WORKING GROUP 1 REPORT

MOD_13_19 PAYMENT FOR ENERGY CONSUMPTION IN SEM FOR NON-ENERGY SERVICES DISPATCH

10 DECEMBER 2020

CONFERENCE CALL

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Document History

Version	Date	Author	Comment
1.0	17th December 2020	Modifications Committee Secretariat	Issued to Attendees at the meeting for review
2.0	8th January 2021	Modifications Committee Secretariat	Issued to committee for review

Distribution List

Name	Organisation
Modifications Committee Members	Modifications Committee
Working Group Attendees	Various

Reference Documents

Document Name	Document Reference
Mod_13_19	Proposal Form
Mod_13_19	Proposal Form V.2
Mod_13_19	Presentation
Mod_13_19	Presentation
Mod_13_19	Presentation – Meeting 101
Mod_13_19	Industry call - minutes

In Attendance

Name	Company
Robert McCarthy	Electricity Exchange
Grainne Black	CRU
Gina Kelly	CRU
Anne Trotter	EirGrid
Christopher Goodman	SEMO
Stacy Feldmann	SSE
Ian Mullins	Bord Gais
William Carr (Chair)	ESB
Angela Blair	Energia Group
Claran Dennehy	Energia
Niamh Delaney	EirGrid
Conall Heussaff	CRU
Thomas O'Sullivan	Aughinish
Katia Compagnoni	SEMO
Andrew McCorriston	SSE
Karen O'Doherty	NIE Networks

1 INTRODUCTION

Secretariat welcomed all Participants and thanked them for committing their time to the Working Group. A high level overview of the Working Group process was provided covering timescales, communication and the objective of submitting a Working Group Report with a Recommendation to the Modifications Committee.

Secretariat noted that the Working Group Report for Mod_13_19 would be issued to all attendees for review and a recommendation would be made in the final section of this report. A version 2 of the proposal will be submitted for consideration at the February Modifications Committee Meeting on 11th February 2021.

2 BACKGROUND

Mod_13_19 Payment for Energy Consumption in SEM for non-energy Services Dispatch was received by the Secretariat on 8th August 2019. This Modification was first raised at Meeting 93 on 22nd August 2019 and further discussed at Meeting 94 on 24th October 2019, Meeting 95 on 5th December 2019, Meeting 97 on 20th February 2020, Meeting 98 on 23rd April 2020, Meeting 99 on 18th June 2020, an Industry Call on 21st July 2020, Meeting 100 on 20th August 2020, Meeting 101 on 22nd October 2020 and Meeting 102 on 3rd December 2020. A Working Group was confirmed at Meeting 101 on 22nd October 2020.

At Meeting 93 the Proposer delivered a presentation on this Modification highlighting that there was no legal drafting as the Modification Proposal is provisional. The Proposal arises from the fact that not all operation modes of units are modelled in the market and units may incur energy costs when running in certain modes. For example units such as synchronous compensators or wind farms at zero MW may provide needed voltage support to the grid, but in order to operate in this way will consume energy. In the future there may be other technologies that need to be dispatched for non-energy actions and that will consume energy which also needs to be accounted for. Currently the TSO needs to put out-of-market contracts in place to account for these pass-through energy costs, which is not transparent. If units providing non-energy services such as voltage support were not remunerated in this way, the TSO would have to dispatch other units, increasing imperfections costs.

It was noted that the idea of DS3 System Services was to get away from the bilateral contracts structure of the past and to be more transparent. The Proposer noted that the proposal had been discussed with SEMO and that there were various implementation options, such as profiling a “synch comp” instruction or equivalent for other non-energy dispatch actions, in such a way as to account for the energy consumed. The Proposer welcomed ideas on how best to implement the proposal. It was agreed by the RAs that the proposal is merited and units that consume energy for non-energy dispatch actions should be accounted for in the market. Other Members were also supportive of the principle of accounting for energy associated with non-energy dispatch actions in the market. It was noted that there may be other units that need to be considered, such as wind operating at zero MW or new emerging technologies, and more analysis may be needed. A brief discussion took place around the potential system impacts of implementing the proposal and that a solution that limits the impact to settlement system only might be preferable in terms of costs and complexity.

A Proposal for a Working Group was raised but the RAs suggested deferral of this Modification Proposal to allow the Proposer to develop its design in more detail, together with SEMO, with a view to returning with detailed legal drafting or at least with a straw man for discussion.

3 DISCUSSION

Overview & Background

The Proposer provided a background on this Modification noting that its aim was to access capability to provide voltage support from units which can provide it when operating at 0MW, ensuring that the energy associated with providing this should not be paid for by the service providing unit. It was also noted that this proposal was originally raised with consideration of wind farms among other unit types.

The Proposer advised that slides were issued and discussed at Meeting 101 on some of the issues previously raised with an Industry call convened in July 2020. A survey was also circulated containing a questionnaire looking for comments. It was noted that only a small number of responses to the survey were received. It was confirmed that the slides contained the solution in more detail and outlined the potential issues which had previously been considered.

The Proposer noted that the first issue was in relation to additional market charges such as use of system charges and the PSO levy where it applies. There was an acknowledgement that it may be preferable not to expose service providers to such charges but that this would not be possible under this medium term solution. The Proposer noted that this may be offset by the energy consumption for house load not being charged for during the Trading Periods where a unit is providing the service under the approach put forward. The second issue was in consideration of how the cost of the energy consumption associated with providing the service would be accounted for. This was examined by the MO and the TSO and it was concluded that it would appear in residual error by default. The Proposer noted that the costs due to this service provision could be reported as a specific line item in Dispatch Balancing Cost reporting for transparency.

The Proposer led on to the next point regarding the need for units to renegotiate MICs so that they will not incur overrun charges for exceeding their MIC when in this mode and providing the service .It was advised that System Operators had followed up regarding the need to have a capability to send flags to SEMO to denote when the unit is instructed to be in the service providing mode. While not formally impact assessed from a cost perspective, this is possible in principle and something similar is done with other units. The Proposer noted that in general any known issues have been worked through and this was a viable solution for windfarms and other units. There was an issue raised around how this solution would apply for a battery which was discussed throughout the Working Group.

The Chair summarised that a number of issues were identified and had been addressed or mitigated. They noted that in their view it was pragmatic to balance the need to find an approach quickly and the fact that this will not necessarily cover all bases.

Solutions

An attendee queried if there would be changes to MIC and if changes to connection agreements would be required. The Chair advised that there can be increased import in providing the service which would require changes to connection agreements and that in their experience this can take a number of months. A Participant from NIE Networks noted that this was the same process for Northern Ireland and the application process needs to consider MIC and other processes which are outside of the Modification Proposal.

The Proposer advised that one driver for the Modification was to get a level playing field noting that units should not be expected to pay for their own energy costs when these are incurred due to providing a system service. If windfarms are in the same position to provide the service then in the interest of fairness an approach is needed to provide a mechanism to mitigate that cost.

A Generator Member asked if all were comfortable with the existing TSSU definition and if the TSSU definition would need to be changed at all given its use under this proposal. The Chair confirmed that Participants could already register as TSSUs and that the definition was general so a change to this was not envisaged.

SEMO advised that the only real issue in this case was around multiple units as this Modification appears to only apply to single units. This would potentially result in a number of TSSUs and Trading Sites for a given Generation Site.

Another SEMO Member supported the above statement noting that there was no apparent issue with the TSSU definition where Generation Sites being split into multiple Trading Sites will allow separation of units. It was confirmed that this was already provided for in the Code. An Observer queried how a battery registers noting that registration cannot take place with the trading site supplier units. It was pointed out that the solution focuses on windfarms to date and could not be applied to a battery. It was advised that a number of battery projects are coming downstream pretty soon and it was important to have something that worked for them. The Chair advised that there were good reasons why batteries do not have Trading Site Supplier Units. It was noted that energy consumption of windfarms is not the same as to a battery. If reactive power was to be provided you do not want to apply a solution that could allow the possibility to charge a battery for free when providing services. It was asked if a separate flag could be created to tell a participant to not go to charge.

A Supplier Member advised that it would take time to find an enduring solution with a question around system changes and timelines for implementation of this Modification. SEMO confirmed that the normal scope timeline for release would be close to ten months to a year ahead of implementation of the release.

A DSU Member acknowledged the points made around batteries and windfarms. They noted that it is important that the proposal is clear that the service provision flag does not apply to TSSUs associated with Demand Side Units so that there are no unintended consequences. A DSU Participant advised that this issue was raised in the last Modifications Committee meeting and the legal drafting would need to carve out DSUs to sort this issue. The Chair noted this was a good point.

It was asked by a Participant what types of units were being considered in this Modification as it appeared only windfarms were mentioned and what was the scale and scope of units. The Chair confirmed that anyone that can register under Trading Site Supplier Units would be considered.

A Participant noted a similar situation with Autoproducers to that with Demand Side Units and requested assurance that any existing arrangements for Autoproducers were not inadvertently changed. Support was given for this Modification whilst also noting that the process is long for introducing approaches for new technology types. A DSU Participant agreed that an exclusion should be included in the clause for Autoproducers also as they would potentially not be charged for imports which are not for service provision if a service provision flag was applied. The Proposer provided assurance that the Modification would be updated to provide clarity for DSUs and Autoproducers.

A Participant questioned if consideration was given to multiple units behind a single point of connection and if a flag was issued at the point of connection would it get divided between the multiple units. The Proposer agreed that this was a point that needed to be checked and requested an example. It was advised that the legal drafting could be updated to clarify what the process would be if necessary.

An item was raised around the clarity of the new glossary definitions introduced in the proposal from the point of view of whether they were clear what the default value of the service provision flag was, whether it would be provided for all TSSUs or only a subset associated with sites which are service providers and also in terms of clarifying the approach of applying the flag to a Trading Site Supplier Unit based on an associated Generator Unit being in a state of providing a service. These points were acknowledged and it was noted that they could be considered during the drafting of the updated version of the Proposal.

A Participant gave support to this Modification noting that it brings down imperfections charges. It was asked what volumes of this service were forecasted under this Modification and what the cost savings on imperfection charges were. The Proposer advised that these figures had previously been examined and were substantial enough to raise this Modification. A TSO attendee noted that dispatch of particular units was costing up to 10 million and a solution was needed to address this while noting that some of this dispatch was not due to this issue though the majority was. It was acknowledged that this Modification was not a perfect solution and every effort was made to not exclude anyone from this. It was discussed that further work could be done in relation to technologies not addressed by this solution, such as batteries.

A DSU Participant requested the TSO to take an action on whether it would be feasible to identify which imports for batteries are for charging and which are for service provision. This would potentially allow for an equivalent treatment to be designed for batteries. It was advised that a line needed to be drawn under storage units and check how viable it is to use charge for service reasons and be charging for a battery unit.

The Chair advised there were challenges around charging for battery related and unrelated to system services with battery developers querying how this will be done but that this would need to be an action that ran alongside this Modification but separate to it. A DSU Participant agreed there were challenges but that this Modification was not required to solve the battery problem and an action should be noted from this Working Group that this needs to be looked at.

4 RECOMMENDATIONS

As noted in the discussion a number of minor changes need to be considered in a subsequent version of the Modification Proposal to be submitted for the next Modifications Committee Meeting.

Changes are to be considered in terms of the legal drafting on service provision flag creation as follows:

1. More detail provided in the proposed legal drafting to give more clarity on setting of the flag to zero by default;
2. Provide clarity on whether the flag exists for all TSSUs or only a subset related to Generator Units which provide services;
3. Provide clarity around the flag being applied to TSSUs based on the status of associated Generator Units;
4. Provide clarity in the glossary definitions of what a flag of zero or one means.

This version of the proposal should also provide clarity that the treatment does not apply to Trading Site Supplier Units associated with Demand Side Units or Autoproducers.

An action was requested to consider the treatment of multiple Generator Units at a single point of connection and advise how these are to be treated at the next Modifications Committee Meeting.

An action was requested to follow up in consideration of the approach for batteries separate to this proposal. All attendees were requested to provide any further comments on legal drafting to be sent by Thursday, 17th December 2020.

5 NEXT STEPS & ACTIONS

NEXT STEPS

- Secretariat to draft a Working Group Report with a recommendation to review.
- Actions below to be noted and legal drafting to be amended to provide clarity.

ACTIONS

- Proposer to follow up regarding the treatment of batteries when providing services separately to this Modification Proposal
- Proposer to update legal drafting to ensure that DSUs and Autoproducers are not included in the treatment for service provision in the Proposal
- Proposer to consider how the treatment works for multiple Generator Units on a single connection point and advise at the next Modifications Committee meeting
- Proposer to include clear definition on the meaning of a system service flag of one and zero in the legal drafting
- Proposer to detail in the legal drafting what the default value of the system service flag is, whether it applies to all TSSUs or only a subset and clarification in definitions regarding the application of the flag to a TSSU based on the status of associated Generator Units
- Attendees to send any further comments on legal drafting by Thursday, 17th December for review.

6 APPENDIX 1 – EIRGRID MODIFICATION PROPOSAL

MODIFICATION PROPOSAL FORM			
Proposer *(Company)*	**Date of receipt** *(assigned by Secretariat)*	**Type of Proposal** *(delete as appropriate)*	**Modification Proposal ID** *(assigned by Secretariat)*
EirGrid	**8th October 2020**	**Provisional**	**Mod_13_19 v2**

Contact Details for Modification Proposal Originator		
Name	**Telephone number**	**Email address**
Niamh Delaney		**niamh.delaney@eirgrid.com**

Modification Proposal Title
Payment for Energy Consumption in SEM for non-energy Services Dispatch

Documents affected *(delete as appropriate)*	**Section(s) Affected**	**Version number of T&SC or AP used in Drafting**
T&SC Part A/Part B/Part C **Appendices Part A/Part B** **Glossary Part A/Part B/Part C** **Agreed Procedures Part A/Part B**		

Explanation of Proposed Change

(mandatory by originator)

A number of important system services are procured through the DS3 System Services Regulated Arrangements. These include reserves across varying timeframes, inertial response, ramping services and reactive power. Such services help the TSOs to maintain a secure and reliable power system, particularly as the level of installed renewable generation on the power system increases.

While payment for system services is handled through the DS3 System Services Arrangements, there are occasions when the TSOs will need to dispatch on a generator (or other unit) to provide non-energy services.

For example, a generator with the capability of operating in synchronous compensation mode or a wind farm capable of providing reactive power at 0MW will consume energy when operating in those modes. However such modes of operation are not currently accounted for in SEM.

The TSOs propose that such modes of operation should be modelled in SEM, that non-energy dispatch instructions should be profiled and accounted for as uninstructed imbalances.

A specific example of the potential application of this in relation to synchronous compensation is given below:

Maintaining voltage on the transmission system is critical to ensuring the stability of power flows. Generators (or other devices) either generate or absorb "reactive power" to maintain system voltage.

Particular requirements for voltage support are often locational. The provision of reactive power as a service is currently remunerated for contracted units through the DS3 System Services Regulated Arrangements.

Voltage support may be provided in various ways. Some units, such as Coolkeeragh GT8 generation unit in Northern Ireland, have the capability to provide voltage support in synchronous compensation mode. When in this mode, the unit effectively runs as a synchronous motor on no load to generate or absorb reactive power, helping to maintain a constant grid voltage at all levels of demand.

When running in synchronous compensation mode, the unit consumes energy and therefore has an associated running cost. This synchronous compensation mode of operation is not modelled in the energy market.

The unit does receive upside through higher payments via its DS3 System Services volumes for Steady State Reactive Power (SSRP) and Synchronous Inertial Response (SIR), but they are not sufficient to cover the increased running cost associated with being in synchronous compensation mode.

SONI currently has an out-of-market Synchronous Compensation Service Contract with Coolkeeragh GT8 as there is currently a specific locational voltage support requirement in the north west. There is no payment rate associated with the service. The unit receives pass through costs only.

The TSOs are proposing that synchronous compensation capability (and other non-energy dispatch actions) should be modelled in SEM and that the means of doing so be explored.

For example a unit capable of operating in synchronous compensation mode could be treated as a conventional dispatchable generator unit instructed to go into synch comp mode. The dispatch instructions to the unit could be profiled such that if dispatched to consume in the energy market the unit pays for its consumption, whereas if dispatched for non-energy actions (such as the provision of reactive power in a particular mode), their energy consumption is allocated to imperfections. The exact means by which non-energy dispatch actions could be modelled is open for further discussion.

Note on Version 2:

Following extensive discussion within the TSOs and a conference call with industry on July 21st 2020, four possible solutions were identified and explored, of which two (noted below) were agreed as warranting further discussion. The proposed legal drafting below relates to Solution 4, proposed by William Carr, which would be a faster to implement, if not perfect solution.

- **Solution 1: Ideal solution**
  - Create a new dispatch instruction whereby a unit could be instructed to a negative generation level, to consume energy while providing a reactive power service
  - Profile DI in the instruction profiler and allocate energy consumed to imperfections

- **Solution 4: Unit as part of a TSSU**
  - Proposed in the context of windfarms – could also be applied to other units
  - Energy being drawn while the unit is providing reactive power at 0MW could be treated as negative generation
  - Unit could be reassigned to be part of a TSSU (rather than an ASU)
  - A flag could be sent to settlement to denote the period where the unit has been instructed to provide reactive power at 0MW

Legal Drafting Change

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

6.1 UNDER SECTION F OF TSC PART B

F2 Data Sources, Conventions and Definitions

F.2.8 System Services Provider

F.2.8.1 Each System Operator shall submit to the Market Operator, in accordance with the Settlement Calendar, in respect of each Trading Site Supplier Unit which is registered in a Trading Site with a System Service Providing Unit contracted with the respective System Operator under the DS3 System Services Arrangements to provide system services at zero MW exported energy, a flag representing the imbalance settlement periods where the System Services Providing Unit is dispatched so as to provide system services to the System Operator.

F.2.8.2 Each System Operator shall submit the flag referred to in F.2.8.1 in accordance with the Appendix K "Other Market Data Transaction" based on the settlement of the respective System Service Providing Unit under the DS3 System Services Arrangements.

F2.8.3 The Market Operator shall derive the binary value of the System Service Provider Flag ($SSPF_{vy}$) for each Trading Site Supplier Unit, v, which is on Trading Site, s, in each Imbalance Settlement Period, y.

Imbalance Component Charges

F.5.3.2

The Market Operator shall calculate the Imbalance Component Payment or Charge ($CIMB_{vy}$) for each Supplier Unit, v, in Imbalance Settlement Period, γ, as follows:

$$if(SSPFvy = 0, then$$

$$CIMB_{vy} = PIMB_{y} \times (QMLF_{vy} - QEX_{vy})$$

$$else$$

$$CIMB_{vy} = 0)$$

where:

(a) $SSPF_{vγ}$ is the System Service Provider Flag for Supplier Unit, v, in Imbalance Settlement Period, γ.

~~(a)~~(b) $PIMB_γ$ is the Imbalance Settlement Price in Imbalance Settlement Period, γ, calculated in accordance with Chapter E (Imbalance Pricing);

~~(b)~~(c) $QMLF_{vγ}$ is the Loss-Adjusted Metered Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ; and

~~(c)~~(d) $QEX_{vγ}$ is the Ex-Ante Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ.

Imperfection Charges

F.12.2.3

The Market Operator shall calculate the Imperfections Charge ($CIMP_{vγ}$) for each Trading Site Supplier Unit, v, in each Imbalance Settlement Period, γ, as follows:

$$if (SSPFvy = 0 \; then$$

$$CIMP_{vγ} =, Min\left(\sum_{u \in s} QMLF_{uγ} + \sum_{v \in s} QMLF_{vγ}, 0\right) \times PIMP_y \times FCIMP_γ$$

$$else$$

$$CIMP_{vγ} = 0$$

where:

(e) $SSPF_{vγ}$ is the System Service Provider Flag for Supplier Unit, v, in Imbalance Settlement Period, γ.

~~(d)~~(f) $PIMP_y$ is the Imperfections Price for Year, y;

~~(e)~~(g) $QMLF_{vγ}$ is the Loss-Adjusted Metered Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ;

~~(f)~~(h) $QMLF_{uγ}$ is the Loss-Adjusted Metered Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;

~~(g)~~(i) $\sum_{u \in s}$ is a summation over all Generator Units, u, in Trading Site, s, relevant to the Trading Site Supplier Unit;

~~(h)~~(j) $\sum_{v \in s}$ is the value for the single Trading Site Supplier Unit, v, in Trading Site, s, in accordance with paragraph B.9.1.2; and

~~(i)~~(k) $FCIMP_γ$ is the Imperfections Charge Factor for Imbalance Settlement Period, γ.

Capacity Charges

F.19.2.2

The Market Operator shall calculate the Capacity Charge ($CCC_{vγ}$) for each Supplier Unit, v, which is a Trading Site Supplier Unit, in each Imbalance Settlement Period, γ, as follows:

$$if (SSPFvy = 0 \; then$$

$$CCC_{v\gamma} = Min\left(\sum_{u \in s} QMLF_{u\gamma} + \sum_{v \in s} QMLF_{v\gamma}, 0\right) \times FQMCC_{\gamma} \times PCCSUP_{y}$$

$$else$$

$$CCC_{v\gamma} = 0$$

where:

(l) $SSPF_{v\gamma}$ is the System Service Provider Flag for Supplier Unit, v, in Imbalance Settlement Period, γ.

~~(j)~~(m) $QMLF_{v\gamma}$ is the Loss-Adjusted Metered Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ;

~~(k)~~(n) $QMLF_{u\gamma}$ is the Loss-Adjusted Metered Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;

~~(l)~~(o) $PCCSUP_{y}$ is the Supplier Capacity Charge Price in Capacity Year, y;

~~(m)~~(p) $FQMCC_{\gamma}$ is the Capacity Charge Metered Quantity Factor in Imbalance Settlement Period, γ;

~~(n)~~(q) $\sum_{u \in s}$ means the value for all Generator Units, u, in Trading Site, s, relevant to the Trading Site Supplier Unit; and

~~(o)~~(r) $\sum_{v \in s}$ means the value for the single Trading Site Supplier Unit, v, in Trading Site, s, in accordance with paragraph B.9.1.2.

Difference Payment Socialisation Charge

F19.4.2

The Market Operator shall calculate the Difference Payment Socialisation Charge ($CSOCDIFFP_{v\gamma}$) for each Supplier Unit, v, which is a Trading Site Supplier Unit, in each Imbalance Settlement Period, γ, as follows:

$$if (SSPFvy = 0 \; then$$

$$CSOCDIFFP_{v\gamma} = Min\left(\sum_{u \in s} QMLF_{u\gamma} + \sum_{v \in s} QMLF_{v\gamma}, 0\right) \times FQMCC_{\gamma} \times PCCSUP_{y} \times FSOCDIFFP_{y}$$

$$else$$

$$CSOCDIFFP_{v\gamma} = 0$$

where:

(s) $SSPF_{v\gamma}$ is the System Service Provider Flag for Supplier Unit, v, in Imbalance

Settlement Period, γ.

(p)(t) $QMLF_{v\gamma}$ is the Loss-Adjusted Metered Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ;

(q)(u) $QMLF_{u\gamma}$ is the Loss-Adjusted Metered Quantity for Generator Unit, u, in Imbalance Settlement Period, γ;

(r)(v) $PCCSUP_y$ is the Supplier Capacity Charge Price in Capacity Year, y;

(s)(w) $FQMCC_\gamma$ is the Capacity Charge Metered Quantity Factor in Imbalance Settlement Period, γ;

(t)(x) $\sum_{u \in s}$ is a summation over all Generator Units, u, in Trading Site, s, relevant to the Trading Site Supplier Unit;

(u)(y) $\sum_{v \in s}$ is the value for the single Trading Site Supplier Unit, v, in Trading Site, s, in accordance with paragraph B.9.1.2; and

(v)(z) $FSOCDIFFP_y$ is the Difference Payment Socialisation Multiplier in Capacity Year, y.

Imbalance Difference Quantity

F20.3.2

The Market Operator shall calculate the Imbalance Difference Quantity ($QDIFFPIMB_{v\gamma}$) for each Trading Site Supplier Unit, v, in each Imbalance Settlement Period, γ, as follows:

$$if (SSPFvy = 0 \; then$$

$$QDIFFPIMB_{v\gamma} = Min\left(\sum_{u \in s} QMLF_{u\gamma} + \sum_{v \in s} QMLF_{v\gamma}, 0\right)$$

$$else$$

$$QDIFFPIMB_{v\gamma} = 0$$

where:

(aa) $SSPF_{v\gamma}$ is the System Service Provider Flag for Supplier Unit, v, in Imbalance Settlement Period, γ.

(w)(bb) $\sum_{u \in s}$ is a summation over all Generator Units, u, in Trading Site, s, relevant to the Trading Site Supplier Unit;

(x)(cc) $\sum_{v \in s}$ is the value for the single Trading Site Supplier Unit, v, in Trading Site, s, in accordance with paragraph B.9.1.2;

(y)(dd) $QMLF_{u\gamma}$ is the Loss-Adjusted Metered Quantity for Generator Unit u in Imbalance Settlement Period γ; and

(z)(ee) $QMLF_{v\gamma}$ is the Loss-Adjusted Metered Quantity for Supplier Unit, v, in Imbalance Settlement Period, γ.

6.2 UNDER TSC PART B GLOSSARY

DS3 System Services Arrangements	means, the contractual framework in place between each System Operator and System Service Providing Unit governing the provision of and remuneration for system services required by each System Operator to maintain the secure and reliable operation of the system.
System Services Provider Flag	means, a binary value derived by the Market Operator indicating whether a System Service Providing Unit was operating to provide system services in a given imbalance settlement period.
System Services Providing Unit	means, an apparatus or group of apparatus connected to the Transmission System or Distribution System that are contracted to provide system services to their respective System Operator.

6.3 UNDER TSC PART B APPENDIX K: OTHER MARKET DATA TRANSACTIONS

DATA TRANSACTIONS

A.1.1.3 The Data Transactions in this Appendix K include:

Data Transactions from System Operator to Market Operator

(a) System Parameters (FCLAF)

…

(r) System Services Provider Flag

Data Transactions from Interconnector Administrator to Market Operator

(b) Interconnector Capacity Market Availability

System Services Provider Flag Data Transaction

A.1.1.27 The Data Records for the System Service Provider Flag Data Transaction are described in Table 3 and the Submission Protocol in Table 4.

Table 16 –System Services Provider Flag Data Records

Jurisdiction
Trading Site Unit
Trading Day
Imbalance Settlement Period
System Service Provider Flag Value

Table 27 –System Services Provider Flag Data Submission Protocol

Sender	System Operator(s)
Recipient	Market Operator
Frequency of Data Transactions	As Available
First Submission time	As available
Last Submission time	As available
Permitted frequency of resubmission prior to last submission time	Unlimited
Required resubmission subsequent to last submission time	None
Valid Communication Channels	Type 1 (manual)
Process for data validation	None

Interconnector Capacity Market Availability Data Transaction

~~A.1.1.27~~A.1.1.51 The Data Records for the Interconnector Capacity Market Availability Data Transaction are described in Table 3 and the Submission Protocol in Table 49.

Table 38 – Interconnector Capacity Market Availability Data Transaction Data Records: Average values per Imbalance Settlement Period

Interconnector
Trading Day
Imbalance Settlement Period
Maximum Import Capacity Market Availability ($qCMAMAXI_{Iy}$)
Maximum Export Capacity Market Availability

Table 49 – Interconnector Capacity Market Availability Data Transaction Submission Protocol

Sender	Interconnector Administrator
Recipient	Market Operator
Number of Data Transactions	One containing: Maximum Import Capacity Market Availability and Maximum Export Capacity Market Availability for each Imbalance Settlement Period in the relevant Trading Day for the relevant Interconnector.
Frequency of Data Transactions	Daily and as updated
First Submission time	As available
Last Submission time	Unlimited, prior to Imbalance Settlement Calculation
Permitted frequency of resubmission prior to last submission time	Unlimited
Required resubmission subsequent to last submission time	In the event of a change in the magnitude of Capacity Market Availability in either direction, resubmission is possible prior to Imbalance Settlement Calculation or as required to resolve a Settlement Query or a Dispute where the Data Records in the Transaction are discovered to be in error.
Valid Communication Channels	Type 3 (computer to computer)
Process for data validation	None

Modification Proposal Justification

(Clearly state the reason for the Modification)

Some units in the SEM currently have modes such as synchronous compensation capability which are not currently modelled in the energy market. Such capability can be very useful to the system operator in maintaining voltage stability but, for example, as a unit in sync comp mode consumes energy, energy costs must be remunerated. The current workaround of out-of-market standalone contracts lacks transparency. As synchronous compensation capability contributes to voltage stability, which is an important element of system reliability, the SO is of the opinion that integrating the mode into the energy market would allow it to be used in the most optimum way and deliver the most value to the consumer. The same principle also applies to other units which may have the capability of being dispatched to provide services critical to power system operation and consume energy in order to enact this service provision.

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)
This proposal aims to further Code Objectives 1.3.5 "*to provide transparency in the operation of the Single Electricity Market";* by dealing with synchronous compensation mode payments transparently through the balancing market rather than through out-of-market mechanisms. and 1.3. 7 *"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."* as provision of adequate voltage support is essential to the reliability of the power system.
Implication of not implementing the Modification Proposal *(State the possible outcomes should the Modification Proposal not be implemented)*
Failure to implement the proposal will necessitate continued out-of-market contracts and associated energy payments to account for synchronous compensation mode and other non-energy services. Where there is no payment rate associated with dispatching a unit into a particular mode to provide a service, running a tender for it is problematic. It would greatly increase transparency if unit dispatch for non-energy services were accounted for within the SEM.

Working Group *(State if Working Group considered necessary to develop proposal)*	**Impacts** *(Indicate the impacts on systems, resources, processes and/or procedures; also indicate impacts on any other Market Code such as Capacity Marker Code, Grid Code, Exchange Rules etc.)*
	Potential system and process impacts include EDIL, MMS, CSB and TSO processes.

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