

Single Electricity Market

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| Final REcommendation ReportMod\_16\_19 codification of TSO fndds methodology and system service flag for dsu settlement28 November 2019 |

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Document History

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| **Version** | **Date** | **Author** | **Comment** |
| 1.0 | 28 Nov 2019 | Modifications Committee Secretariat | Issued to Modifications Committee for review and approval |
| 2.0 | 11 Dec 2019 | Modifications Committee Secretariat | Issued to Regulatory Authorities for final decision |

Reference Documents

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| **Document Name** |
| [Trading and Settlement Code](https://www.sem-o.com/rules-and-modifications/balancing-market-modifications/market-rules/TSC-Part-B.docx) |
| [Modification Proposal Form](https://www.sem-o.com/documents/market-modifications/Mod_16_19/Mod_16_19CodificationofTSOFNDDSMethodologyandSystemServiceFlagforDSUSettlement.docx) |
| [Presentation](https://www.sem-o.com/documents/market-modifications/Mod_16_19/mOD_16_19Presentationslides.pdf) |
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# MODIFICATIONS COMMITTEE RECOMMENDATION

## Recommended for approval– unanimous Vote

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| **Recommended for Approval by Unanimous Vote** |
| Rochelle Broderick | Supplier Alternate | Approve |
| Kevin Hannafin | Generator Member | Approve |
| Siobhain O’Neill | Assetless Alternate | Approve |
| Ian Mullins | Supplier Alternate | Approve |
| Sinead O’Hare | Generator Member | Approve |
| Jim Wynne | Supplier Member  | Approve |
| Robert McCarthy | DSU Alternate | Approve |
| Cormac Daly | Generator Member | Approve |
| Andrew Burke | Supplier Member | Approve |
| Paraic Higgins (Chair) | Generator Member | Approve |

# Background

This Modification Proposal was raised by Electricity Exchange and was received by the Secretariat on the 10th October 2019. The proposal was raised and voted on at Meeting 94 on 24th October 2019.

The Trading and Settlement Code contemplates a value for Demand Side Non-Delivery Percentage (FNDDS) which is submitted by the System Operators to the Market Operator (F.2.7) for use in the settlement of reliability options for demand side units (DSUs). This variable is crucial in determining the level of fulfilment of the reliability option where the strike price is exceeded and consequently, the level of difference charges due by DSUs.

The methodology for the calculation of this variable is not outlined in the Trading and Settlement Code, this constitutes a major governance concern for DSUs for a crucial variable with specific concerns being:

* The system operator is not obliged to follow any particular methodology for calculating this under the T&SC;
* There is no obligation of the timeline for the system operators to calculate FNDDS;
* How resettlement is handled where the variable is not calculated prior to a settlement run; and
* There is no clear process for raising modification to the methodology.

Electricity Exchange note the publication of the document [Note for Participants on FNDDS Calculation Methodology](https://www.sem-o.com/documents/general-publications/Note-for-Participants-on-FNDDS-Calculation-Methodology.pdf) on the SEMO website on 30/11/2018. This document outlines a methodology for the calculation for FNDDS which provides further clarity on the calculation which was welcomed. However, this document sits outside of the governance of the T&SC and while it notes that the process is to be completed by initial settlement, it does not place an obligation on the System Operators to perform the calculation before this nor does it provide necessary clarity on resettlement is handled where the variable is not calculated prior to initial settlement.

Furthermore, it was noted as part of the actions of working group meeting 2 for Mod\_32\_18 that DSUs were not currently exempted from difference charges where the DSU was providing system services in the same way that other generator units are. Furthermore, there was an action from that working group to alter the FNDDS calculation to include provisions for incorporating the system service flag to reduce DSU difference charges when providing appropriate services in the same manner as other generators.

This modification seeks to:

1. Codify the FNDDS calculation in the T&SC to clarify related obligations and governance; and
2. Incorporate the system service flag into the FNDDS calculation.

Finally, as the values involved in calculating FNDDS are held by the Market Operator, the modification seeks to clarify the obligation as being a Market Operator obligation rather than a System Operator obligation.

# PURPOSE OF PROPOSED MODIFICATION

**3A.) justification of Modification**

This modification is intended to increase transparency on the calculation of FNDDS and consequently the settlement of reliability options for DSUs. It is also intended to implement the agreed action from working group meeting 2 of Mod\_32\_18 to include the system service flagging arrangements in FNDDS to mirror those of non-DSU generators and thereby reduce undue discrimination against DSUs in reliability option settlement.

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

The modification comes in two parts:

1. Codify the FNDDS calculation in the T&SC; and
2. Incorporate the system service flag into FNDDS calculation.

Failure to implement part 1 of the modification will prolong the lack of transparency for DSUs in their capacity market settlement obligations and therefore affect the ability of DSUs to accurately reflect risk in capacity market bids. As changes to FNDDS are not governed by the T&SC, it would also prolong the period where DSUs are exposed to potential changes to FNDDS which do not take place in the structured manner of T&SC modifications increasing risk of not just future capacity auctions but also for years where reliability options have already been issued.

Failure to implement part 2 of this change would prolong a period of undue discrimination in reliability option settlement where exemptions to difference charges where the unit is providing appropriate system services are extended to generator units but not to DSUs.

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

Electricity Exchange that this modification will further the following code obligations

(e) To provide transparency in the operation of the Single Electricity Market; and

(f) To ensure no undue discrimination between persons who are parties to the Code.

In the case of (e) this will be furthered through the clarification in the code of how a key settlement variable is calculated and in the case of (f) this will be furthered by introduction of system service flags to DSU capacity settlement in the same manner as other Generator Units.

# 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 **94 – 24 october 2019**

The proposer delivered a [presentation](https://www.sem-o.com/documents/market-modifications/Mod_16_19/mOD_16_19Presentationslides.pdf) detailing their proposal on Codification of the Demand Side Non-Delivery Percentage (FNDDS) calculation including a change to introduce the inclusion of System Service Flags within the calculation and also a change to make the calculation a Market Operator obligation as opposed to System Operator obligation. They explained that FNDDS is a variable which is only related to Demand Side Units (DSUs) and is a key component in the calculation of their Capacity Settlement. This proposal will codify governance for the calculation and potential submission of Formal Queries or Dispute to trigger resettlement of the same if required..

The proposer explained that this is a non-delivery factor that is used in calculating Difference Charges for non-delivery and these are currently the only Difference Charges which apply to DSUs which are treated differently to conventional units in this regard. FNDDS is a percentage of the Obligated Capacity Quantity that was not delivered. During the development of the Trading & Settlement Code Part B the approach to the calculation was not finalised so that this was taken outside the Code. This was implemented as a System Operator obligation rather than Market Operator obligation. The document detailing the calculation methodology has been on the SEMO website since December last year but it is in a governance grey area since this methodology is not governed by the Code.

It was noted that the impact of not implementing the proposed Modification is that the methodology would not be governed by the Trading & Settlement Code. Another deficiency which would remain is that it would remain a System Operator obligation to calculate the parameter which uses variables the System Operator technically doesn’t have access to.

For the impact assessment there have been discussions with SEMO and it was confirmed that it is a manual process outside the Market Operator systems so that this Modification can be implemented without affecting Market Operator systems. The proposer noted that they had included details in the drafting so that where Strike Price is not reached the FNDDS is set to zero since it is not needed which limits the impact on the Market Operator in that it will only have to be calculated where the Imbalance Price exceeds the Strike Price.

The proposer noted that required State Aid Compliance changes would mean that FNDDS is no longer used but also that the State Aid compliance change won’t happen immediately so that there is still merit in this proposal as it can be implemented virtually immediately if approved. This process would be needed for approximately the next 12 months. SEMO Member noted agreement with the points made in relation to the Market Operator calculating the variable if the proposal is implemented.

The proposer noted that there were some drafting changes that were identified following submission of the proposal. Under the proposed algebra the calculation uses a variable QAA and this is not listed in plain English under algebra and should be added.

There was also a glossary change which used text from an old version of Code which has since been amended which should also be captured in the Final Recommendation Report. The committee agreed to move to a vote subject to the amended legal drafting discussed.

# Proposed Legal Drafting

The changes to the Code will be as highlighted in Appendix 1 plus the following corrections agreed at meeting 94:

1. Additional change to the text in Appendix 1:

F.2.7.2 The Market Operator shall calculate the Demand Side Non-Delivery Percentage for each Capacity Market Unit, Ω which represents one or more Demand Side Units, in each Imbalance Settlement Period, γ, as follows:

If PIMBγ ≤ PSTRm, or if QCOBΩγ = 0, then FNDDSΩγ = 0, otherwise:

Where:

* + 1. QCOBΩγ is the Obligated Capacity Quantity for Capacity Market Unit, Ω, in Imbalance Settlement Period, γ;
		2. QDLFuγ is the Loss-Adjusted Dispatch Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;
		3. QEXuγ is the Ex-Ante Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;
		4. qAAuγ is the Actual Availability Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;
		5. PIMBγ is the Imbalance Settlement Price in Imbalance Settlement Period, γ, calculated in accordance with Chapter E (Imbalance Pricing);
		6. PSTRm is the Strike Price for Month, m, which contains Imbalance Settlement Period, γ;
		7. DISP is the Imbalance Settlement Period Duration;
		8. FSSuγ is the System Service Flag for Generator Unit, u, in Imbalance Settlement Period, γ; and
		9. is a summation over all Generator Units, u, which comprise the Capacity Market Unit, Ω.

B) changes applied to the lates version of the Code as Appendix 1 is based on a previous version of the Code:

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| --- | --- | --- | --- | --- |
| Variable | FNDDSΩγ | Demand Side Non-Delivery Percentage | The Demand Site Non-Delivery Percentage for a Capacity Market Unit, Ω, which represents one or more Generator Units, u, that are Demand Side Units, in an Imbalance Settlement Period, γ, representing the extent to which the relevant Market Operator determines that the Obligated Capacity Quantity was not delivered in accordance with F.2.7.2. | Factor |

# LEGAL REVIEW

N/A

# IMPLEMENTATION TIMESCALE

It is proposed that this Modification implemented as the Modifications Committee have Recommended it for Approval and on a Settlement day following receipt of the RA Decision.

# Appendix 1: Mod\_16\_19 codification of tso fndds methodology and system service flag for dsu settlement

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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)* |
| **Electricity Exchange** | **10 October 2019** | **Standard** | **Mod\_16\_19** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Robert Mc Carthy** | 1. **9696700**
 | **robertmccarthy@capturedcarbon.ie** |
| **Modification Proposal Title** |
| **Codification of TSO FNDDS Methodology and System Service Flag for DSU Settlement** |
| **Documents affected***(delete as appropriate)* | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC Part B & Glossary** | **F.2.7** |  |
| **Explanation of Proposed Change***(mandatory by originator)* |
| The Trading and Settlement Code contemplates a value for Demand Side Non-Delivery Percentage (FNDDS) which is submitted by the System Operators to the Market Operator (F.2.7) for use in the settlement of reliability options for demand side units (DSUs). This variable is crucial in determining the level of fulfilment of the reliability option where the strike price is exceeded and consequently, the level of difference charges due by DSUs. The methodology for the calculation of this variable is not outlined in the Trading and Settlement Code, this constitutes a major governance concern for DSUs for a crucial variable with specific concerns being:* The system operator is not obliged to follow any particular methodology for calculating this under the T&SC;
* There is no obligation of the timeline for the system operators to calculate FNDDS;
* How resettlement is handled where the variable is not calculated prior to a settlement run; and
* There is no clear process for raising modification to the methodology.

Electricity Exchange note the publication of the document [Note for Participants on FNDDS Calculation Methodology](https://www.sem-o.com/documents/general-publications/Note-for-Participants-on-FNDDS-Calculation-Methodology.pdf) on the SEMO website on 30/11/2018. This document outlines a methodology for the calculation for FNDDS which provides further clarity on the calculation which was welcomed. However, this document sits outside of the governance of the T&SC and while it notes that the process is to be completed by initial settlement, it does not place an obligation on the System Operators to perform the calculation before this nor does it provide necessary clarity on resettlement is handled where the variable is not calculated prior to initial settlement. Furthermore, it was noted as part of the actions of working group meeting 2 for Mod\_32\_18 that DSUs were not currently exempted from difference charges where the DSU was providing system services in the same way that other generator units are. Furthermore, there was an action from that working group to alter the FNDDS calculation to include provisions for incorporating the system service flag to reduce DSU difference charges when providing appropriate services in the same manner as other generators. This modification seeks to:1. Codify the FNDDS calculation in the T&SC to clarify related obligations and governance; and
2. Incorporate the system service flag into the FNDDS calculation.

Finally, as the values involved in calculating FNDDS are held by the Market Operator, the modification seeks to clarify the obligation as being a Market Operator obligation rather than a System Operator obligation.  |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
| F.2.7 Capacity Market DataF.2.7.1 The System Operators shall submit to the Market Operator the following data for each Capacity Market Unit, Ω, in each Imbalance Settlement Period, γ, in accordance with Appendix M “Capacity Market Data Transactions”:* + - * 1. The Capacity Quantity (qCΩn) with Primary or Secondary Trade Flag;
				2. The Commissioned Capacity Quantity (qCCOMMISSΩγ);
				3. The De-Rating Factor (FDERATEΩ);
				4. The Gross De-Rated Capacity Quantity (qCDERATEGΩγ);
				5. The Annual Stop-Loss Limit Factor (FSLLAn);
				6. The Billing Period Stop-Loss Factor (FSLLBn);
				7. The Capacity Payment Price (PCPΩn); and
				8. The Capacity Duration Exchange Rate (XRCDn).

F.2.7.2 The Market Operator shall calculate the Demand Side Non-Delivery Percentage for each Capacity Market Unit, Ω which represents one or more Demand Side Units, in each Imbalance Settlement Period, γ, as follows:If PIMBγ ≤ PSTRm, or if QCOBΩγ = 0, then FNDDSΩγ = 0, otherwise:Where:* + 1. QCOBΩγ is the Obligated Capacity Quantity for Capacity Market Unit, Ω, in Imbalance Settlement Period, γ;
		2. QDLFuγ is the Loss-Adjusted Dispatch Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;
		3. QEXuγ is the Ex-Ante Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;
		4. PIMBγ is the Imbalance Settlement Price in Imbalance Settlement Period, γ, calculated in accordance with Chapter E (Imbalance Pricing);
		5. PSTRm is the Strike Price for Month, m, which contains Imbalance Settlement Period, γ;
		6. DISP is the Imbalance Settlement Period Duration;
		7. FSSuγ is the System Service Flag for Generator Unit, u, in Imbalance Settlement Period, γ; and
		8. is a summation over all Generator Units, u, which comprise the Capacity Market Unit, Ω.

Glossary (excerpt):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable |  | Demand Side Non-Delivery Percentage | The Demand Site NonDelivery Percentage for a Capacity Market Unit, Ω, which represents one or more Generator Units, u, that are Demand Side Units, in an Imbalance Settlement Period, γ, representing the extent to which the Market Operator determines that the Obligated Capacity Quantity was not delivered through the Demand Side Unit’s response to a Dispatch Instruction in accordance with F.2.7.2 | Factor |

Appendix M (excerpt):* 1. Introduction
		+ 1. This Appendix M outlines the detailed Data Record requirements for Data Transactions sent by the System Operators to the Market Operator, which are not defined in other Appendices, which are required for the settlement of the Capacity Market, and the associated high-level Data Transaction Submission Protocols.
	2. Data Transactions
		+ 1. The Data Transactions in this Appendix M include:
				1. The Contract Register Data;
				2. The Commissioned Capacity Quantity (qCCOMMISS);
				3. The De-Rating Factor (FDERATE); and
				4. The Gross De-Rated Capacity Quantity (qCDERATEG).
			2. Each Data Record in this Appendix M which contains Currency amounts will be denominated in the Participant’s designated Currency.
	3. Data Transaction and Data Records

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| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| This modification is intended to increase transparency on the calculation of FNDDS and consequently the settlement of reliability options for DSUs. It is also intended to implement the agreed action from working group meeting 2 of Mod\_32\_18 to include the system service flagging arrangements in FNDDS to mirror those of non-DSU generators and thereby reduce undue discrimination against DSUs in reliability option settlement.  |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of Part A and/or Section A.2.1.4 of Part B of the T&SC for Code Objectives)* |
| Electricity Exchange that this modification will further the following code obligations(e) To provide transparency in the operation of the Single Electricity Market; and(f) to ensure no undue discrimination between persons who are parties to the Code.In the case of (e) this will be furthered through the clarification in the code of how a key settlement variable is calculated and in the case of (f) this will be furthered by introduction of system service flags to DSU capacity settlement in the same manner as other Generator Units.  |
| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| The modification comes in two parts:1. Codify the FNDDS calculation in the T&SC; and
2. Incorporate the system service flag into FNDDS calculation.

Failure to implement part 1 of the modification will prolong the lack of transparency for DSUs in their capacity market settlement obligations and therefore affect the ability of DSUs to accurately reflect risk in capacity market bids. As changes to FNDDS are not governed by the T&SC, it would also prolong the period where DSUs are exposed to potential changes to FNDDS which do not take place in the structured manner of T&SC modifications increasing risk of not just future capacity auctions but also for years where reliability options have already been issued. Failure to implement part 2 of this change would prolong a period of undue discrimination in reliability option settlement where exemptions to difference charges where the unit is providing appropriate system services are extended to generator units but not to DSUs.  |
| **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 Market Code, Grid Code, Exchange Rules etc.)* |
|  |  |
| ***Please return this form to Secretariat by email to*** balancingmodifications@sem-o.com |