement Day d as calculated in accordance with paragraph **Error! Reference source not found.**; and
				3. $\sum\_{d in }^{} $is a summation over all Settlement Days d in the Historical Assessment Period.

# LEGAL REVIEW

N/A

# IMPLEMENTATION TIMESCALE

It is proposed that this Modification implemented on a trading day following receipt of the RA Decision.

# Appendix 1: Mod\_22\_18 Part B credit cover signage and subscript correction

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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** | **07 June 2018** | **Standard** | **Mod\_22\_18** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Christopher Goodman** |  | **Christopher.Goodman@sem-o.com** |
| **Modification Proposal Title** |
| **Part B Credit Cover Signage and Subscript Correction** |
| **Documents affected***(delete as appropriate)* | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC Part B**  | **Part B Section G.14****Part B Glossary List of Subscripts** | **Version 20** |
| **Explanation of Proposed Change***(mandatory by originator)* |
| While reviewing the Credit Cover calculation rules within Section G for other Modification Proposals and against the application of these rules in the market systems we have identified an incorrect signage issue and an issue with a subscript which we propose corrections for here.The subscript b, which is already used to denote a Billing Period in Part B, has been used to denote the Historical Assessment Period in error in paragraph G.14.2.2 where Part A used gamma (γ). Gamma is unavailable in Part B due to being used for Imbalance Settlement Period so that it was no longer available for Historical Assessment Period and this appears have resulted in the subscript b being used in error for calculations relating to the Credit Assessment Price. The Part B list of subscripts does not currently have a definition for a subscript for the Historical Assessment Period. We propose using a Capital H for this purpose noting that Lowercase h is already in use. Note also that paragraphs G.14.2.3 and G.14.2.4 use the Undefined Exposure Period subscript g for a sum over a Historical Assessment Period and describe this as a sum over all days in the Historical Assessment Period *to be applied for the Undefined Exposure Period*. This is incorrect, or at the very least is unclear, so we propose to use H as the subscript for the Historical Assessment Period here also.In terms of the signage issue, we aim to correct three instances where the application of the product of the Analysis Percentile Parameter and the Standard Deviation for a volume/Cash amount is prescriptively applied in a single direction which is incorrect for a number of scenarios.In Part A, Metered Demand volumes were considered to be positive values labelled demand and similarly charges were considered positive values labelled as charges and it was under this approach that the credit algebra was developed. After the credit drafting in Part B Section G was completed paragraph A.4.2.1 was introduced which states that demand volumes and charges are a negative value which means that the application of standard deviation in paragraph G.14.7.6 is now in the wrong direction (added rather than taken away from a negative demand volume). We propose introducing a minus sign ahead of the standard deviation where demand is negative. In paragraphs G.14.10.4 and G.14.12.4 standard deviation is applied to average Billing Period Cashflow amounts for Generator Units and Assetless Units respectively. There is no treatment in either these two paragraphs for Generator and Assetless Units or in paragraph G.14.7.6 for Supplier Units to apply the standard deviation in a different direction where demand is positive (e.g. in an export only supplier set up) or where Billing Period Cashflow for a Generator or Assetless Unit is negative for long imbalance positions. With the new Imbalance arrangements payables for Generator/Assetless Units will be more prevalent as will receivables for Supplier Units with the growth in export only Supplier Units. Since the design intent here is unchanged from Part A in that the standard deviation is applied to a projected average figure to increase the credit liability or benefit in the Undefined Exposure Period, we propose a change which adheres to this principal by applying the standard deviation in the same direction as the volume or cash amount to which it is being applied. This is aligned to the approach in the current system build.Note that, while the same issue could theoretically manifest for the calculation of the Credit Assessment Price we do not propose making a similar change there. This is because the average Imbalance Settlement Price would have to be negative over a Historical Assessment Period for the issue to manifest there which is extremely improbable. The market systems have been designed to calculate based on the change we propose for volumes and payment/charge amounts but have not been designed to calculate based on a similar change for the Credit Assessment Price. It would not be possible to make such a change on time for I-SEM go live and, in any event, the cost of making such a change is not justified in SEMOs view given that it would cater for a scenario which is unlikely ever to occur so that it would not be prudent to propose such a change. |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
| **Part B Glossary List of Subscripts;**

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| H | Historical Assessment Period. |

**Part B Section G.14;**1. * + 1. The number of all Daily Average Imbalance Settlement Prices (NDAPIMBg) in the Historical Assessment Period H to be applied for the Undefined Exposure Period g shall be calculated as follows:

$$NDAPIMB\_{g}=count\left(DAPIMB\_{d} : \begin{matrix}∀\\d in \end{matrix}\right)$$where:* + - * 1. DAPIMBd is the Daily Average Imbalance Settlement Price for Settlement Day d calculated in accordance with paragraph **Error! Reference source not found.**; and;
				2. $ count\left(DAPIMB\_{d} : \begin{matrix}∀\\d in \end{matrix}\right)$ is the number of all Daily Average Imbalance Settlement Prices in the Historical Assessment Period H.
			1. The mean value of Daily Average Imbalance Settlement Prices (UMPIMBg) in the Historical Assessment Period H to be applied for the Undefined Exposure Period g shall be calculated by the Market Operator as follows:

$$UMPIMB\_{g}=\frac{\sum\_{d in }^{}DAPIMB\_{d}}{NDAPIMB\_{g}}$$where:* + - * 1. DAPIMBd is the Daily Average Imbalance Settlement Price for Settlement Day d calculated in accordance with paragraph **Error! Reference source not found.**;
				2. $\sum\_{d in }^{} $is a summation over all Settlement Days d in the Historical Assessment Period H; and
				3. NDAPIMBg is the number of all Daily Average Imbalance Settlement Prices in the Historical Assessment Period H to be applied for the Undefined Exposure Period g calculated in accordance with paragraph .
			1. The standard deviation of the Daily Average Imbalance Settlement Price (SDPIMBg) in the Historical Assessment Period H to be applied for the Undefined Exposure Period g shall be calculated by the Market Operator as follows:

$$SDPIMB\_{g}=\sqrt{\frac{NDAPIMB\_{g}×\sum\_{d in g}^{}\left(DAPIMB\_{d}\right)^{2}-\left(\sum\_{d in }^{}DAPIMB\_{d}\right)^{2}}{NDAPIMB\_{g}×\left(NDAPIMB\_{g}-1\right)}}$$where:* + - * 1. NDAPIMBg is the number of all Daily Average Imbalance Settlement Prices in the Historical Assessment Period H to be applied for the Undefined Exposure Period g as calculated in accordance with paragraph ;
				2. DAPIMBd is the Daily Average Imbalance Settlement Price for Settlement Day d as calculated in accordance with paragraph **Error! Reference source not found.**; and
				3. $\sum\_{d in }^{} $is a summation over all Settlement Days d in the Historical Assessment Period.
				4. Period g, as calculated in accordance with paragraph .
		1. 1. The Billing Period Undefined Potential Exposure Quantity (QUPEBpg) to be applied for Participant p in respect of its Supplier Units for the Undefined Exposure Period g shall be calculated as follows:

*If QMBMpg ≥ 0 then*$$QUPEB\_{pg}=QMBM\_{pg}+AnPP\left(QMBSD\_{pg}\right)$$*Else*$$\_{}\_{}\left(\_{}\right)$$where:* + - * 1. QMBMpg is the mean of the Billing Period Metered Demand for Participant p in respect of its Supplier Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for the Undefined Exposure Period g as calculated in accordance with paragraph **Error! Reference source not found.**;
				2. AnPP is the Analysis Percentile Parameter applicable for Undefined Exposure Period g; and
				3. QMBSDpg is the standard deviation of the Billing Period Metered Demand for Participant p in respect of its Supplier Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for Undefined Exposure Period g as calculated in accordance with paragraph **Error! Reference source not found.**.
		1. 1. The Billing Period Undefined Potential Exposure for Trading Payments (EUPEGpg) for Undefined Exposure Period g for Standard Participant p in respect of its Generator Units shall be calculated by the Market Operator as follows:

*If CUBMpg ≥ 0 then*$$EUPEG\_{pg}=CUBM\_{pg}+AnPP\left(CUBSD\_{pg}\right)$$*Else*$$\_{}\_{}\left(\_{}\right)$$where:* + - * 1. CUBMpg is the mean of the Billing Period Cashflow for Participant p in respect of its Generator Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for the Undefined Exposure Period g, as calculated in accordance with paragraph **Error! Reference source not found.**;
				2. AnPP is the Analysis Percentile Parameter applicable for Undefined Exposure Period g; and
				3. CUBSDpg is the standard deviation of the Billing Period Cashflow for Participant p in respect of its Generator Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for the Undefined Exposure Period g, as calculated in accordance with paragraph **Error! Reference source not found.**.
		1. 1. The Billing Period Undefined Potential Exposure (EUPEGpg) for Undefined Exposure Period g for Participant p in respect of its Assetless Units shall be calculated as follows:

If CUBMpg *≥ 0 then*$$EUPEG\_{pg}=CUBM\_{pg}+AnPP\left(CUBSD\_{pg}\right)$$*Else*$$\_{}\_{}\left(\_{}\right)$$where:* + - * 1. CUBMpg is the mean of the Billing Period Cashflow for Participant p in respect of its Assetless Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for the Undefined Exposure Period g, as calculated in accordance with paragraph **Error! Reference source not found.**;
				2. AnPP is the Analysis Percentile Parameter applicable for Undefined Exposure Period g; and
				3. CUBSDpg is the standard deviation of the Billing Period Cashflow for Participant p in respect of its Generator Units for all Sample Undefined Exposure Periods ω in the Historical Assessment Period to be applied for the Undefined Exposure Period g, as calculated in accordance with paragraph **Error! Reference source not found.**.
 |
| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| This proposal aims to correct a subscript error contained within the Part B drafting to add clarity. It also seeks to address an issue whereby the application of standard deviation to average Billing Period Cashflow amounts and Metered Quantities for undefined exposure calculations does not account correctly for the signage of the average values or for the fact that the averages can be either positive or negative and will be more likely to apply in both directions under imbalance arrangements.This change is intended to correct errors and enhance clarity in the affected paragraphs. |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of T&SC for Code Objectives)* |
| to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;to provide transparency in the operation of the Single Electricity Market;  |
| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| If this proposal is not implemented the subscript issue it aims to address will remain resulting in inaccuracy and a lack of clarity in the paragraphs which use variables with a Historical Assessment Period subscript.In addition, undefined exposure period calculations will contain algebra which applies the Standard deviation in the incorrect direction for scenarios where the credit requirement is negative indicating an exposure. |
| **Working Group***(State if Working Group considered necessary to develop proposal)* | **Impacts***(Indicate the impacts on systems, resources, processes and/or procedures; also indicate impacts on any other Market Code such as Capacity Marker Code, Grid Code, Exchange Rules etc.)* |
| Not required | No Impacts anticipated for SEMO or Participant processes or systems. |
| ***Please return this form to Secretariat by email to*** ***modifications@sem-o.com*** |