



Single Electricity Market

FINAL RECOMMENDATION REPORT

MOD_11_23 SDP_02 BATTERY INTEGRATION V2

25 JANUARY 2024

COPYRIGHT NOTICE

All rights reserved. This entire publication is subject to the laws of copyright. This publication may not be reproduced or transmitted in any form or by any means, electronic or manual, including photocopying without the prior written permission of EirGrid plc and SONI Limited.

DOCUMENT DISCLAIMER

Every care and precaution is taken to ensure the accuracy of the information provided herein but such information is provided without warranties express, implied or otherwise howsoever arising and EirGrid plc and SONI Limited to the fullest extent permitted by law shall not be liable for any inaccuracies, errors, omissions or misleading information contained herein.

Document History

| Version | Date | Author | Comment |
|---------|---------------------------|-------------------------------------|---|
| 1.0 | 25 th Jan 2024 | Modifications Committee Secretariat | Issued to Modifications Committee for review and approval |
| 2.0 | 8 th Feb 2024 | Modifications Committee Secretariat | Issued to Regulatory Authorities for final decision |

Reference Documents

| Document Name |
|---|
| Trading and Settlement Code |
| Modification Proposal Form |
| Presentation |

Table of Contents

1. MODIFICATIONS COMMITTEE RECOMMENDATION 3

RECOMMENDED FOR APPROVAL– UNANIMOUS VOTE 3

2. BACKGROUND..... 3

3. PURPOSE OF PROPOSED MODIFICATION 4

3A.) JUSTIFICATION OF MODIFICATION 4

3B.) IMPACT OF NOT IMPLEMENTING A SOLUTION 5

3C.) IMPACT ON CODE OBJECTIVES 6

4. WORKING GROUP AND/OR CONSULTATION 6

5. IMPACT ON SYSTEMS AND RESOURCES..... 6

6. IMPACT ON OTHER CODES/DOCUMENTS 6

7. MODIFICATION COMMITTEE VIEWS..... 6

MODIFICATIONS MEETING 119 – 19TH OCTOBER 2023 6

MODIFICATIONS MEETING 120 – 5TH DECEMBER 2023 7

8. PROPOSED LEGAL DRAFTING..... 7

9. LEGAL REVIEW..... 7

10. IMPLEMENTATION TIMESCALE 7

1 APPENDIX 1: MOD_11_23 SDP_02 BATTERY INTEGRATION V2 8

1. MODIFICATIONS COMMITTEE RECOMMENDATION

RECOMMENDED FOR APPROVAL– UNANIMOUS VOTE

| Recommended for Approval by Unanimous Vote | | |
|--|--------------------------------|---------|
| Stacy Feldmann (Chair) | Generator Member | Approve |
| Nick Heyward | Flexible Participant Alternate | Approve |
| David Caldwell | Supplier Member | Approve |
| Sean McParland | Generator Member | Approve |
| Richard Crowley | Generator Alternate | Approve |
| Eoghan Cudmore | Supplier Alternate | Approve |
| Paraic Higgins | Generator Member | Approve |
| Andrew Burke | Renewable Generator Member | Approve |
| Colm Oireachtaigh | Supplier Member | Approve |
| Robert McCarthy | DSU Member | Approve |
| Eoin Mooney | Assetless Member | Approve |

2. BACKGROUND

This Modification Proposal was raised by EirGrid, SONI & SEMO and received by the Secretariat on 5th October 2023. The Proposal was discussed at Meeting 119 on 19th October 2023. An Industry Call was held on 8th November 2023 and a second Industry Call on 15th November 2023. A version 2 of the Proposal was raised and voted on at Meeting 120 on 5th December 2023.

In support of Irish and Northern Irish Government renewables targets for the electricity sector, EirGrid and SONI have undertaken to define and implement a set of initiatives to allow them to operate the system under conditions of 80% total renewable energy and 95+% system non-synchronous penetration (SNSP) on an instantaneous basis. A number of these initiatives relate to how the system is scheduled and dispatched, and in conjunction with related changes required to support compliance with the Clean Energy Package, have been grouped together into the Scheduling & Dispatch Programme (SDP).

The SDP_02 initiative within this programme encompasses battery integration. Its objective is to facilitate the more effective use of batteries in scheduling and dispatch processes and systems. With increasing intermittent generation, energy storage is an ever-growing important source of flexibility and stability to the electrical system, while also providing needed system services capabilities in Ireland and Northern Ireland. These changes will allow market participant and the control centres to realise more value from batteries, and better align with their operating characteristics. In particular they will allow Battery Storage Units to submit negative Physical Notifications and be dispatched to specific MW levels

in their charging range. The wider suite of system and operational changes associated with this initiative will also be detailed in updates to Grid Codes, Balancing Market Principles Statement and relevant methodologies published by the TSOs.

Due to system vendor constraints, it is not currently possible to optimise Battery Storage Units fully in scheduling processes. Because of this, Battery Storage Units will be scheduled to follow participant submitted Physical Notifications. The TSOs' intention in coming years is to deliver an enduring solution for Battery Storage Units which will include full optimisation.

Changes to market rules are needed to support these scheduling and dispatch changes and to better reflect the characteristics of the technology. An overview of the Trading and Settlement Code changes proposed is given below:

- In registration, Battery Storage Units will be required to register as part of a Trading Site so that non-firm quantities can be settled correctly with respect to their allocated Firm Access Quantity as per other generator units.
- In Commercial Offer Data, new fields will be created to give the control centres information on whether Physical Notifications submitted breach the unit's MWh storage limits. Forecast Minimum Stable Generation will be mandated to be entered as zero to reflect the fact that these units can traverse through zero.
- In Technical Offer Data, field names will be used for both Pumped Storage Units and Battery Storage Units where appropriate.
- The description of Charging Mode will no longer be required for Battery Storage Units as it will no longer be necessary to be able to differentiate between the treatment of battery units while charging or discharging under the Trading and Settlement Code.
- On occasions when the TSOs dispatch Battery Storage Units away from Physical Notifications causing Physical Notifications later in the day to become infeasible, the TSOs will compensate dispatch away from those later Physical Notifications at the better of the participant's Commercial Offer Data price and the Imbalance Price through the CPREMIUM and CDISCOUNT charge components. Complex Commercial Offer Data will be used for the settlement all Bid Offer Acceptance quantities on Battery Storage Units so that when the TSOs are forced to take these actions they are not forced to accept Simple prices.
- The Imbalance Charge and Uninstructed Imbalance Charge will be applied to Battery Storage Units as they are for other generator units while charging and discharging. This reflects the fact that, unlike Pumped Storage Units, Battery Storage Units can control the level to which they consume power when dispatched to charge. This also complies with regulatory requirements for Balance Responsible Parties (under the EU's Clean Energy Package (CEP), Energy Balancing Guidelines (EBGL), and Imbalance Settlement Harmonisation Proposal methodology (ISHP)).
- The application of the Testing Charge will be applied to Battery Storage Units as for Interconnector Units to account for negative meter volumes.
- Dispatch Instructions and Instruction Profiling logic will be updated as GOOP instructions will not be used for Battery Storage Units, and ramp rates will apply between the Registered Minimum Output and zero as well as between the Minimum Stable Generation and the Registered Capacity. Instruction Profiling will use the same logic for charging and discharging.

3. PURPOSE OF PROPOSED MODIFICATION

3A.) JUSTIFICATION OF MODIFICATION

These changes will allow the treatment of Battery Storage Units to be decoupled from the treatment of Pumped Storage Units to better reflect their technical characteristics and allow them to participate in the Balancing Market in a competitive and non-discriminatory way.

At present the treatment of Battery Storage Units while charging is the same as the treatment of Pumped Storage Units while pumping. Particular treatment was put in place in settlement because Pumped Storage Units cannot control the level to which they consume power when dispatched to pump. This is not a feature of Battery Storage Units and so once market systems have the capability to receive Physical Notifications and Dispatch these units in their charging range this treatment will no longer be appropriate for Battery Storage Units.

This decoupling will apply to the requirement that Pumped Storage Units not be registered as part of a Trading Site, the application of the Imbalance Charge and Uninstructed Imbalance Charge, Dispatch Instructions and Instruction Profiling.

The change to the application of the Imbalance Charge was identified as necessary in SEM-21-017 (EirGrid and SONI Analysis of SEM Compliance with Commission Regulation (EU) 2017/2195 of 23 November 2017 Establishing a Guideline on Electricity Balancing) in order to comply with the EU's Clean Energy Package (CEP), Energy Balancing Guidelines (EBGL), and Imbalance Settlement Harmonisation Proposal methodology (ISHP).

Further changes are proposed in order to handle import volumes appropriately in the Testing Charge. The Testing Tariff Price should always be applied as a charge rather than a payment to participants. Without this change the Testing Charge would be a payment to participants when the Battery Storage Unit is importing.

Changes are also proposed to provide greater situational awareness to control centre engineers. The new Commercial Offer Data fields (Operational Maximum and Minimum Storage Quantity) will give the control centre engineer information on whether Physical Notifications submitted by participants are feasible with respect to the unit's state of charge, and as a result whether it is possible to schedule and dispatch the unit to those Physical Notifications.

Finally, changes are proposed to Technical Offer Data field names so that where similar fields are used for Pumped Storage Units and Battery Storage Units the same field name can be used for both.

3B.) IMPACT OF NOT IMPLEMENTING A SOLUTION

If these changes are not implemented Battery Storage Units will not be settled according to their unique characteristics and will not be able to participate in the Balancing Market in a competitive and non-discriminatory way.

Battery units will by default be settled as fully-firm regardless of allocated Firm Access Quantity under the unit's connection agreement as a result of the requirement not to register as part of a Trading Site.

These units will unnecessarily be subject to a different form of the Imbalance Charge to other generators while charging, contrary to EU regulatory requirements for Balance Responsible Parties, and will be exempted from the Uninstructed Imbalance charge while charging.

Testing Tariff Prices will be applied incorrectly for imports leading to unwanted settlement outcomes.

Appendix O will not describe the desired Dispatch Instruction and Instruction Profiling logic which would allow Battery Storage Units to be dispatched to specific MW levels in their charging range and priced and settled accordingly. The existing logic does not allow for ramp rates to be applied below zero as these units would be subject to GOOP instructions which involve ramping instantaneously to the unit's full storage capacity when instructed to pump.

If SDP_02 as a whole is not delivered the control centres and market participants will not be able to gain maximum value from battery resources. Market participation will continue to be limited by the inability to register as a Battery Storage Unit, submit negative Physical Notifications, schedule or dispatch in the charging range, and price and settle accordingly. Participation in and revenue from energy markets will continue to be limited for these units. This may have an impact on investment decisions which may affect the system's ability to reach renewables targets.

3C.) IMPACT ON CODE OBJECTIVES

- d) 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; These changes will improve market access because rules for participation will be clearly set out for participants.
- h) to provide transparency in the operation of the Single Electricity Market; These changes will improve market transparency because units will be registered with their own true characteristics.
- i) to ensure no undue discrimination between persons who are parties to the Code; and These changes will ensure no undue discrimination as Battery Storage Units will be treated as similarly as possible to other generator units while respecting their unique technical characteristics.
- j) 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.

These changes will promote the interests of consumers by minimising Dispatch Balancing Costs through not compensating for unavailable incremental volumes or non-firm decremental quantities and correctly applying Testing Tariff Prices and the Uninstructed Imbalance Charge.

4. WORKING GROUP AND/OR CONSULTATION

Industry Calls were held on 8th November and 15th November 2023.

5. IMPACT ON SYSTEMS AND RESOURCES

Some impact on Grid Codes, primarily to update Technical Offer Data fields.

Impact on participant systems in relation to Commercial and Technical Offer Data fields. Once-off impact on participants at cutover.

Impact on MI and MA in relation to updated data fields and instruction profiling logic.

Impact on settlement systems in relation to updated settlement logic.

Removes the need for an existing manual settlement workaround. Otherwise, no ongoing resource impact is anticipated within SEMO once implemented as a result of this mod.

6. IMPACT ON OTHER CODES/DOCUMENTS

N/A

7. MODIFICATION COMMITTEE VIEWS

MODIFICATIONS MEETING 119 – 19TH OCTOBER 2023

The Proposer gave a [presentation](#) on this Modification Proposal and a background on the Scheduling and Dispatch Program. The Proposer advised that the purpose of discussing this proposal at Meeting 119 was not to seek a vote but to introduce the main principles that it will be voted on at Meeting 120 on 5th December 2023.

The Proposer went through the slides in detail noting the main point of interest in terms of fixed initiatives, system limitations or treatment of Technical Offer Data. It was noted that this proposal focused specifically on batteries while Non-Priority Dispatch Renewable would be addressed at the next meeting. It was advised that the biggest issue was vendor limitation in the ability to optimize state of charge control which is a worldwide issue not limited to the SEM.

Concerns were raised over a number of issues such as changes to current practice of ‘trickle down’, treatment of Uninstructed Imbalance, risks to Generators that could be reflected in Simple Cods, and the interpretation of the EBGL guidelines for which a SEMC decision was still outstanding. RA Member, noting that the Proposer’s presentation outlined that *“Participants can reflect any commercial risk in their Simple COD, including prices which indicate the desire (or not) of being dispatched by the TSOs away from PNs”*, stated that the RAs would need to consider the implications of this and that a definitive statement cannot be made on this at this stage.

It was considered that the magnitude of this proposal and that the 2-month timeline may not be enough to get it progressed. It was suggested by some Members to split this up into smaller proposals with those changes that could be agreed submitted first while the others needing more discussion could progress separately. This would also allow for other proposals by Committee to be included in Release N. There were also a number of smaller queries on the details of legal drafting that a Generator Member was invited to be raise separately. It was advised by the Chair to hold further stand-alone meetings to discussions before the next Modifications Meeting. The SO Observer advised that there is a meeting already scheduled for the 1st November but they could consider holding sections for specific topics should it be needed.

MODIFICATIONS MEETING 120 – 5TH DECEMBER 2023

The Proposer gave a [presentation](#) on this Modification Proposal and gave a reminder of the purpose of the proposal and based on feedback from Meeting 119 there had been more opportunities for discussions. It was advised that 2 additional sessions were held for the Committee and wider industry and summarized how batteries would be treated like other Generators for most settlements calculations.

The Proposer went through the changes and system improvements that V2 of this Proposal would bring. It was noted that the aim of this Modification was to be able to register these units as battery storage and although this does not extend to full optimization due to vendor constraints, work on the delivery of that enduring solution would begin next year. The Proposer also advised that source data, dispatch and settlement were the focus of this Modification Proposal, and the approach in V2 would reduce risks raised by Participants.

It was noted that the implementation excluded the introduction of Outturn Minimum Output in the calculation of bid offer acceptance quantities for incs and the requirement for the need of this change will be assessed after the deployment. MO Member confirmed that this section had been removed from the legal drafting therefore vote taken today would not include those changes. The section discussed would require a second Modification Proposal.

8. PROPOSED LEGAL DRAFTING

As per tracked changes linked below:

[T&SC Part B Tracked Changes](#)

[T&SC Part B Appendices Tracked Changes](#)

[T&SC Part B Glossary Tracked Changes](#)

[T&SC Agreed Procedure 1 Tracked Changes](#)

[T&SC Agreed Procedure 4 Tracked Changes](#)

9. LEGAL REVIEW

N/A

10. IMPLEMENTATION TIMESCALE

It is recommended that this Modification is implemented on a Trading Day basis following the relevant Market System Release.

1 APPENDIX 1: MOD_11_23 SDP_02 BATTERY INTEGRATION V2

| 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> |
|---|---|--|---|
| EirGrid/SONI/SEMO | 21 st November 2023 | Standard | Mod_11_23 v2 |
| Contact Details for Modification Proposal Originator | | | |
| Name | Telephone number | Email address | |
| Grace Burke | | Grace.Burke@EirGrid.com | |
| Modification Proposal Title | | | |
| SDP_02 Battery Integration_V02 | | | |
| 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 Appendices Part B Glossary Part B Agreed Procedures Part B | B.9.1.3, D.4.2.6, D.4.2.15, D.5.1.4, D.5.1.5, D.5.1.6, D.5.1.7, F.2.1.4, F.3.3.2, F.4.3.3, F.9.1.5, F.13.2.1, F.13.2.2. Appendix H – Table 2. Appendix I – 2, Table 1, Table 2. Appendix O – 10, Table 1, Table 2, Table 3, 25, 28, 29, Table 8, Table 9, 37(a), 40. Glossary Part B Definitions and List of Variables and Parameters. Agreed Procedure 1 - Registration – 2.3. Agreed Procedure 4 – Transaction Submission and Validation - Appendix 2, Table 9. | V28.0 | |
| Explanation of Proposed Change <i>(mandatory by originator)</i> | | | |
| <p>In support of Irish and Northern Irish Government renewables targets for the electricity sector, EirGrid and SONI have undertaken to define and implement a set of initiatives to allow them to operate the system under conditions of 80% total renewable energy and 95+% system non-synchronous penetration (SNSP) on an instantaneous basis. A number of these initiatives relate to how the system is scheduled and dispatched, and in conjunction with related changes required to support compliance with the Clean Energy Package, have been grouped together into the Scheduling & Dispatch Programme (SDP).</p> | | | |

The SDP_02 initiative within this programme encompasses battery integration. Its objective is to facilitate the more effective use of batteries in scheduling and dispatch processes and systems. With increasing intermittent generation, energy storage is an ever-growing important source of flexibility and stability to the electrical system, while also providing needed system services capabilities in Ireland and Northern Ireland. These changes will allow market participant and the control centres to realise more value from batteries, and better align with their operating characteristics. In particular they will allow Battery Storage Units to submit negative Physical Notifications and be dispatched to specific MW levels in their charging range. The wider suite of system and operational changes associated with this initiative will also be detailed in updates to Grid Codes, Balancing Market Principles Statement and relevant methodologies published by the TSOs.

Due to system vendor constraints, it is not currently possible to optimise Battery Storage Units fully in scheduling processes. Because of this, Battery Storage Units will be scheduled to follow participant submitted Physical Notifications. The TSOs' intention in coming years is to deliver an enduring solution for Battery Storage Units which will include full optimisation.

Changes to market rules are needed to support these scheduling and dispatch changes and to better reflect the characteristics of the technology. An overview of the Trading and Settlement Code changes proposed is given below:

- In registration, Battery Storage Units will be required to register as part of a Trading Site so that non-firm quantities can be settled correctly with respect to their allocated Firm Access Quantity as per other generator units.
- In Commercial Offer Data, new fields will be created to give the control centres information on whether Physical Notifications submitted breach the unit's MWh storage limits. Forecast Minimum Stable Generation will be mandated to be entered as zero to reflect the fact that these units can traverse through zero.
- In Technical Offer Data, field names will be used for both Pumped Storage Units and Battery Storage Units where appropriate.
- The description of Charging Mode will no longer be required for Battery Storage Units as it will no longer be necessary to be able to differentiate between the treatment of battery units while charging or discharging under the Trading and Settlement Code.
- On occasions when the TSOs dispatch Battery Storage Units away from Physical Notifications causing Physical Notifications later in the day to become infeasible, the TSOs will compensate dispatch away from those later Physical Notifications at the better of the participant's Commercial Offer Data price and the Imbalance Price through the CPREMIUM and CDISCOUNT charge components. Complex Commercial Offer Data will be used for the settlement all Bid Offer Acceptance quantities on Battery Storage Units so that when the TSOs are forced to take these actions they are not forced to accept Simple prices.
- The Imbalance Charge and Uninstructed Imbalance Charge will be applied to Battery Storage Units as they are for other generator units while charging and discharging. This reflects the fact that, unlike Pumped Storage Units, Battery Storage Units can control the level to which they consume power when dispatched to charge. This also complies with regulatory requirements for Balance Responsible Parties (under the EU's Clean Energy Package (CEP), Energy Balancing Guidelines (EBGL), and Imbalance Settlement Harmonisation Proposal methodology (ISHP)).
- The application of the Testing Charge will be applied to Battery Storage Units as for Interconnector Units to account for negative meter volumes.
- Dispatch Instructions and Instruction Profiling logic will be updated as GOOP instructions will not be used for Battery Storage Units, and ramp rates will apply between the Registered Minimum Output and zero as well as between the Minimum Stable Generation and the Registered Capacity. Instruction Profiling will use

the same logic for charging and discharging.

Legal Drafting Change

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

Tracked changes attached.

Modification Proposal Justification

(Clearly state the reason for the Modification)

These changes will allow the treatment of Battery Storage Units to be decoupled from the treatment of Pumped Storage Units to better reflect their technical characteristics and allow them to participate in the Balancing Market in a competitive and non-discriminatory way.

At present the treatment of Battery Storage Units while charging is the same as the treatment of Pumped Storage Units while pumping. Particular treatment was put in place in settlement because Pumped Storage Units cannot control the level to which they consume power when dispatched to pump. This is not a feature of Battery Storage Units and so once market systems have the capability to receive Physical Notifications and Dispatch these units in their charging range this treatment will no longer be appropriate for Battery Storage Units.

This decoupling will apply to the requirement that Pumped Storage Units not be registered as part of a Trading Site, the application of the Imbalance Charge and Uninstructed Imbalance Charge, Dispatch Instructions and Instruction Profiling.

The change to the application of the Imbalance Charge was identified as necessary in SEM-21-017 (EirGrid and SONI Analysis of SEM Compliance with Commission Regulation (EU) 2017/2195 of 23 November 2017 Establishing a Guideline on Electricity Balancing) in order to comply with the EU's Clean Energy Package (CEP), Energy Balancing Guidelines (EBGL), and Imbalance Settlement Harmonisation Proposal methodology (ISHP).

Further changes are proposed in order to handle import volumes appropriately in the Testing Charge. The Testing Tariff Price should always be applied as a charge rather than a payment to participants. Without this change the Testing Charge would be a payment to participants when the Battery Storage Unit is importing.

Changes are also proposed to provide greater situational awareness to control centre engineers. The new Commercial Offer Data fields (Operational Maximum and Minimum Storage Quantity) will give the control centre engineer information on whether Physical Notifications submitted by participants are feasible with respect to the unit's state of charge, and as a result whether it is possible to schedule and dispatch the unit to those Physical Notifications.

Finally, changes are proposed to Technical Offer Data field names so that where similar fields are used for Pumped Storage Units and Battery Storage Units the same field name can be used for both.

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)

- 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;
These changes will improve market access because rules for participation will be clearly set out for participants.
- k) to provide transparency in the operation of the Single Electricity Market;
These changes will improve market transparency because units will be registered with their own true characteristics.
- l) to ensure no undue discrimination between persons who are parties to the Code; and
These changes will ensure no undue discrimination as Battery Storage Units will be treated as similarly as possible to other generator units while respecting their unique technical characteristics.
- m) 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.
These changes will promote the interests of consumers by minimising Dispatch Balancing Costs through not compensating for unavailable incremental volumes or non-firm decremental quantities and correctly applying Testing Tariff Prices and the Uninstructed Imbalance Charge.

Implication of not implementing the Modification Proposal

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

If these changes are not implemented Battery Storage Units will not be settled according to their unique characteristics and will not be able to participate in the Balancing Market in a competitive and non-discriminatory way.

Battery units will by default be settled as fully-firm regardless of allocated Firm Access Quantity under the unit's connection agreement as a result of the requirement not to register as part of a Trading Site.

These units will unnecessarily be subject to a different form of the Imbalance Charge to other generators while charging, contrary to EU regulatory requirements for Balance Responsible Parties, and will be exempted from the Uninstructed Imbalance charge while charging.

Testing Tariff Prices will be applied incorrectly for imports leading to unwanted settlement outcomes.

Appendix O will not describe the desired Dispatch Instruction and Instruction Profiling logic which would allow Battery Storage Units to be dispatched to specific MW levels in their charging range and priced and settled accordingly. The existing logic does not allow for ramp rates to be applied below zero as these units would be subject to GOOP instructions which involve ramping instantaneously to the unit's full storage capacity when instructed to pump.

If SDP_02 as a whole is not delivered the control centres and market participants will not be able to gain maximum value from battery resources. Market participation will continue to be limited by the inability to register as a Battery Storage Unit, submit negative Physical Notifications, schedule or dispatch in the charging range, and price and settle accordingly. Participation in and revenue from energy markets will continue to be limited for these units. This may have an impact on investment decisions which may affect the system's ability to reach renewables targets.

| <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> |
|---|--|
| <p>Carried out during November.</p> | <p>Some impact on Grid Codes, primarily to update Technical Offer Data fields.</p> <p>Impact on participant systems in relation to Commercial and Technical Offer Data fields. Once-off impact on participants at cutover.</p> <p>Impact on MI and MA in relation to updated data fields and instruction profiling logic.</p> <p>Impact on settlement systems in relation to updated settlement logic.</p> <p>Removes the need for an existing manual settlement workaround. Otherwise no ongoing resource impact is anticipated within SEMO once implemented as a result of this mod.</p> |
| <p>Please return this form to Secretariat by email to balancingmodifications@sem-o.com</p> | |