



Single Electricity Market

FINAL RECOMMENDATION REPORT

MOD_01_23 REMUNERATION OF COMMISSIONING UNIT

20 APRIL 2023

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Document History

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Reference Documents

Document Name
Trading and Settlement Code
Mod_01_23 Remuneration of Commissioning Unit
Mod_01_23 Remuneration of Commissioning Unit v2
Mod_01_23 Remuneration of Commissioning Unit v3
Industry Call Meeting Notes
Presentation

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1. MODIFICATIONS COMMITTEE RECOMMENDATION

RECOMMENDED FOR APPROVAL– MAJORITY VOTE

Recommended for Approval by Majority Vote		
Andrew Burke (Chair)	Renewable Generator Member	Approve
Nick Heyward	Flexible Participant Alternate	Reject
Eoghan Cudmore	Supplier Alternate	Approve
Cormac Daly	Generator Member	Approve
Andrew McCorriston	Generator Alternate	Reject
Therese Murphy	Generator Alternate	Reject
Sean McParland	Generator Alternate	Reject
Robert McCarthy	DSU Member	Approve
Bryan Hennessy	Supplier Member	Approve
Eoin Murphy	Assetless Alternate	Reject
David Caldwell	Supplier Alternate	Approve

2. BACKGROUND

This Modification Proposal was raised by EP UK Investments and received by the Secretariat on 8th February 2023. The Proposal was raised at Meeting 115 on 22nd February 2023, an Industry Call was held on 23rd March 2023 and a version 2 of the proposal was submitted on 14th April 2023. A version 3 of the Modification Proposal was submitted on 19th April 2023, and it was voted on at Meeting 116 on 20th April 2023. The vote was subject to minor omissions and inconsistencies with the references and the Proposer agreed to submit those as part of the FRR – a new submission of the Legal Drafting was provided by the Proposer including AP04 and is included in section 8 of this FRR.

This Modification seeks to ensure that New Capacity units which are undergoing Commissioning or Grid Code testing can recover their costs. Commissioning and Grid Code testing are important steps for New Capacity units to achieve Substantial Completion. Currently units which are commissioning will act as ‘price takers’ within the Balancing Market. However, this can result in issues where units are unable to recover the costs which are incurred during the Commissioning and Grid Code testing process.

This issue is compounded depending on the timing of Commissioning and testing, and market conditions for same. To connect in time for the beginning of the Capacity Year, most New Capacity units will be required to Commission and perform Grid Code testing over the course of the summer. This will expose units to periods where the Balancing Market price is likely to be negative, possibly resulting in a cost for units that are undergoing Commissioning. This, combined with the cost of

operating the plant during the Commissioning phase, results in a double cost exposure for New Capacity units.

This cost exposure is a significant obstacle for New Capacity to achieve Substantial Completion. At a time when New Capacity is urgently needed due to the ongoing Security of Supply Crisis, we believe it is important to address this challenge. As such, we are proposing a modification to address remuneration of a unit while it is Commissioning or Grid Code testing.

These arrangements have not been necessary to date as a thermal generation unit has not Commissioned under the updated SEM arrangements introduced in 2018.

There are a number of changes required for this modification to function as intended.

Amended Version: Following feedback from the previous Mods Committee meeting and Industry Call, we have included additional drafting in this modification to ensure that Commissioning Units cannot gain in instances where the BM price is above costs. These changes are applied to Section F of the TSC.

3. PURPOSE OF PROPOSED MODIFICATION

3A.) JUSTIFICATION OF MODIFICATION

The appropriate settlement of thermal generation Units has not been tested within the current SEM arrangements. The current market rules expose New Capacity units to steep cost exposure. This downside has the potential to make New Capacity projects economically infeasible in the short-term, and in the long-term will dissuade future investment into new generation.

In a best-case scenario, a generator would need to delay its Commissioning to a point in time when it is able to cover its incurred costs. This would delay New Capacity which is urgently needed in order to address the Security of Supply crisis. We believe it essential that all New Capacity is connected as quickly as possible.

Ensuring adequate capacity is present on the system during the winter period will avoid significant cost to the consumer. This cost is already being incurred as seen with the hundreds of millions of euro which have been spent on emergency generation which is procured outside of the competitive capacity market. These costs are incurred at a point in time when consumers already face increased costs due to rising commodity prices, meaning that the impact of any capacity shortfall is compounded.

This modification represents a better outcome for consumers by addressing capacity deficits through the securing of New Capacity. Additionally, it is a fairer outcome for Commissioning Units which will be able to recover their costs when carrying out the required testing before Substantial Completion. Failure to implement this modification would result in New Capacity projects being burdened with significant costs which are irrecoverable through the Balancing Market.

3B.) IMPACT OF NOT IMPLEMENTING A SOLUTION

Obstacles to the delivery of New Capacity in the SEM, combined with rapid demand growth, has resulted in a Security of Supply crisis which has led to the need to procure expensive emergency generation in order to ensure the lights stay on in winter. This modification seeks to remove one of these barriers, by ensuring that New Capacity projects are not burdened with an irrecoverable cost. Doing so would result in an easier completion process for New Capacity and an alleviation of the current supply deficit.

This modification seeks to ensure that the CRM can deliver New Capacity as intended to do so. Failure to implement the modification would represent a continuation of the challenges which have made investment so difficult to date. If units are unable to recover their commissioning costs, they may delay testing until it is financially viable to do so, which means they would likely miss the key winter period for

which they are required. Alternatively, they may terminate their project altogether – and potential new investment would be dissuaded from entering the market.

Additionally, failure to implement this modification would result in significantly greater costs to consumers arising due to a lack of competition in the supply of generation. This has been witnessed already with the procurement of emergency generation at the cost of hundreds of millions to the consumer. This generation is procured outside the competitive process which is a core principle of the CRM. Failure to address challenges and obstacles to capacity delivery will result in a continued reliance on emergency generation. Not only will this result in further costs for consumers, but it also represents a major risk to Security of Supply. With continued demand growth, there is no guarantee that there will be available emergency generation to address any deficit.

3C.) IMPACT ON CODE OBJECTIVES

A.2.1.4. (b) to facilitate the efficient, economic, and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;

(c) 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;

(d) to promote competition in the Single Electricity Market;

(g) 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.

4. WORKING GROUP AND/OR CONSULTATION

N/A

5. IMPACT ON SYSTEMS AND RESOURCES

N/A

6. IMPACT ON OTHER CODES/DOCUMENTS

N/A

7. MODIFICATION COMMITTEE VIEWS

MODIFICATIONS MEETING 115 – 22ND FEBRUARY 2023

The Proposer delivered a [presentation](#) on this Modification Proposal noting costs in the Balancing Market could be recovered for New Capacity Units undergoing Commissioning or Grid Code testing. It was noted that the solution was similar to the TSO solution for Mod_02_22 where Participants could submit a zero PN and agree a separate profile with the TSO. The Proposer went through the slides advising that in conclusion the Modification Proposal facilitates delivery of new capacity.

MO Member advised that commissioning was a wide term including periods before and after the Market Registration of a unit. Communications with the Proposer in advance of the meeting led to the explanation that the drafting should refer only to the under-test period following the first Energization when the unit is registered in the Market and the Modification Proposal needed to be more specific to clarify that. Generator Alternate agreed and advised that they would be happier if the Modification was clearer. A concern was also raised that if this proposal was progressed before clarifying what is included under commissioning the RAs would see this as incomplete.

A Supplier Member raised the issue that this Modification makes no distinction between fuel costs that should be recovered and fixed costs that should not be as not all their components are fuel based.

The Proposer addressed several issues that were raised advising that commissioning can go on for a long period of time exposing the Generator to unpredictable costs. Generator Member advised that if there were many units undergoing commissioning over the next few years the commissioning in this Modification Proposal was not well defined and there was uncertainty if these are already considered as a part of the project cost that is included in capacity auction bids.

MO Member advised that there are 21 thermal units planned for the next 3 years and considering that each could be under test for a number of months in the period soon after first energization this Modification could have a large impact on the Market and the TSO. The same comments and concerns SEMO and the TSO made on Mod_02_22, which was eventually rejected in the original form, are applicable in these circumstances. There was disagreement on the impact on imperfections and whether this proposal could lead to any improvement as claimed by the Proposer. MO Member added that considerations need to be given to the fact that the market already bears additional costs for these new units as the TSO has to carry 100% of the reserve for them, and to the fact that the proposal is one sided to recovery of costs while still allowing profits to continue where the imbalance price is higher than the unit's costs. Also having such large volumes not submitted in the Physical Notification would lead to large volumes not seen by the market, affecting price formation and Participant's bidding.

A suggestion was made that Physical Notifications could be included in the REMIT Notifications.

Flexible Participant Member questioned if there was an element of retrospectivity with this Modification if the rules were changed for units that have those costs already factored in their bidding for Capacity and there could be an element of double counting. Contrary to what's stated in the Proposal, a number of Batteries have been commissioned since I-SEM, and they seem to have been able to manage their commissioning costs without issues.

The suggestion that the planned units coming on stream in the near future were all peakers, was refuted by DSU Member who stated that based on the Generation Capacity Statement, there were other unit types in the pipeline and that the solution should not be focused on peakers but should be applicable for all types.

A Question from RA Member raised the issue of how units under test were treated in the old SEM.

Generator Member asked if this issue could be explored in the Capacity Market. The Proposer advised that the Balancing Market was more appropriate but was open to discussions in other fora as well.

The Chair summarized that there was still some ambiguity regarding this proposal. It was advised that the drafting needed to be tightened to better define the periods and the costs affected, and clearer examples given. It was agreed that an Industry Call would be scheduled with a V2 of this proposal to be submitted for Modifications Committee Meeting 116.

INDUSTRY CALL – 23RD MARCH 2023

EPUKI presented their view on the Start Date and End Date for the modification.

One participant noted that there may be differences in the Operational Certificates applicable in Ireland and Northern Ireland and that this should be reflected in the mod. EPUKI agreed with this point.

One participant asked EPUKI to expand on the difference between Substantial Completion and Receipt of Operational Certificate. EPUKI clarified that the Operational Cert related to the completion of testing and linking this milestone to the end date would ensure that the modification affects only the period which is intended.

EPUKI presented their updated position on recoverable costs, ensuring there would be no gain.

One participant welcomed the fact that the modification would ensure no ability for participants to gain.

One participant requested that clarity is sought from the MMU on how risk adders would be treated and whether they would be appropriate for inclusion while a unit is commissioning. Additionally, it would be necessary to guarantee units could adjust their risk adders after commissioning.

One participant expressed concerns around Start Up costs being covered through this modification. They noted that one unit starting up several times within a day it would have an impact on imperfections.

A participant queried whether Units commissioning would submit Simple as well as Complex Offer Data. EPUKI stated it was not envisioned that this was the case but would confirm with SEMO.

EPUKI presented slides on the compatibility of the modification with the current registration and their views on impact on BM.

SEMO expressed a view that the proposed modification would result in less transparency in regard to the impact on the BM, as the commissioning unit will not have system data. Currently it is known what PNs a unit would submit, this would not be the case where a unit is submitting zero PNs.

EPUKI explained that currently units spill into the BM and noted that transparency could be aided by providing REMIT notifications outlining test profile. SEMO stated that while units currently spill into the BM, this is accepted as something which may happen rather than part of the standard procedure.

The RAs queried whether this modification would remove any incentive for units to complete commissioning as quickly as possible. EPUKI explained that this was not the case. EPUKI agreed to discuss further with the RAs prior to the next mods meeting.

The TSO explained that currently the control room has vision of what is scheduled to come on and that commissioning units submitting zero PNs could potentially complicate this. EPUKI responded that the majority of the commissioning period is grid testing which the SOs ask for and would know exactly what profile to expect.

UR stated that while they wanted to ensure new plants could deliver in NI, other industry participants who have commissioned might have views on cost recovery. EPUKI responded that while the nature of some units (i.e., thermal generator and battery) are fundamentally very different, it was envisioned for this modification to be applicable to all technologies and the mod has been drafted as such.

SEMO stated that they did not think this modification supported faster completion of commissioning.

One participant stated that they were not clear what the current process for commissioning was for large thermal units and that this should be clarified with SEMO ahead of the April Mods Committee. EPUKI agreed that they will seek clarity on this point.

One participant stated that they would like to clarify whether testing charges apply under the current SEM regime. These charges may be able to offset impact on imperfections. SEMO stated that only within-day testing charges have been removed and that other charges will still remain.

Another SEMO member stated that in some instances, for example with wind it would be beneficial to stay commissioning for a longer time. EPUKI stated that they understood the System Operator largely dictated how and for how long a unit will test. Additionally, instances where it would be more beneficial to remain commissioning rather than deliver to participate in the market and receive capacity payments would be extremely rare.

SEMO stated that they were currently struggling with the implementation of the RAs direction as a result of 02_22 and that IT and human limitations would be difficult to overcome on this mod. EPUKI acknowledged this point and welcomed discussions on these limitations and potential solutions for same.

EPUKI explained that the modification would not apply to units Under Test as those units have already passed their Effective Date and received an Operational Certificate.

A participant questioned whether these costs could have been included in a unit's capacity bid. Additionally, they welcomed the overall purpose of the modification which was to ensure that the same generators shouldn't have different outcomes. They also stated that on this basis they believe that modification 02_22 should have been implemented as well.

EPUKI did not disagree on 02_22 but reiterated that this was a separate modification and a decision on 02_22 had already been made.

SEMO stated that two generators receiving very different outcomes for the same provision would be an example of the market working as intended based on the impact of the system. EPUKI stated that if you want units to come online as soon as possible you would not settle them differently. SEMO stated that if a period was high-wind units might consider delaying their testing, but EPUKI responded that this was not possible as you are required to carry out Grid Code testing.

EPUKI addressed the fact that it was not possible to include these costs in capacity bids. Additionally, these costs are for the provision of energy to the market, which is a separate service to capacity. Finally, as units commissioning are currently given BM price, it is already an accepted principle that they will be paid for generation to the market.

EPUKI presented the impact on imperfections and dampening effect on DAM/BM. It was noted by EPUKI that the analysis presented in the accompanying slides was incorrect. The actual impact of this modification on imperfections for a 320MW would have been approximately €6m based on 2022 data. It was noted by Participants that this was partly a result of unusually high prices in 2022 and that the impact in a normal year would have been closer to €1.5m.

One participant noted that the period in question was one of extraordinary high prices and that in normal circumstances the impact would be reduced.

Participants queried whether Start Up costs were included in the analysis, whether SO reserve requirements were included, and questioned the certainty that DAM/BM prices would be dampened. One participant noted that Suppliers are responsible for paying imperfections and that this is more pressing than potential price dampening in markets.

EPUKI presented their comparison on units Under Test and units commissioning, as well as the enduring impact of this modification after the current batch of thermal projects.

A participant queried whether consumers would be paying twice for this energy as it could be included in capacity bids and then export further after completion. EPUKI explained that the costs covered by this modification are reflective of power supplied to the grid while testing takes place, rather than costs to cover testing. The consumer already pays for this energy provision under the current arrangements and that this modification only looks at how remuneration is calculated.

EPUKI clarified that some commissioning would be included in a capacity bid and thus not recoverable, specifically commissioning which takes place before export to the grid. This modification would only cover costs in providing power to the grid. Technically the majority of this would be Grid Code testing, but it has been called Commissioning in the Modification for simplicity's sake.

MODIFICATIONS MEETING 116 – 20TH APRIL 2023

The Proposer provided an overview of a version 3 of their Modification Proposal noting that the legal drafting had been recently updated to reproduce the latest drafting used by Energinet for their Mod_02_22. It was advised that concerns relating to this proposal raised at meeting 115 and at the Industry Call on 23rd March 2023, have all been considered and hopefully resolved to everyone's satisfaction.

There was both support given, and concerns raised regarding this proposal. There was an understanding from a Generator Member on how tight the system is and support to see any barriers for commissioning units to be removed. Flexible Participant Alternate noted that even with no gain made there was potential to double recover if risk had been priced into previous Capacity auctions. The

Proposer stated that double recovery should not be an issue because the new Best New Entrant consultation does not refer to these costs as included.

Generator Member raised a concern that this Modification Proposal only focused on new capacity and should also be expanded to testing of existing units. The Proposer appreciated the comments made but noted the previous Modification to include existing units was rejected. Support for the new drafting that addressed the profit potential of the previous version was offered by some Generator Members; however, concerns were also raised in relation to retrospective application to units with existing capacity contracts. . The TSO also expressed concerns at the impact of this proposal on the incentive to progress commissioning in a timely manner, the lack of PN submission and additional reserve requirements. The Proposer replied that the main incentive to complete the commissioning as soon as possible is to receive Capacity Payments. There were mixed views on whether this proposal would facilitate that aim or not. The materiality of the proposal was also questioned and the assumptions that were made to reach the figure quoted by the Proposer. The RA Member enquired about the volume of MWh output used in the Proposers assumptions (Proposer stated they would follow up with the figure) and what output the unit commissioning soon at Kilroot is expected to run at, during testing. The MO Member highlighted minor issues with the Legal drafting that could be corrected in the FRR and queried the value to the Market of a potentially costly system change (from both implementation and increase to Imperfection costs) that could only be deployed from 2024 at the earliest and only applied to a handful of units. It was questioned whether this proposal would speed up the testing period or hinder it as it might lead to less efficient testing. It was decided that a vote should be taken.

8. PROPOSED LEGAL DRAFTING

Legal drafting changes to the Modification Proposal were discussed and agreed following Meeting 116 and subsequently confirmed by the Proposer. The final drafting is available below including a link to Agreed Procedure 4.

This modification proposes the introduction of a new subsection to the Trading and Settlement Code under Section D.7:

D.7.4 Generator Units Under Commissioning and Grid Code Testing

D.7.4.1 The relevant System Operator may grant Generator Units the status of “Under Commissioning and Grid Code Testing” for a limited period under the terms of the relevant Grid Code.

D.7.4.2 Notwithstanding paragraph D.7.4.1 the status of Under Commissioning and Grid Code Testing shall not be granted to Generator Units which have Priority Dispatch and which are not Dispatchable, Generator Units which are not Dispatchable and Not Controllable (with the exception of Interconnector Units), or Interconnector Residual Capacity Units. Any request from any such Units shall be deemed returned whether or not a response is received from the System Operator.

D.7.4.3 In order for a Generator Unit to acquire Under Commissioning and Grid Code Testing status under this Code, an eligible Participant shall submit an Under Commissioning and Grid Code Flag to the relevant System Operator which should reflect the agreed operational profile as part of the Commissioning Tests and/or Grid Code Tests agreed with the relevant System Operator.

D.7.4.4 In order for a Generator Unit to acquire Under Commissioning and Grid Code Testing status under this Code, an eligible Participant shall submit Complex Offer Data to the relevant System Operator, and Market Operator, to reflect the costs which will be incurred while carrying out Commissioning Tests and Grid Code Tests.

D.7.4.5 The System Operator shall record the Generator Unit Under Commissioning and Grid Code Testing status under this Code for the Imbalance Settlement Periods between the Physical Notification Quantity times associated with the Under Commissioning and Grid Code Testing, starting on the Imbalance Settlement Period in which the Under Commissioning and Grid Code Testing first applies, and ending on the Imbalance Settlement Period in which the Under Commissioning and Grid Code Testing last applies in order to settle appropriately.

D.7.4.6 The Generator Unit Under Commissioning and Grid Code Testing will submit zero Physical Notifications during all Settlement Periods for which the Under Commissioning and Grid Code testing flag applies. For each of these periods, the System Operator shall endeavour to dispatch the Unit Under Commissioning and Grid Code Testing, to the test profile agreed as per D.7.4.3.

This paragraph, D.7.4.5, would mean that a Commissioning Unit is set to zero dispatch initially in settlement, but re-dispatched in accordance with the current TSO procedures. This would enable the recovery of operating costs through the Balancing Market.

A further addition will be required to D.7.1.1:

D.7.1.1 Physical Notification Data submitted in accordance with Appendix I "Offer Data" shall comprise one or more Physical Notification Quantities (qPNu γ (t)) associated with a time during an Imbalance Settlement Period, γ , each of which shall comprise a From MW Level with an associated From MW Time, and a To MW Level with an associated To MW Time. The time element of this data shall represent the start of a minute and shall be expressed in a whole number of minutes. The Physical Notification Data may also include an Under Test Flag or an Under Commissioning and Grid Code Testing Flag.

An addition to the above changes, we believe some amendments would be required to the Glossary of the Trading and Settlement Code. We propose the introduction of the following new definitions:

Under Commissioning and Grid Code Testing is a status afforded to certain Generator Units which are undergoing Commissioning Tests and Grid Code Tests as defined under Section CC.15.1 of the Grid Code. Such status shall be granted, if the relevant Unit is carrying out these tests, and that Unit is so permitted under section D.7.4.

Generator Unit Under Commissioning and Grid Code Testing means the status of a Generator Unit which has Under Commissioning and Grid Code Testing status in accordance with section D.7.4.1.

Generator Under Commissioning and Grid Code Testing Notice is a Data Transaction in relation to Generator Unit Under Commissioning and Grid Code Testing status detailed in Appendix F: “Other Communications”.

Generator Under Commissioning and Grid Code Testing Request means a notice submitted by a New Capacity generation Participant to the Market Operator and System Operator detailing its intention to apply for the status of Under Commissioning as detailed in Appendix F: “Other Communications”.

Unit Under Commissioning and Grid Code Testing Start Date means the date specified in a Generator Under Commissioning and Grid Code Testing Notice as the start date for Under Commissioning and Grid Code Testing status for a Generator Unit.

Unit Under Commissioning and Grid Code Testing End Date means the date specified in a Generator Under Commissioning and Grid Code Testing Notice as the end date for Under Commissioning and Grid Code Testing status for a Generator Unit.

Unit Under Commissioning and Grid Code Testing Starting Trading Day means the Trading Day on which the Under Commissioning and Grid Code Test status begins to apply for a Generator Unit.

Unit Under Commissioning and Grid Code Testing Ending Trading Day means the Trading Day on which the Under Commissioning and Grid Code Test status ceases to apply for a Generator Unit.

Accepted Offer Not Entitled to Premium Component: an adjustment to ensure that Generator Units undergoing Commissioning or Grid Code testing do not recoup Premium Component payments or Charges where it is not entitled to. It is calculated in accordance with Section F.8.4.

As well as the above changes to the main body and Glossary of the Trading and Settlement Code, further amendments would be required to Appendix F: Other Communications, with the addition of the following section:

Generator Unit Under Commissioning and Grid Code Notice

13. Agreed Procedure 4 “Transaction Submission and Validation” sets out the detail of all Generator Unit Under Commissioning and Grid Code Testing Notices, following the principles in paragraphs 13 and 14 of this Appendix below.

14. Each Participant shall submit a Generator Unit Under Commissioning and Grid Code Testing Request to the Market Operator in accordance with the Grid Code Section CC.15.5 in advance of Unit Under Commissioning and Grid Code Testing Start Date. The Generator Unit Under Commissioning and Grid Code Testing Request

will specify in all cases Unit Under Commissioning and Grid Code Testing Start Date and time, Unit Under Commissioning and Grid Code Testing End Date and time, and the Generator Under Commissioning and Grid Code Testing and any such requirements as specified in the Grid Code.

15. Participants shall submit a Generator Unit Under Commissioning and Grid Code Testing Notice to the Market Operator. The Generator Unit Under Commissioning and Grid Code Testing Notice will specify in all cases the Unit Under Commissioning and Grid Code Testing Start Date and time and the Unit Under Commissioning and Grid Code Testing End Date and time, and the Unit Under Commissioning and Grid Code Testing. The Market Operator will ensure that Unit Under Commissioning and Grid Code Testing Notices can be submitted by Participants through a Type 2 or Type 3 Channel.

In addition to the above changes, we believe a number of amendments would be required to Agreed Procedure 4: "Transaction Submission and Validation" in order to reflect an updated procedure for the submission and validation of Unit Under Commissioning and Grid Code testing requests.

The following amendments are made to Section F of the TSC to ensure that Commissioning Units will not gain in instances where the BM price is above costs.

Section F - Changes

F.1.2 Settlement Charges and Payments for Generator Units

F.1.2.1 The Market Operator shall calculate the following charges and payments for each Generator Unit in accordance with the Settlement Calendar in section G.2.4:

- (a) $CIMB_{uy}$, the Imbalance Component Payment or Charge calculated in accordance with section F.5;
- (b) $CPREMIUM_{uy}$, the Premium Component Payment calculated in accordance with section F.6;
- (c) $CDISCOUNT_{uy}$, the Discount Component Payment calculated in accordance with section F.6;
- (d) $CAOOPO_{uy}$, the Offer Price Only Accepted Offer Payment or Charge calculated in accordance with section F.7;
- (e) $CABBPO_{uy}$, the Bid Price Only Accepted Bid Payment or Charge calculated in accordance with section F.7;
- (f) $CCURL_{uy}$, the Curtailment Payment or Charge calculated in accordance with section F.8;
- (g) **$CAONEPC_{uy}$ the Accepted Offer Not Entitled to Premium Component Charge calculated in accordance with section F.8.4**
- (h) $CUNIMB_{uy}$, the Uninstructed Imbalance Charge calculated in accordance with section F.9;
- (i) CII_{uy} , the Information Imbalance Charge calculated in accordance with section F.10;

- (j) CFC_{ub} , the Fixed Cost Payment or Charge calculated in accordance with section F.11; and
- (k) $CTEST_{uy}$, the Testing Charge calculated in accordance with section F13.

F.8.4 Calculation of Accepted Offer Not Entitled to Premium Component Charge

F.8.4.1 The following provisions of section F.8.4 do not apply to any Unit which is:

- (a) An Interconnector Unit;
- (b) An Interconnector Residual Capacity Unit; or
- (c) A Demand Side Unit

F.8.4.2 The Market Operator shall calculate the Accepted Offer Not Entitled to Premium Component Charge for each Generator Unit, u , in each Imbalance Settlement Period, γ , for which it is undergoing Commissioning or Grid Code testing as follows:

$$CAONEPC_{uy} = \left(\sum_o \sum_i \left(QAOLF_{uoi\gamma} - \text{Max}(QAOPOLF_{uoi\gamma}, QAObIAS_{uoi\gamma}, QAOUNDEL_{uoi\gamma}, QAOTOTSOLF_{uoi\gamma}) \times \text{Min}(PBO_{uoi\gamma} - PIMB_{\gamma}, 0) \right) \right)$$

Where:

- (a) \sum_o is the summation of all Bid Offer Acceptances, o ;
- (b) \sum_i is the summation over all Bands, i ;
- (c) $QAOLF_{uoi\gamma}$ is the Loss-Adjusted Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (d) $QAOPOLF_{uoi\gamma}$ is the Loss-Adjusted Offer Price Only Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1;
- (e) $QAObIAS_{uoi\gamma}$ is the Biased Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;
- (f) $QAOUNDEL_{uoi\gamma}$ is the Undelivered Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6;
- (g) $QAOTOTSOLF_{uoi\gamma}$ is the Loss Adjusted Trade Opposite TSO Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4;

(h) $PBO_{uoi\gamma}$ is the Bid Offer Price for each Accepted Bid Quantity and Accepted Offer Quantity for Generator Unit, u, for Bid Offer Acceptance, o, for Band, i, in Imbalance Settlement Period, γ ; and

(i) $PIMB_{\gamma}$ is the Imbalance Settlement Price in Imbalance Settlement Period, γ .

F.11.4.2 The Market Operator shall calculate the Make-Whole Payment Revenue ($CREVMWP_{uk}$) for each Generator Unit, u, for each Contiguous Operating Period, k, in each Billing Period, b, as follows:

$$\begin{aligned}
 & CREVMWP_{uk} \\
 &= \sum_{\gamma \in k} \sum_o \sum_i (Max(PBO_{uoi\gamma}, PIMB_{\gamma}) \\
 &\quad \times (QAOLF_{uoi\gamma} \\
 &\quad - Max(QAOPOLF_{uoi\gamma}, QABBIAS_{uoi\gamma}, QAOUNDEL_{uoi\gamma}, QAOTOTSOLF_{uoi\gamma}))) \\
 &+ \sum_o \sum_i (Min(PBO_{uoi\gamma}, PIMB_{\gamma}) \\
 &\quad \times (QABLF_{uoi\gamma} \\
 &\quad - Min(QABBPOLF_{uoi\gamma}, QABBIAS_{uoi\gamma}, QABUNDEL_{uoi\gamma}, QABNFLF_{uoi\gamma}, QABCURLLF_{uoi\gamma}, \\
 &\quad QABTOTSOLF_{uoi\gamma}))) \\
 &+ \sum_o \sum_i (PBO_{uoi\gamma} \times Max(QAOPOLF_{uoi\gamma} - QAOUNDEL_{uoi\gamma}, 0)) \\
 &+ \sum_o \sum_i (PBO_{uoi\gamma} \times Min(QABBPOLF_{uoi\gamma} - Min(QABCURLLF_{uoi\gamma}, QABUNDEL_{uoi\gamma}), 0)) \\
 &+ \sum_o \sum_i (PCURL_{u\gamma} \\
 &\quad \times Min(QABCURLLF_{uoi\gamma} - Min(QABBIAS_{uoi\gamma}, QABUNDEL_{uoi\gamma}), 0)) \\
 &+ CAONEPC_{u\gamma}
 \end{aligned}$$

where:

(a) $\sum_{\gamma \in k}$ is a summation over all Imbalance Settlement Periods, γ , within the Contiguous Operating Period, k;

(b) $PBO_{uoi\gamma}$ is the Bid Offer Price for each Accepted Bid Quantity and Accepted Offer Quantity for Generator Unit, u, for Bid Offer Acceptance, o, for Band, i, in Imbalance Settlement Period, γ ;

- (c) $QAOLF_{uoiy}$ is the Loss-Adjusted Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (d) $QABLF_{uoiy}$ is the Loss-Adjusted Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (e) $CAOPO_{uy}$ is the Offer Price Only Accepted Offer Payment or Offer Price Only Accepted Offer Charge for Generator Unit, u , in Imbalance Settlement Period, γ ;
- (f) $CABBPO_{uy}$ is the Bid Price Only Accepted Bid Payment or Bid Price Only Accepted Bid Charge, γ ;
- (g) $CCURL_{uy}$ is the Curtailment Payment or Charge for Generator Unit, u , in Imbalance Settlement Period, γ ;
- (h) $PIMB_{\gamma}$ is the Imbalance Settlement Price in Imbalance Settlement Period, γ , calculated in accordance with Chapter E (Imbalance Pricing);
- (i) $QAOTOTSOLF_{uoiy}$ is the Loss-Adjusted Trade Opposite TSO Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4
- (j) $QABTOTSOLF_{uoiy}$ is the Loss-Adjusted Trade Opposite TSO Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4.
- (k) $QABNFLF_{uoiy}$ is the Loss-Adjusted Non-Firm Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.5.
- (l) $QAOUNDEL_{uoiy}$ is the Undelivered Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6.
- (m) $QABUNDEL_{uoiy}$ is the Undelivered Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6
- (n) $QAObIAS_{uoiy}$ is the Biased Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;
- (o) $QABBIAS_{uoiy}$ is the Biased Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;

- (p) $QABCURLLF_{uoi\gamma}$ is the Loss-Adjusted Curtailment Accepted Bid Quantity for Generator Unit, u, for Bid Offer Acceptance, o, for Band, i, in Imbalance Settlement Period, γ , calculated in accordance with section F.8.1;
- (q) $QAOPOLF_{uoi\gamma}$ is the Loss-Adjusted Offer Price Only Accepted Bid Quantity for Generator Unit, u, for Bid Offer Acceptance, o, for Band, i, in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1.;
- (r) $QABBOLF_{uoi\gamma}$ is the Loss-Adjusted Bid Price Only Accepted Bid Quantity for Generator Unit, u, for Bid Offer Acceptance, o, for Band, i, in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1.;
- (s) \sum_o is a summation over all Bid Offer Acceptances, o; ~~and~~
- (t) \sum_i is a summation over all Bands, i; ~~and~~
- (u) **$CAONEPC_{u\gamma}$ is the Accepted Offer Not Entitled to Premium Component Charge for Generator Unit, u, in Imbalance Settlement Period γ calculated in accordance with section F.8.4;**

Section G

G.4.10 Charges for Testing

G.4.10.1 The total Testing Charge ($C_{TEST_{ud}}$) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:

$$C_{TEST_{ud}} = \sum_{\gamma \text{ in } d} C_{TEST_{u\gamma}}$$

where:

- (a) $C_{TEST_{u\gamma}}$ is the Testing Charge for Generator Unit u in Imbalance Settlement Period γ calculated in accordance with section F.13; and
- (b) $\sum_{\gamma \text{ in } d}$ is a summation over all Imbalance Settlement Periods γ in Settlement Day d.

G.4.10.2 **The Accepted Offer Not Entitled to Premium Component Charge ($CAONEPC_{ud}$) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:**

$$CAONEPC_{ud} = \sum_{\gamma \text{ in } d} CAONEPC_{u\gamma}$$

where:

- (a) $CAOENPC_{uy}$ is the Generation Under Commissioning Not Entitled Premium Component Charge for Generator Unit u in Imbalance Settlement Period y calculated in accordance with section F.8.4; and
- (b) $\sum_{\gamma \text{ in } d}$ is a summation over all Imbalance Settlement Periods γ in Settlement Day d .

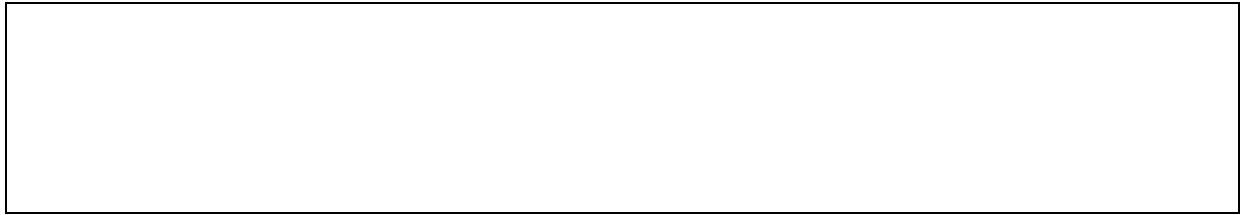
G.4.11 Total Daily Amounts for Generator Units

G.4.11.1 The Total Daily Amounts ($CDAY_{ud}$) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:

$$CDAY_{ud} = CIMB_{ud} + CPREMIUM_{ud} + CDISCOUNT_{ud} + CAOPO_{ud} + CABBPO_{ud} + CCURL_{ud} + CUNIMB_{ud} + CII_{ud} + CTEST_{ud} + CAONEPC_{ud}$$

where:

- (a) $CIMB_{ud}$ is the total Imbalance Component Payment or Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.2;
- (b) $CPREMIUM_{ud}$ is the total Premium Component Payment for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.3;
- (c) $CDISCOUNT_{ud}$ is the total Discount Component Payment for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.4;
- (d) $CAOPO_{ud}$ is the total Offer Price Only Accepted Offer Payment or Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.5;
- (e) $CABBPO_{ud}$ is the total Bid Price Only Accepted Bid Payment or Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.6;
- (f) $CCURL_{ud}$ is the total Curtailment Payment or Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.7;
- (g) $CUNIMB_{ud}$ is the total Uninstructed Imbalance Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.8;
- (h) $CIII_{ud}$ is the total Information Imbalance Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.9;
- (i) $CTEST_{ud}$ is the total Testing Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.10;
- (j) $CAONEPC_{ud}$ is the total Accepted Offer Not Entitled to Premium Component Charge for Generator Unit, u , for Settlement Day, d , calculated in accordance with section G.4.10.2;



In addition to the above changes to T&SC, Glossary and Appendices, changes to AP04 have been included in the file available at this link:

[Mod_01_23 – Agreed Procedure 4 legal drafting](#)

9. LEGAL REVIEW

N/A

10. IMPLEMENTATION TIMESCALE

It is recommended that this Modification is implemented on a Settlement Day basis on the first available Settlement Day following system implementation.

1 APPENDIX 1: MOD_01_23 REMUNERATION OF COMMISSIONING UNITS

Proposer <i>(Company)</i>	Date of receipt <i>(assigned by Secretariat)</i>	Type of Proposal <i>(delete as appropriate)</i>	Modification Proposal ID <i>(assigned by Secretariat)</i>
EP UK Investments Limited	19th April 2023	Standard	Mod_01_23v3
Contact Details for Modification Proposal Originator			
Name	Telephone number	Email address	
Cormac Daly		c.daly@tynaghenenergy.ie	
Modification Proposal Title			
Remuneration of Commissioning Unit (v3)			
Documents affected <i>(delete as appropriate)</i>	Section(s) Affected	Version number of T&SC or Agreed Procedure used in Drafting	
T&SC Part B	Section D.7		
Appendices Part B	Section F		
Glossary Part B	Section G		
Agreed Procedures Part B	Section K		
Explanation of Proposed Change <i>(mandatory by originator)</i>			
<p>This modification seeks to ensure that New Capacity units which are undergoing Commissioning or Grid Code testing can recover their costs. Commissioning and Grid Code testing are important steps for New Capacity units to achieve Substantial Completion. Currently units which are commissioning will act as ‘price takers’ within the Balancing Market. However, this can result in issues where units are unable to recover the costs which are incurred during the Commissioning and Grid Code testing process.</p> <p>This issue is compounded depending on the timing of Commissioning and testing, and market conditions for same. In order to connect in time for the beginning of the Capacity Year, most New Capacity units will be required to Commission and perform Grid Code testing over the course of the summer. This will expose units to periods where the Balancing Market price is likely to be negative, possibly resulting in a cost for units that are undergoing Commissioning. This, combined with the cost of operating the plant during the Commissioning phase, results in a double cost exposure for New Capacity units.</p> <p>This cost exposure is a significant obstacle for New Capacity to achieve Substantial Completion. At a time when New Capacity is urgently needed due to the ongoing Security of Supply Crisis, we believe it is important to address this challenge. As such, we are proposing a modification to address remuneration of a unit while it is Commissioning or Grid Code testing.</p>			

These arrangements have not been necessary to date as a thermal generation unit has not Commissioned under the updated SEM arrangements introduced in 2018.

There are a number of changes required in order for this modification to function as intended.

Amended Version: Following feedback from the previous Mods Committee meeting and Industry Call, we have included additional drafting in this modification to ensure that Commissioning Units cannot gain in instances where the BM price is above costs. These changes are applied to Section F of the TSC.

Legal Drafting Change

*(Clearly show proposed code change using **tracked** changes, if proposer fails to identify changes, please indicate best estimate of potential changes)*

This modification proposes the introduction of a new subsection to the Trading and Settlement Code under Section D.7:

D.7.4 Generator Units Under Commissioning and Grid Code Testing

D.7.4.1 The relevant System Operator may grant Generator Units the status of ‘Under Commissioning and Grid Code Testing’ for a limited period under the terms of the relevant Grid Code.

D.7.4.2 Notwithstanding paragraph D.7.4.1 the status of Under Commissioning and Grid Code Testing shall not be granted to Generator Units which have Priority Dispatch and which are not Dispatchable, Generator Units which are not Dispatchable and Not Controllable (with the exception of Interconnector Units), or Interconnector Residual Capacity Units. Any request from any such Units shall be deemed returned whether or not a response is received from the System Operator.

D.7.4.3 In order for a Generator Unit to acquire Under Commissioning and Grid Code Testing status under this Code, an eligible Participant shall submit an Under Commissioning and Grid Code Flag to the relevant System Operator which should reflect the agreed operational profile as part of the Commissioning and/or Grid Code testing programme agreed with the relevant System Operator.

D.7.4.4 In order for a Generator Unit to acquire Under Commissioning and Grid Code Testing status under this Code, an eligible Participant shall submit Complex Offer Data to the relevant System Operator, and Market Operator, to reflect the costs which will be incurred during the Commissioning phase.

D.7.4.5 The System Operator shall record the Generator Unit Under Commissioning and Grid Code Testing status under this Code for the Imbalance Settlement Periods between the Physical Notification Quantity times associated with the Under Commissioning and Grid Code Testing, starting on the Imbalance Settlement Period in which the

Under Commissioning and Grid Code Testing first applies, and ending on the Imbalance Settlement Period in which the Under Commissioning and Grid Code Testing last applies in order to settle appropriately.

D.7.4.6 The Generator Unit Under Commissioning and Grid Code Testing will submit zero Physical Notifications during all Settlement Periods for which the Under Commissioning and Grid Code testing flag applies. For each of these periods, the Unit Under Commissioning and Grid Code Testing will be dispatched by the relevant System Operator, to its agreed test profile.

This paragraph, D.7.4.5, would mean that a Commissioning Unit is set to zero dispatch initially in settlement, but re-dispatched in accordance with the current TSO procedures. This would enable the recovery of operating costs through the Balancing Market.

A further addition will be required to D.7.1.1:

D.7.1.1 Physical Notification Data submitted in accordance with Appendix I "Offer Data" shall comprise one or more Physical Notification Quantities (qPNu γ (t)) associated with a time during an Imbalance Settlement Period, γ , each of which shall comprise a From MW Level with an associated From MW Time, and a To MW Level with an associated To MW Time. The time element of this data shall represent the start of a minute and shall be expressed in a whole number of minutes. The Physical Notification Data may also include an Under Test Flag or an Under Commissioning and Grid Code Testing Flag.

An addition to the above changes, we believe some amendments would be required to the Glossary of the Trading and Settlement Code. We propose the introduction of the following new definitions:

Under Commissioning and Grid Code Testing means the under commissioning and Grid Code testing accorded to certain Generator Units by the relevant System Operator subject to the requirements that the Market Operator has verified the status with the relevant System Operator and that the relevant Unit is so permitted under section D.7.4.

Generator Unit Under Commissioning and Grid Code Testing means the status of a Generator Unit which has Under Commissioning and Grid Code Testing status in accordance with section D.7.4.

Generator Under Commissioning and Grid Code Testing Notice is a Data Transaction in relation to Generator Unit Under Commissioning and Grid Code Testing status detailed in Appendix F: "Other Communications".

Generator Under Commissioning and Grid Code Testing Request means a notice submitted by a New Capacity generation Participant to the Market Operator and System Operator detailing its intention to apply for the status of Under Commissioning as detailed in Appendix F: "Other Communications".

Unit Under Commissioning and Grid Code Testing Start Date means the date specified in a Generator Under Commissioning and Grid Code Testing Notice as the start date for Under Commissioning and Grid Code Testing status for a Generator Unit.

Unit Under Commissioning and Grid Code Testing End Date means the date specified in a Generator Under Commissioning and Grid Code Testing Notice as the end date for Under Commissioning and Grid Code Testing status for a Generator Unit.

Unit Under Commissioning and Grid Code Testing Starting Trading Day means the Trading Day on which the Under Commissioning and Grid Code Test status begins to apply for a Generator Unit.

Unit Under Commissioning and Grid Code Testing Ending Trading Day means the Trading Day on which the Under Commissioning and Grid Code Test status ceases to apply for a Generator Unit.

As well as the above changes to the main body and Glossary of the Trading and Settlement Code, further amendments would be required to Appendix F: Other Communications, with the addition of the following section:

Generator Unit Under Commissioning and Grid Code Notice

12. Agreed Procedure 4 “Transaction Submission and Validation” sets out the detail of all Generator Unit Under Commissioning and Grid Code Testing Notices, following the principles in paragraphs 13 and 14 of this Appendix below.

13. Each Participant shall submit a Generator Unit Under Commissioning and Grid Code Testing Request to the Market Operator in accordance with the Grid Code in advance of Unit Under Commissioning and Grid Code Testing Start Date. The Generator Unit Under Commissioning and Grid Code Testing Request will specify in all cases Unit Under Commissioning and Grid Code Testing Start Date and time, Unit Under Commissioning and Grid Code Testing End Date and time, and the Generator Under Commissioning and Grid Code Testing and any such requirements as specified in the Grid Code.

14. Participants shall submit a Generator Unit Under Commissioning and Grid Code Testing Notice to the Market Operator in accordance with the Grid Code. The Generator Unit Under Commissioning and Grid Code Testing Notice will specify in all cases the Unit Under Commissioning and Grid Code Testing Start Date and time and the Unit Under Commissioning and Grid Code Testing End Date and time, and the Unit Under Commissioning and Grid Code Testing. The Market Operator will ensure that Unit Under Commissioning and Grid Code Testing Notices can be submitted by Participants through a Type 2 or Type 3 Channel.

In addition to the above changes, we believe a number of amendments would be required to Agreed Procedure 4: “Transaction Submission and Validation” in order to reflect an updated procedure for the submission and validation of Unit Under Commissioning and Grid Code testing requests.

The following amendments are made to Section F of the TSC to ensure that Commissioning Units will not gain in instances where the BM price is above costs.

Section F - Changes

F.1.2 Settlement Charges and Payments for Generator Units

F.1.2.1 The Market Operator shall calculate the following charges and payments for each Generator Unit in accordance with the Settlement Calendar in section G.2.4:

- (l) $CIMB_{uy}$, the Imbalance Component Payment or Charge calculated in accordance with section F.5;
- (m) $CPREMIUM_{uy}$, the Premium Component Payment calculated in accordance with section F.6;
- (n) $CDISCOUNT_{uy}$, the Discount Component Payment calculated in accordance with section F.6;
- (o) $CAOOPO_{uy}$, the Offer Price Only Accepted Offer Payment or Charge calculated in accordance with section F.7;
- (p) $CABBPO_{uy}$, the Bid Price Only Accepted Bid Payment or Charge calculated in accordance with section F.7;
- (q) $CCURL_{uy}$, the Curtailment Payment or Charge calculated in accordance with section F.8;
- (r) **$CAONEPC_{uy}$ the Accepted Offer Not Entitled to Premium Component Charge calculated in accordance with section F.8.4**
- (s) $CUNIMB_{uy}$, the Uninstructed Imbalance Charge calculated in accordance with section F.9;
- (t) CII_{uy} , the Information Imbalance Charge calculated in accordance with section F.10;
- (u) CFC_{ub} , the Fixed Cost Payment or Charge calculated in accordance with section F.11; and
- (v) $CTEST_{uy}$, the Testing Charge calculated in accordance with section F.13.

F.8.4 Calculation of Accepted Offer Not Entitled to Premium Component Charge

F.8.4.1 The following provisions of section F.8.4 do not apply to any Unit which is:

- (a) An Interconnector Unit;
- (b) An Interconnector Residual Capacity Unit; or
- (c) A Demand Side Unit

F.8.4.2 The Market Operator shall calculate the Accepted Offer Not Entitled to Premium Component Charge for each Generator Unit, u , in each Imbalance Settlement Period, γ , for which it is undergoing Commissioning or Grid Code testing as follows:

$$CAONEPC_{u\gamma} = \left(\sum_o \sum_i \left(QAOLF_{uoi\gamma} - \text{Max}(QAOPOLF_{uoi\gamma}, QAObIAS_{uoi\gamma}, QAOUNDEL_{uoi\gamma}, QAOTOTSOLF_{uoi\gamma}) \times \text{Min}(PBO_{uoi\gamma} - PIMB_\gamma, 0) \right) \right)$$

Where:

- (j) \sum_o is the summation of all Bid Offer Acceptances, o ;
- (k) \sum_i is the summation over all Bands, i ;
- (l) $QAOLF_{uoi\gamma}$ is the Loss-Adjusted Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (m) $QAOPOLF_{uoi\gamma}$ is the Loss-Adjusted Offer Price Only Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1;
- (n) $QAObIAS_{uoi\gamma}$ is the Biased Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;
- (o) $QAOUNDEL_{uoi\gamma}$ is the Undelivered Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6;
- (p) $QAOTOTSOLF_{uoi\gamma}$ is the Loss Adjusted Trade Opposite TSO Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4;
- (q) $PBO_{uoi\gamma}$ is the Bid Offer Price for each Accepted Bid Quantity and Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ; and
- (r) $PIMB_\gamma$ is the Imbalance Settlement Price in Imbalance Settlement Period, γ .

F.11.4.2 The Market Operator shall calculate the Make-Whole Payment Revenue ($CREVMWP_{uk}$) for each Generator Unit, u , for each Contiguous Operating Period, k , in each Billing Period, b , as follows:

$$CREVMWP_{uk} = \sum_{\gamma \in k} \left(\sum_o \sum_i \text{Max}(PBO_{uoi\gamma}, PIMB_\gamma) \right)$$

$$\begin{aligned}
& \times (QAOLF_{uoi\gamma} \\
& - Max(QAOPOLF_{uoi\gamma}, QAOBIAS_{uoi\gamma}, QAOUNDEL_{uoi\gamma}, QAOTOTSOLF_{uoi\gamma})) \\
& + \sum_o \sum_i (Min(PBO_{uoi\gamma}, PIMB_\gamma) \\
& \times (QABLF_{uoi\gamma} \\
& - Min(QABBPOLF_{uoi\gamma}, QABBBIAS_{uoi\gamma}, QABUNDEL_{uoi\gamma}, QABNFLF_{uoi\gamma}, QABCURLLF_{uoi\gamma}, \\
& QABTOTSOLF_{uoi\gamma}))) \\
& + \sum_o \sum_i (PBO_{uoi\gamma} \times Max(QAOPOLF_{uoi\gamma} - QAOUNDEL_{uoi\gamma}, 0)) \\
& + \sum_o \sum_i (PBO_{uoi\gamma} \times Min(QABBPOLF_{uoi\gamma} - Min(QABCURLLF_{uoi\gamma}, QABUNDEL_{uoi\gamma}), 0)) \\
& + \sum_o \sum_i (PCURL_{u\gamma} \\
& \times Min(QABCURLLF_{uoi\gamma} - Min(QABBBIAS_{uoi\gamma}, QABUNDEL_{uoi\gamma}), 0)) \\
& + CAONEPC_{u\gamma}
\end{aligned}$$

where:

- (f) $\sum_{\gamma \in k}$ is a summation over all Imbalance Settlement Periods, γ , within the Contiguous Operating Period, k ;
- (g) $PBO_{uoi\gamma}$ is the Bid Offer Price for each Accepted Bid Quantity and Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (h) $QAOLF_{uoi\gamma}$ is the Loss-Adjusted Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (i) $QABLF_{uoi\gamma}$ is the Loss-Adjusted Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ ;
- (j) $CAOPO_{u\gamma}$ is the Offer Price Only Accepted Offer Payment or Offer Price Only Accepted Offer Charge for Generator Unit, u , in Imbalance Settlement Period, γ ;
- (f) $CABBPO_{u\gamma}$ is the Bid Price Only Accepted Bid Payment or Bid Price Only Accepted Bid Charge, γ ;
- (g) $CCURL_{u\gamma}$ is the Curtailment Payment or Charge for Generator Unit, u , in Imbalance Settlement Period, γ ;
- (h) $PIMB_\gamma$ is the Imbalance Settlement Price in Imbalance Settlement Period, γ , calculated in accordance with Chapter E (Imbalance Pricing);

- (i) $QAOTOTSOLF_{uoiy}$ is the Loss-Adjusted Trade Opposite TSO Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4
- (j) $QABTOTSOLF_{uoiy}$ is the Loss-Adjusted Trade Opposite TSO Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.4.
- (k) $QABNFLF_{uoiy}$ is the Loss-Adjusted Non-Firm Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.5.
- (l) $QAOUNDEL_{uoiy}$ is the Undelivered Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6.
- (m) $QABUNDEL_{uoiy}$ is the Undelivered Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.6
- (n) $QAObIAS_{uoiy}$ is the Biased Accepted Offer Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;
- (o) $QABBIAS_{uoiy}$ is the Biased Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.6.7;
- (p) $QABCURLLF_{uoiy}$ is the Loss-Adjusted Curtailment Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.8.1;
- (q) $QAOPOLF_{uoiy}$ is the Loss-Adjusted Offer Price Only Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1.;
- (r) $QABBPOOLF_{uoiy}$ is the Loss-Adjusted Bid Price Only Accepted Bid Quantity for Generator Unit, u , for Bid Offer Acceptance, o , for Band, i , in Imbalance Settlement Period, γ , calculated in accordance with section F.7.1;
- (s) \sum_o is a summation over all Bid Offer Acceptances, o ; and
- (t) \sum_i is a summation over all Bands, i ; and

- (u) **CAONEPC_{uy}** is the Accepted Offer Not Entitled to Premium Component Charge for Generator Unit, u, in Imbalance Settlement Period γ calculated in accordance with section F.8.4;

Section G

G.4.10 Charges for Testing

G.4.10.1 The total Testing Charge (CTEST_{ud}) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:

$$CTEST_{ud} = \sum_{\gamma \text{ in } d} CTEST_{u\gamma}$$

where:

(c) CTEST_{uy} is the Testing Charge for Generator Unit u in Imbalance Settlement Period γ calculated in accordance with section F.13; and

(d) $\sum_{\gamma \text{ in } d}$ is a summation over all Imbalance Settlement Periods γ in Settlement Day d.

G.4.10.2 The Accepted Offer Not Entitled to Premium Component Charge (CAONEPC_{ud}) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:

$$CAONEPC_{ud} = \sum_{\gamma \text{ in } d} CAONEPC_{u\gamma}$$

where:

(c) CAOENPC_{uy} is the Generation Under Commissioning Not Entitled Premium Component Charge for Generator Unit u in Imbalance Settlement Period γ calculated in accordance with section F.8.4; and

(d) $\sum_{\gamma \text{ in } d}$ is a summation over all Imbalance Settlement Periods γ in Settlement Day d.

K.4.11 Total Daily Amounts for Generator Units

K.4.11.1 The Total Daily Amounts (CDAY_{ud}) made for each Generator Unit u for each Settlement Day d shall be calculated by the Market Operator as follows:

$$CDAY_{ud} = CIMB_{ud} + CPREMIUM_{ud} + CDISCOUNT_{ud} + CAOPO_{ud} + CABBPO_{ud} + CCURL_{ud} + CUNIMB_{ud} + CII_{ud} + CTEST_{ud} + CAONEPC_{ud}$$

where:

- (k) $CIMB_{ud}$ is the total Imbalance Component Payment or Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.2;
- (l) $CPREMIUM_{ud}$ is the total Premium Component Payment for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.3;
- (m) $CDISCOUNT_{ud}$ is the total Discount Component Payment for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.4;
- (n) $CAOPO_{ud}$ is the total Offer Price Only Accepted Offer Payment or Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.5;
- (o) $CABBPO_{ud}$ is the total Bid Price Only Accepted Bid Payment or Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.6;
- (p) $CCURL_{ud}$ is the total Curtailment Payment or Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.7;
- (q) $CUNIMB_{ud}$ is the total Uninstructed Imbalance Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.8;
- (r) $CIII_{ud}$ is the total Information Imbalance Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.9;
- (s) $CTEST_{ud}$ is the total Testing Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.10;
- (t) $CAONEPC_{ud}$ is the total Accepted Offer Not Entitled to Premium Component Charge for Generator Unit, u, for Settlement Day, d, calculated in accordance with section G.4.10.2;

Glossary

Accepted Offer Not Entitled to Premium Component: an adjustment to ensure that Generator Units undergoing Commissioning or Grid Code testing do not recoup Premium Component payments or Charges where it is not entitled to. It is calculated in accordance with Section F.8.4.

Modification Proposal Justification

(Clearly state the reason for the Modification)

The appropriate settlement of thermal generation Units has not been tested within the current SEM arrangements. The current market rules expose New Capacity units to steep cost exposure. This downside has the potential to

make New Capacity projects economically infeasible in the short-term, and in the long-term will dissuade future investment into new generation.

In a best case scenario, a generator would need to delay its Commissioning to a point in time when it is able to cover its incurred costs. This would delay New Capacity which is urgently needed in order to address the Security of Supply crisis. We believe it essential that all New Capacity is connected as quickly as possible.

Ensuring adequate capacity is present on the system during the winter period will avoid significant cost to the consumer. This cost is already being incurred as seen with the hundreds of millions of euro which have been spent on emergency generation which is procured outside of the competitive capacity market. These costs are incurred at a point in time when consumers already face increased costs due to rising commodity prices, meaning that the impact of any capacity shortfall is compounded.

This modification represents a better outcome for consumers by addressing capacity deficits through the securing of New Capacity. Additionally, it is a fairer outcome for Commissioning Units which will be able to recover their costs when carrying out the required testing before Substantial Completion. Failure to implement this modification would result in New Capacity projects being burdened with significant costs which are irrecoverable through the Balancing Market.

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)

A.2.1.4. (b) to facilitate the efficient, economic, and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner;

(c) 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;

(d) to promote competition in the Single Electricity Market;

(g) 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.

Implication of not implementing the Modification Proposal

(State the possible outcomes should the Modification Proposal not be implemented)

Obstacles to the delivery of New Capacity in the SEM, combined with rapid demand growth, has resulted in a Security of Supply crisis which has led to the need to procure expensive emergency generation in order to ensure the lights stay on in winter. This modification seeks to remove one of these barriers, by ensuring that New Capacity projects are not burdened with an irrecoverable cost. Doing so would result in an easier completion process for New Capacity and an alleviation of the current supply deficit.

This modification seeks to ensure that the CRM can deliver New Capacity as intended to do so. Failure to implement the modification would represent a continuation of the challenges which have made investment so difficult to date. If units are unable to recover their commissioning costs, they may delay testing until it is financially viable to do so, which means they would likely miss the key winter period for which they are required. Alternatively, they may terminate their project altogether – and potential new investment would be dissuaded from entering the market.

Additionally, failure to implement this modification would result in significantly greater costs to consumers arising due to a lack of competition in the supply of generation. This has been witnessed already with the procurement of emergency generation at the cost of hundreds of millions to the consumer. This generation is procured outside the competitive process which is a core principle of the CRM. Failure to address challenges and obstacles to capacity delivery will result in a continued reliance on emergency generation. Not only will this result in further costs for consumers, it also represents a major risk to Security of Supply. With continued demand growth, there is no guarantee that there will be available emergency generation to address any deficit.

<p style="text-align: center;">Working Group</p> <p style="text-align: center;"><i>(State if Working Group considered necessary to develop proposal)</i></p>	<p style="text-align: center;">Impacts</p> <p style="text-align: center;"><i>(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.)</i></p>

Please return this form to Secretariat by email to balancingmodifications@sem-o.com