

Single Electricity Market

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| Final REcommendation ReportMod\_03\_17 Treatment of transmission losses for trading sites with contiguous autoproducers in i-SEM 22 September 2017 |

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Document History

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| **Version** | **Date** | **Author** | **Comment** |
| 1.0 | 15/08/2017 | Modifications Committee Secretariat | Issued to Modifications Committee for review |
| 2.0 | 25/08/2017 | Modifications Committee Secretariat | Issued to RA’s for Final Decision |
| 3.0 | 22/09/2017 | Modifications Committee Secretariat | Sections 6 & 7 updated and reissued for Final Decision |

Reference Documents

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| --- |
| **Document Name** |
| [Trading and Settlement Code Part B](http://www.sem-o.com/Publications/General/TSC%20Part%20B.docx) |
| [Modification Proposal version 1.0](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_03_17%20Treatment%20of%20Transmission%20Losses%20for%20Trading%20Sites%20with%20Contiguous%20Autoproducers%20in%20I-SEM.docx) |
| [Modification Proposal version 2.0](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_03_17%20Revision2%20Treatment%20of%20Transmission%20Losses%20for%20Trading%20Sites%20with%20Contiguous%20Autoproducers%20in%20I-SEM.docx) |
| [Presentation](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Code%20Mod_03_17%20Presentation%2020170609.pptx) |
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# MODIFICATIONS COMMITTEE RECOMMENDATION

## Recommended for approval

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| --- |
| **Recommended for Approval by Unanimous Vote**  |
| Brian Mongan | Generator Member | Approved |
| Clive Bowers | Generator Alternate | Approved |
| William Steele | Supplier Member | Approved |
| Eamonn O’Donoghue | Interconnector Member | Approved |
| Julie-Anne Hannon | Supplier Member | Approved |
| Jim Wynne | Supplier Member | Approved |
| Kevin Hannafin - Chair | Generator Member | Approved |
| Connor Powell | Supplier Member | Approved |
| David Connolly | Generator Member | Approved |

# Background

This Modification Proposal was received by the secretariat on the 26th May 2017.

It was presented at Meeting 74 on 9th June 2017. It was voted on at this meeting with a recommendation to approve the proposal resulting.

Existing Treatment of Losses in the SEM:

In the SEM a Netting Generator Unit (NGU) is used as part of the settlement calculation of the Aughinish Trading Site as a contiguous Autoproducer. The Aughinish transmission losses are applied to the net power exported from the site to give a comparable situation to a generator that is all located behind the one meter. Losses are not applied to the volume of power self-supplied on site. During our annual plant shutdown, the Trading Site is importing power. This power is assigned to the Trading Site Supplier Unit (TSSU) when consumption is greater than the MSQ of the on the site generation.

See examples for a typical 1hour settlement:

1. Exporting (Normal operation)

Energy payment = (MSQSK3 + MSQSK4 – NGUAughinish)\*lossAdjustment\*SMP

 =(80+80-45)\*0.973\*SMP

 = (115MWh)\*0.973\*SMP

 = 111.895MWh\*SMP

1. Importing (Both gas turbines off)

Energy payment = (MSQSK3 + MSQSK4 – TSSUAughinish)\*lossAdjustment\*SMP

 =(0+0-45)\*1\*SMP

 = (45MWh)\*1\*SMP

 = -45MWh\*SMP

In this situation other variable Supplier charges apply

Whilst the continuation of this fair treatment for autoproducers had been discussed and supported during the ISEM consultation process, it has come to our attention in the published TSC that the application of TLAFs in the settlement of the ISEM Balancing Market (BM) is not consistent with this methodology. Below are two examples of how the Aughinish manufacturing facility will be unfairly treated:

Treatment of Losses in the I-SEM

1. Energy Settlement

The NGU no longer exists in the current version of the ISEM TSC, hence an Autoproducers in-house consumption will be allocated to its registered TSSU at all times whether importing or exporting power. Due to individual unit settlement in the ISEM Balancing Market, the generation units and the TSSU will be settled using different TLAFs, as currently drafted in the TSC. This results in transmission losses being over recovered by the market on power not entering the transmission system.

Below is an example for a typical 1hour settlement of the Aughinish Autoproducer site in the ISEM



Aughinish believes that the annual cost of these Imbalance charges to our manufacturing facility, despite being fully balance responsible, would be significant and probably if not corrected would exceed €500,000/annum. This is clearly an anomaly in the rules and therefore should be corrected to reflect the current treatment for settlement of Trading Sites in the SEM

1. Supplier charges

A separate issue with the application of losses is in the assessment of supplier charges for TSSUs. It would under certain conditions levy a penalty on power produced and consumed on site. For example, if the in-house consumption matched generation (zero power exported, zero power imported) the TSC as currently drafted, would apply supplier charges on a volume equal to (QMu-QMLFu) because the TSSU loss factor is different to the generator loss factor.

Below is an example of the settlement of the Aughinish Autoproducer site when no power is being exported to the market or the transmission system.



The materiality, based on Aughinishs historic metered generation is low but could be material in future markets.

Whilst it appears, the intention of F.4.2.13 is to address these two issues by applying a loss factor to the virtual Trading Unit. The effect is nullified because the Trading Unit has no volume in the Balancing Market. Instead, Aughinish proposes applying the appropriate published loss factors for the station node (or the weighted average if they differ for more than one generator) to the TSSU associated with the embedded generator(s) within an Autoproducer site. It is our expectation that this would correct both item 1 and item 2 above.

In making this modification proposal, Aughinish is aware that the Modification Committee needs to be cognisant of the potential for gaming the system. In the absents of being able to write the NGU back into the TSC part B Aughinish recommends that some restriction should apply. In the draft below, exclusions apply if the sites MEC is not greater than its MIC and in periods where the site is not generating any power.

**3A.) justification of Modification**

1. There are unforeseen consequences associated with the removal of Netting Generator Unit (NGU) as part of the ISEM TSC drafting.
2. The additional cost of applying losses inside the Autoproducer site boundary is likely to exceed €500,000/annum for Aughinish Alumina manufacturing facility.
3. The proposed changes only materially affect Trading Site with a contiguous Autoproducer
4. Under the current SEM, losses are not applied to the volume of power self-supplied to the host site. This should remain true in the I-SEM under the principle not to change anything, which doesn’t need changing to comply with market coupling. This does not apply to other non-Trading sites importing and exporting in the I-SEM and is an anomaly, which has arisen due to the removal of the NGU.
5. The current TSC drafting incorporates a penalty on co-generation operating within a Trading Site and its associated benefits for society, the environment and industry. It is in breach of national and European law.

This modification proposal is marked as “urgent” because this is a material inconsistency in the Code and is material under normal operation of an Autoproducer.

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

1. Aughinish will be penalised for losses associated with power, which never entered the Transmission system.
2. Aughinish will be charged supplier charges when no power was taken from the market
3. It is grossly unfair to charge losses for on-site consumption supplied by on-site generation. This only applies to Trading Sites and would be a penalty imposed on Trading Sites for the self-supply which would be inconsistent with the treatment of any other non-Trading Site which has on-site generation. The consequences of such could result in closure of the CHP plant
4. The TSC would be in breach of national and European law.

**3c.) Impact on Code Objectives**

This modification aims to further the following code objectives:

1. to facilitate the efficient discharge by the Market Operator of the obligations imposed upon it by its Market Operator Licences;

Correct application of losses on Autoproducers is critical to this objective

1. to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;

Correct application of losses on Autoproducers is critical to this objective

1. to facilitate the participation of electricity undertakings engaged in the generation, supply or sale of electricity in the trading arrangements under the Single Electricity Market;

Correct application of losses on Autoproducers is critical to this objective

1. to promote competition in the single electricity wholesale market on the island of Ireland;

Correct application of losses on Autoproducers is critical to this objective

1. to provide transparency in the operation of the Single Electricity Market;

Correct application of losses on Autoproducers is critical to this objective

1. to ensure no undue discrimination between persons who are parties to the Code; and

Correct application of losses on Autoproducers is critical to this objective

1. to promote the short-term and long-term interests of consumers of electricity on the island of Ireland with respect to price, quality, reliability, and security of supply of electricity.

Correct application of losses on Autoproducers is critical to this objective

1. **Assessment of Alternatives**

N/A

# Working Group and/or Consultation

N/A

# impact on systems and resources

The vendor has confirmed that the change required to implement this proposal within the ISEM systems can be included with a larger Change Request for the relevant ISEM system (CR1) which is targeted for delivery during market trial circa mid January 2018. As a result there isn’t an individual cost for this change but rather, if approved, it can be included within the overall ISEM implementation cost.

#  Impact on other Codes/Documents

During Modifications Committee deliberations it was suggested that it may be necessary to make provision for the validations associated with this modification within the registration Agreed Procedure (AP01). This is not necessary since similar validations for other processes are captured via the Trading and Settlement Code requirements being applied within the associated market operations business processes and the same approach is appropriate here.

#  MODIFICATION COMMITTEE VIEWS

## Meeting  **74 – 9 june 2017**

Modification Proposer (observer) presented a set of slides detailing the effect of and motivation for the proposed Modification as well as detailing the impact on their business of not implementing the proposal. They then compared SEM and ISEM loss factoring approaches at a high level to illustrate that, where in SEM a blended loss factor applies to net export, and they are a net exporter 363 days of the year, a loss factor of 1 applies to every day in the current ISEM drafting. The proposer estimated that the cost of this discrepancy to their business if not remedied would be of the order of 0.5 Million Euro annually.

Proposer indicated that the modification preserves the SEM approach for ISEM rather than introducing any new concept. They also stated that the modification applies an appropriate treatment since transmission losses do not occur within the Trading Site.

Proposer went on to detail how the modification includes validation so that the blended loss factor treatment would appropriately only apply where a Trading Site Supply Unit is registered, Maximum Export Capacity exceeds Maximum Import Capacity for a given Trading Site based on the associated Connection Agreement, and the on site Generator Unit is generating.

SEMO observer commented that, although the approach to ISEM rules drafting was to preserve anything that didn’t need to change for ISEM, this provision had unintentionally been changed. As such they indicated that the modification resulted in the correct outcome and indicated that SEMO are in favour of implementing the proposed change. The Proposer stated that they would have to make changes to their business model if the proposal was not implemented.

 SEMO observer stated that the blended approach already applies to the Trading Unit and re-iterated that not applying the same logic to the Trading Site Supply Unit was an oversight as opposed to an intentional change. They also stated that the proposal was aligned with the SEM Committee decision on the subject and that it addresses the issue for Trading Site Supply Units which are not on an Autoproducer Site. SEMO observer confirmed that the change tracks through the settlement algebra as intended and results in the correct settlement outcomes.

SEMO observer indicated that they were not certain that the updated approach could be applied for ISEM go live but that it was expected to be a relatively simple change that would be impact assessed. RA Member questioned whether it was appropriate to proceed to a vote without sight of an impact assessment. MO Member indicated that it seemed reasonable to vote before having the impact assessment in this instance since the Modifications Committee appeared comfortable that the change is to correct a material error so that the impact assessment should not alter the decision to implement the proposal. SEMO observer indicated that, because the proposal corrects a material error, it should be effective from ISEM go live and if the market systems functionality isn’t in place at that time then the corrected approach should either be applied as a manual workaround or via resettlement.

SEMO observer stated that Maximum Import and Export Capacities aren’t recorded at present but that if necessary this could be applied as a pre-validation during the registration process. SEMO Observer indicated that they didn’t anticipate any impact on Participant systems as a result of the proposal and that they would target ISEM go live as opposed to market trial for implementation of the proposal if approved.

Discussion moved to whether there was a need to update the registration Agreed Procedure. SEMO Observer suggested that this could be investigated during the impact assessment. SEMO Observer advised that they had identified a typo with one of the subscripts in the proposal. Modification Proposer agreed to liaise with ISEM project and submit a second version of the Modification with any typos or omissions corrected. MO Member indicated that any such non material drafting updates could be captured in the Final Recommendation Report.

Chairperson asked whether the Committee were happy to move to a vote on the proposed Modification. The Committee agreed to proceed to a vote. The proposal was recommended for approval by unanimous vote.

# Proposed Legal Drafting

As set out in Appendix 1 below.

#  LEGAL REVIEW

N/A

# IMPLEMENTATION TIMESCALE

N/A

# Appendix 1: Mod\_03\_17 v 2.0:

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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)* |
| **Aughinish Alumina Ltd** | **26 May 2017** | **Urgent** | **Mod\_03\_17** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Thomas O’Sullivan** | **+353 61 604473** | **Thomas.osullivan@augh.com** |
| **Modification Proposal Title** |
| **Treatment of Transmission Losses for Trading Sites with Contiguous Autoproducers in I-SEM** |
| **Documents affected***(delete as appropriate)* | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC Part B** | **ISEM TSC F.4,** | **SEM-17-024 April 12th 2017** |
| **Explanation of Proposed Change***(mandatory by originator)* |
| **Existing Treatment of Losses in the SEM:**In the SEM a Netting Generator Unit (NGU) is used as part of the settlement calculation of the Aughinish Trading Site as a contiguous Autoproducer. The Aughinish transmission losses are applied to the net power exported from the site to give a comparable situation to a generator that is all located behind the one meter. Losses are not applied to the volume of power self-supplied on site. During our annual plant shutdown, the Trading Site is importing power. This power is assigned to the Trading Site Supplier Unit (TSSU) when consumption is greater than the MSQ of the on the site generation. See examples for a typical 1hour settlement:1. Exporting (Normal operation)

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Energy payment = (MSQSK3 + MSQSK4 – TSSUAughinish)\*lossAdjustment\*SMP =(0+0-45)\*1\*SMP = (45MWh)\*1\*SMP = -45MWh\*SMPIn this situation other variable Supplier charges applyWhilst the continuation of this fair treatment for autoproducers had been discussed and supported during the ISEM consultation process, it has come to our attention in the published TSC that the application of TLAFs in the settlement of the ISEM Balancing Market (BM) is not consistent with this methodology. Below are two examples of how the Aughinish manufacturing facility will be unfairly treated:Treatment of Losses in the I-SEM1. **Energy Settlement**

The NGU no longer exists in the current version of the ISEM TSC, hence an Autoproducers in-house consumption will be allocated to its registered TSSU at all times whether importing or exporting power. Due to individual unit settlement in the ISEM Balancing Market, the generation units and the TSSU will be settled using different TLAFs, as currently drafted in the TSC. This results in transmission losses being over recovered by the market on power not entering the transmission system.Below is an example for a typical 1hour settlement of the Aughinish Autoproducer site in the ISEMAughinish believes that the annual cost of these Imbalance charges to our manufacturing facility, despite being fully balance responsible, would be significant and probably if not corrected would exceed €500,000/annum. This is clearly an anomaly in the rules and therefore should be corrected to reflect the current treatment for settlement of Trading Sites in the SEM1. **Supplier charges**

A separate issue with the application of losses is in the assessment of supplier charges for TSSUs. It would under certain conditions levy a penalty on power produced and consumed on site. For example, if the in-house consumption matched generation (zero power exported, zero power imported) the TSC as currently drafted, would apply supplier charges on a volume equal to (QMu-QMLFu) because the TSSU loss factor is different to the generator loss factor. Below is an example of the settlement of the Aughinish Autoproducer site when no power is being exported to the market or the transmission system.The materiality, based on Aughinishs historic metered generation is low but could be material in future markets.Whilst it appears, the intention of F.4.2.13 is to address these two issues by applying a loss factor to the virtual Trading Unit. The effect is nullified because the Trading Unit has no volume in the Balancing Market. Instead, Aughinish proposes applying the appropriate published loss factors for the station node (or the weighted average if they differ for more than one generator) to the TSSU associated with the embedded generator(s) within an Autoproducer site. It is our expectation that this would correct both item 1 and item 2 above.In making this modification proposal, Aughinish is aware that the Modification Committee needs to be cognisant of the potential for gaming the system. In the absents of being able to write the NGU back into the TSC part B Aughinish recommends that some restriction should apply. In the draft below, exclusions apply if the sites MEC is not greater than its MIC and in periods where the site is not generating any power.  |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
| [See appendix 1 for editable redline version] |
| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| 1. There are unforeseen consequences associated with the removal of Netting Generator Unit (NGU) as part of the ISEM TSC drafting.
2. The additional cost of applying losses inside the Autoproducer site boundary is likely to exceed €500,000/annum for Aughinish Alumina manufacturing facility.
3. The proposed changes only materially affect Trading Site with a contiguous Autoproducer
4. Under the current SEM, losses are not applied to the volume of power self-supplied to the host site. This should remain true in the I-SEM under the principle not to change anything, which doesn’t need changing to comply with market coupling. This does not apply to other non-Trading sites importing and exporting in the I-SEM and is an anomaly, which has arisen due to the removal of the NGU.
5. The current TSC drafting incorporates a penalty on co-generation operating within a Trading Site and its associated benefits for society, the environment and industry. It is in breach of national and European law.

This modification proposal is marked as “urgent” because this is a material inconsistency in the Code and is material under normal operation of an Autoproducer. |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of T&SC for Code Objectives)* |
| 1. to facilitate the efficient discharge by the Market Operator of the obligations imposed upon it by its Market Operator Licences;

Correct application of losses on Autoproducers is critical to this objective1. to facilitate the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;

Correct application of losses on Autoproducers is critical to this objective1. to facilitate the participation of electricity undertakings engaged in the generation, supply or sale of electricity in the trading arrangements under the Single Electricity Market;

Correct application of losses on Autoproducers is critical to this objective1. to promote competition in the single electricity wholesale market on the island of Ireland;

Correct application of losses on Autoproducers is critical to this objective1. to provide transparency in the operation of the Single Electricity Market;

Correct application of losses on Autoproducers is critical to this objective1. to ensure no undue discrimination between persons who are parties to the Code; and

Correct application of losses on Autoproducers is critical to this objective1. to promote the short-term and long-term interests of consumers of electricity on the island of Ireland with respect to price, quality, reliability, and security of supply of electricity.

Correct application of losses on Autoproducers is critical to this objective |
| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| 1. Aughinish will be penalised for losses associated with power, which never entered the Transmission system.
2. Aughinish will be charged supplier charges when no power was taken from the market
3. It is grossly unfair to charge losses for on-site consumption supplied by on-site generation. This only applies to Trading Sites and would be a penalty imposed on Trading Sites for the self-supply which would be inconsistent with the treatment of any other non-Trading Site which has on-site generation. The consequences of such could result in closure of the CHP plant
4. The TSC would be in breach of national and European law.
 |
| **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.)* |
|  |  |
| ***Please return this form to Secretariat by email to*** ***modifications@sem-o.com*** |