

Single Electricity Market

|  |
| --- |
| Working Group 3 Report  Mod\_11\_12 Proposal to extend the definition of special Units to include caes  23 january 2013  hilton Hotel, belfast |

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.

Table of Contents

[1 Background 4](#_Toc347408113)

[1.1 Working Group timeline 4](#_Toc347408114)

[2 Actions and Terms of Reference 5](#_Toc347408115)

[2.1 Working Group Actions 5](#_Toc347408116)

[2.2 ToR Status 5](#_Toc347408117)

[3 Impact Assessment Results 6](#_Toc347408118)

[3.1 IA Results in further detail 6](#_Toc347408119)

[3.2 IA Discussion 6](#_Toc347408120)

[4 General Discussion 8](#_Toc347408121)

[4.1 Project and Proposal Timing 8](#_Toc347408122)

[4.2 process for progressing the proposal 8](#_Toc347408123)

[4.3 Next Steps 9](#_Toc347408124)

[5 Actions & Conclusions 10](#_Toc347408125)

[5.1 Actions 10](#_Toc347408126)

[5.2 Conclusion & Recommendation 10](#_Toc347408127)

[6 Appendix 1 11](#_Toc347408128)

Document History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Comment** |
| 1.0 | 31 January 2013 | Modifications Committee Secretariat | Issued to attendees at the meeting for review, Modifications Committee copied for information purposes |
|  |  | Meeting Attendees and Modifications Committee Secretariat | Final draft published |

Distribution List

|  |  |
| --- | --- |
| **Name** | **Organisation** |
| Modifications Committee Members | SEM Modifications Committee |
| Working Group Attendees | Various |

Reference Documents

|  |  |
| --- | --- |
| **Document Name** | **Document Reference** |
| [Trading and Settlement Code](http://www.sem-o.com/MarketDevelopment/Pages/MarketRules.aspx) | V12.0 |
| [Modification Proposal](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_11_12%20Gaelectric.docx) | Mod\_11\_12 Proposal to extend the definition of Special Units to include CAES |
| [Presentation Slides](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_11_12%20slides.pptx) | Meeting 42 |
| [Modifications Committee Meeting Minutes](http://www.sem-o.com/Meetings/Meeting%2042%20Minutes.docx) | Meeting 42 |
| [Terms of Reference](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/ToR_11_12_V4.doc) | V4.0 |
| [Presentation Slides](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_11_12%20Presentation_06092012.pptx) | Working Group 1 |
| [Working Group Report](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/WG%20Report%20V1.0.doc) | Working Group 1 |
| [Modifications Committee Meeting Minutes](http://www.sem-o.com/Meetings/Meeting%2043%20Minutes.docx) | Meeting 43 |
| [Modifications Committee Meeting Minutes](http://www.sem-o.com/Meetings/Meeting_44_Minutes.docx) | Meeting 44 |
| [Working Group Slides](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/GES_WorkingGroup2_New%20Options%20Evaluated_.pptx) | Working Group 2 |
| [Working Group Report](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/WG%20Report%20V4.0.docx) | Working Group 2 |
| [Modifications Committee Meeting Minutes](http://www.sem-o.com/Meetings/Meeting%2046%20Minutes%20V2.0.docx) | Meeting 46 |
| [Presentation Slides](http://www.sem-o.com/MarketDevelopment/ModificationDocuments/Mod_11_12_IAslides.ppt) | Working Group 3 |

In Attendance

|  |  |
| --- | --- |
| **Name** | **Company** |
| Aisling O’Donnell - Chair | SEMO |
| Aodhagan Downey | SEMO |
| Angela Blair | Power NI |
| Brian Kennedy | Gaelectric |
| Brian Mongan | AES |
| Colin Spain | Gaelectric |
| Eimear O’Flaherty | SONI |
| Elaine Gallagher | CER |
| Emeka Chukwureh | Airtricity |
| Karen Creighton | SONI |
| Mark Gormley | SONI |
| Michael Preston | SONI |
| Niamh Delaney | SEMO |
| Patrick Liddy | Activation Energy |
| Sherine King | SEMO |
| Tom McCartan | SONI |
| Simon Street | RA Consultant |
|  |  |

# Background

Mod\_11\_12 *Proposal to extend the definition of Special Units to include CAES* was submitted by Gaelectric (GES) for consideration at Meeting 42 of the Modifications Committee on 29th May 2012. The Modifications Committee agreed that additional work was necessary to develop the proposal and directed that a Working Group (WG) be established to work up the detail of the proposal.

A Terms of Reference (ToR) was agreed by the Modifications Committee and a WG timeline drafted with three WGs scheduled initially to develop the proposal. Updates on the progress of the WGs were provided to the Modifications Committee at each Meeting.

The first WG, held on 6th September 2012 saw a number of options put forward by both GES and Working Group participants. GES agreed to further develop the options discussed in greater detail following the meeting and revert with additional information at the second WG.

The second WG convened on 23rd October 2012 where GES presented in greater detail the suggestions put forward from WG1. Following discussion and input from the WG members, it was agreed that two candidate options be pursued:

* Option 1 – Full Price Making Storage
* Option 2 – Availability Feasible Storage Unit

The Market Operator (MO) agreed at WG2 to conduct a high level impact assessment with the vendor for both options.

## Working Group timeline



# Actions and Terms of Reference

## Working Group Actions

The following update on actions recorded at the second WG was provided.

|  |  |
| --- | --- |
| **Action** | **Comments** |
| * RA Alternate to check if options present difficulties from a licensing perspective. | **Closed**  RA Alternate advised that legal advice was sought by NIAUR, which deemed the options presented at WG2 do not represent any major difficulties from a licensing perspective. Further advised that any other circumstances not related to Generation, would require separate licensing activity and further discussion. |
| * GES to forward additional information on Option 2 prior to impact assessment (IA). | **Closed**  Feedback received on 19th November 2012, information circulated to WG participants and Modifications Committee. |
| * SEMO to impact assess Option 1 *Full Price Making Storage* and Option 2 *Availability Feasible Storage Unit* following receipt of additional information from GES. | **Closed**  IA procured and results presented at WG3. |

## ToR Status

The Chair provided an update on the status of the objectives and deliverables of the Terms of Reference (ToR) see Appendix 1 of this report for further detail.

**Action:** An update on the progress of objectives and deliverables set out in the ToR will be provided to the Modifications Committee at Meeting 47 on 12th February 2013.

Generator Alternate drew attention to the reference to other technologies in the ToR rather than the focus of the group to be on a specific technology. Noted previous discussion that Flywheels and other potential new technologies mentioned earlier were not addressed. The Chair advised that interested parties were asked for additional information on other new technologies in advance of the first WG and no feedback other than that from GES was received, therefore, the WG progressed with the information available to it.

GES representative expressed a concern that the issue of constraints as outlined in the ToR was not addressed in the IA. MO Alternate clarified, from a market perspective, the IA has covered constraint Settlement values.

# Impact Assessment Results

Impact Assessment results for both options were delivered by the MO Member. The first option was assessed based on two sub-options. Note below costs exclude SEMO testing costs.

|  |  |
| --- | --- |
| **Option** | **Cost** |
| Option 1: Full Price Making Storage   * + - (a): Pumped Storage Unit with Commercial Offer Data     - (b): Pumped Storage Unit with Commercial Offer Data and a Pumped Storage Cycle Efficiency which is a function of output rather than constant | €337,230  €825,230 |
| Option 2: New Unit with similar logic to Interconnector Units | No cost returned\*, |

\*Option 2 was discussed at length with the vendor, but the vendor did not feel that it would fit well into the existing system architecture, therefore, it was decided not to proceed further with Option 2 and to perform a detailed impact assessment of Option 1(a) and 1(b).

## IA Results in further detail

**Option 1(a) Pumped Storage Unit with Commercial Offer Data**

* + - New CAES unit which replicates all existing of existing PS unit
    - In addition includes complex COD (Start Up Costs, No Load Costs and PQ pairs)
    - Energy Payments, Constraint Payments, Uninstructed Imbalance Payments and Make Whole Payments would use the formulae for PPMGs
    - Capacity Payments would the formulae for PS units except for the calculation of CPGPF where the PPMG formulae would be used

The vendor advised that this Option would incur a cost of total cost of € 377,230 + Testing (€222,000 (ABB) + €155,230)

**Option 1(b) Pumped Storage Unit with Commercial Offer Data and a Pumped Storage Cycle Efficiency which is a function of output rather than constant**

* + - Functionality as in Option 1(a)
    - In addition, Pumped Storage Cycle Efficiency (PSCE) would be changed from a constant to a function that varies with the output of the unit (piecewise linear function).

The vendor advised that this Option would incur a cost of total cost of € 825,230 + Testing

(€222,000 + €448,000 (ABB) + €155,230)

## IA Discussion

RA representative asked if the IA is based on a CAES Unit separate to a Pumped Storage Unit, and therefore is not proposing to change any aspect of current Pumped Storage Unit.

The MO Member confirmed this was discussed with the vendor whether changes to existing Pumped Storage would be feasible, however, it was recommended that a separate Unit be created. The vendor advised that there will be no changes to the existing Pumped Storage arrangements in the systems. The change will require establishment of a new Unit type by replicating the existing Pumped Storage elements and introducing the necessary amendments to facilitate the requirements of a CAES Unit.

RA representative asked if this change could also lead to a preference for a change to the rules for Pumped Storage.

MO Alternate stated that the type of characteristics that were being assessed are different to standard Pumped Storage, for example variable fuel costs that require the submission of COD.

The question of whether it could have been assessed as a sub-class Pumped Storage Unit was put forward by the Supplier Alternate.

The MO Member advised that a discussion was held with the vendor about whether it was possible to modify the existing Unit. However the vendor recommended that a new unit should be created. MO Member clarified that, for Pumped Storage Units, COD is currently blocked from coming into the market at the MI stage. Special Units are treated as separate Units in the systems, as opposed to sub-categories.

The changes assessed apply to the current Central Market Systems. Changes to RCUC would also be necessary to align with Market System changes if either option were to be implemented.

GES representative asked why RCUC costs were being considered. There are a number of issues wider than RCUC ranging from Dispatch Instructions to Performance Monitoring that may have impacts, yet these costs are not being considered.

TSO Member advised that any changes that may be required within RCUC need to consider the changes being implemented in the MSP Software.

Any impacts arising directly from the changes to the rules in the SEM would need to be included in the decision making process. These include RCUC impacts but do not extend to impacts on other processes as these may be impacted in general by CAES but not necessarily by the modification proposal.

The TSO reiterated that RCUC would also have to be assessed following the results of the MO assessment. Further interaction with the proposer regarding the technical characteristics of the unit would be required to complete an IA on the RCUC systems. When asked, the proposer stated that Option 1b allows the most accurate cost recovery. TSO will base their discussions for IA on the SEMO Option 1b.

Further clarification regarding the hours required for implementation of the preferred option was sought by the Generator Alternate. The MO Member advised that the monetary cost is assessed based on man-hours and on the hourly rate of the new support contract with the vendor.

**Action:** SEMO to provide information on implementation timescale for the change, for option 1b which is to be assessed

GES questioned why Option 2 *New Unit with similar logic to Interconnector Units* was not assessed as required by the Action from Working Group 2..

MO Member advised that a lengthy discussion took place with ABB, with the conclusion that it would be a sub-optimal solution. It was further noted, as was stated at previous working groups, that Option 2 was raised as an alternative in the case that Option 1 was not technically feasible. The vendor’s view was that it didn’t fit well into to system architecture and would be highly complex to implement.

GES Consultant queried as to the Performance times on the MSP software and whether they were raised as a risk.

This is not thought to be an issue for the MSP Software but may be for RCUC.

**Action:** TSO to procure RCUC IA; WG Members & Committee to be notified when received.

# General Discussion

## Project and Proposal Timing

Timing of the plant build and expected operation date was a question raised throughout the discussion.

GES advised that the build is expected to be complete by mid 2016 with construction hoped to begin at end of this year.

The evolution of the Market was a concern voiced by the Generator Alternate.

GES acknowledged that a significant amount of work has been carried out to date by the Working Group and acknowledged that before proceeding further there may be a need for some certainty with regard to the the potential for market changes in 2016. GES were mindful that it did not intend to impose any immediate unnecessary costs to the Market in terms of system changes if the benefits were not to be fully understood (i.e. in the absence of RCUC studies and further information on the market design).

Should the changes to the systems and rules be implemented at this stage and how can the Modifications Committee make a determination on the proposal in the absence of certainty regarding the future development of the market?

A suggestion was put forward by the Supplier Alternate to amend the rules now with an effective date in the future.

Concern was voiced that this would set a precedent in the Market Rules and may pose difficulties in terms of timing of implementation with the Systems Release. Full costs would be incurred if this suggestion were to be implemented.

The MO Member questioned whether this kind of change could be justified, should it not be utilised in this Market.

The RA consultant drew attention to the process in place with regard to the Modifications Committee and RA decision process and also noted that drafting the necessary changes to the Market Rules would be a major exercise. An FRR detailing the reasoning behind a decision to accept or reject a proposal would aid the RAs in reaching a final decision on the proposal.

Based on the advice that a RCUC assessment is necessary, GES expressed a preference that the proposal be delayed until the end of 2013 in order to allow sufficient time for the RCUC assessment and a better knowledge of the direction for the Market evolution for 2016, in order to ensure that the studied option is suitable.

## process for progressing the proposal

The discussion turned to consideration of the most appropriate way of progressing the Modification Proposal.

The RA representative highlighted that it is the Modifications Committee that decide how best to progress a Modification Proposal.

A status of Deferred Dormant has been used by the Modifications Committee in the past for previous proposals and that could be a consideration for this proposal. The existing extension will expire on May 30th. The Committee would have to seek an extension if a dormant Modification Proposal was the preferred route and justify to the RAs as to why an extension is needed.

GES representative questioned if the Modifications Committee can vote on a proposal without legal drafting.

Chair stated that legal drafting is necessary for the Committee to vote to approve a Modification Proposal as it is the legal drafting change to the rules that would be implemented.

DSU Member sought clarification with regard to the system changes having to occur concurrently with the Market Rule changes as there is a long lead in time for system changes.

MO Member advised that, given the timeline for building the plant, it may be more cost effective given the likely project timeline for the building of a CAES unit to implement this type of change as part of any future developments for the European target model by 2016 rather than changing the existing market.

GES were conscious that they didn’t want to begin the process of raising a proposal all over again in a year or so and start from WG1. It is preferred to put the proposal on hold for the time being. It was highlighted that the MO website documents full records of all historical Modification Proposals and related material. Therefore, any work completed the Working Group can be accessed by the current proposer or a future proposer as appropriate.

The group acknowledged that in order for the Modifications Committee to vote to accept the proposal, legal drafting is required. GES believe that this may be a step too far at this stage in the process, given the process is as yet incomplete.

The MO Alternate advised that approval of the change of the magnitude being discussed would be difficult without further information regarding the timelines for the implementation of any CAES projects and without further clarity on the nature and scope of any future developments to the market.

Gaelectric stated this was a matter for discussion at a later stage as the process is as yet incomplete, and discussions and studies on RCUC needs to be addressed.

It was further noted that discussion with regard to the modes of operation of a CAES unit has yet to be discussed with TSOs and the impact this will have on RCUC.

## Next Steps

The MO Alternate suggested that the Modifications Committee review the progress of the ToR and give their view of how the group should proceed.

Supplier Alternate stated that the additional information is required regarding the RCUC costs prior to making a decision.

Generator Alternate noted that the SEMC could reject the proposal, if voted on, on the grounds that it should be implemented in 2016 aligned with the new market arrangements.

Chair advised that an update will be provided to the Modifications Committee at Meeting 47 inclusive of the suggestions put forward and the Working Group will request the Committee decide what direction to WG take from here.

The group agreed that another Working Group is not necessary at this point in time, as discussions need to take place with the TSO on RCUC.

# Actions & Conclusions

## Actions

* Secretariat to provide update to Modifications Committee following discussion at WG3 regarding ToR objectives and deliverables.
* SEMO to provide approximate information on the likely timescale involved in implementing the changes.
* TSO to procure RCUC IA; WG Members & Committee to be notified when received.

## Conclusion & Recommendation

SEMO presented the IA results regarding the options. The first option *Full Price Making Storage* was assessed on two levels; 1a *Pumped Storage Unit with Commercial Offer Data* and 1b *Pumped Storage Unit with Commercial Offer Data and a Pumped Storage Cycle Efficiency which is a function of output rather than constant*. The second option *New Unit with similar logic to Interconnector Units* was discussed with the vendor and advised that it is not a viable option for the systems. A good level of discussion was had by all Working Group Participants.

The Working Group members recommended that a full update be provided on the WG progress to the Modifications Committee at Meeting 47 on 12 February 2013. The WG members noted that option 1b is the preferred option. However the WG members feel that more time is needed to further assess the impacts on RCUC and the relevant operational issues. The Committee will be asked to decide on the most effective way to proceed.

# Appendix 1

**Objectives - Terms of Reference**

The objectives of the Modification Working Group are to:

|  |  |
| --- | --- |
| **Objective** | **Status** |
| Define & identify the technical characteristics & capabilities of a CAES unit, and of other units having similar characteristics if applicable, not currently represented in the SEM to advise on appropriate registration options for such units in the SEM. | **Complete**  Working Group 1   * GES provided detail as required. * No other units with similar characteristics were brought forward for consideration. |
| Proposer to look at the impacts of registering in the SEM and the Market Rules as currently drafted. | **Complete**  Working Group 1:   * Agreement that existing rules may require change to accommodate a CAES Unit in SEM. |
| Consider options for the representation of units that have the characteristics and/or abilities similar to a CAES unit in the SEM, taking into account the current rules for the SEM and the particular characteristics of a CAES unit and other units of similar characteristics. | **Complete**  Working Group 2:  Three options presented in greater detail by GES:   * “Full Price Making Storage” – an evolution of existing pumped storage rules with submitted prices and constraint payments * “Availability Feasible Storage Unit” – akin to a stand-alone interconnector unit only in that it locks down availabilities using changing half-hourly commercial offers throughout EA1, EA2 and WD1 for inclusion in ex post runs as Predictable Price Maker (settlement rules would be different) * “Linked Energy Limited Generator” – operation of a Predictable Price Taker Negative Generator informs Energy Limit of separate Generator possible throughout the day   No other units with similar characteristics were brought forward for consideration.  At WG3 Generator Alternate expressed concern that other technologies were not addressed as stated in the ToR, the focus has been solely on a specific CAES technology. Noted previous discussion that Fly Wheels and other potential new technologies were not addressed by the WG. |
| Examine the current Special Unit clauses to see if they can accommodate similar capabilities to the CAES proposal and if not how they can be modified. | **Complete**  Working Group 1 & 2:   * Existing clauses for Special Units do not take into account the gas input variable element for that of a CAES unit. * Pumped Storage identified as unit type with similar characteristics to that of a CAES Unit. |
| Identify potential changes to the TSC, which will further the Code objectives, particularly objective 4 & 6, that may be necessary to better facilitate the participation of CAES units and other units of similar characteristics. | **Open**  Working Group 3   * Group requested that at a high level the sections affected would be outlined. To be updated in advance of Mods Meeting 47 |
| Assess the options in terms of the following questions:   * 1. The Working Group should consider how the following items, and others that may be discussed, can be addressed with respect to the option by which registration of CAES Units and other energy Storage Units in the TSC will occur.      1. Offering & Scheduling         1. Commercial Offer data         2. Technical Offer Data         3. Other data provision & sharing      2. Energy Settlement      3. Calculation of Eligible Availability      4. Calculation of Capacity Payments         1. When in generation mode         2. When in pumping mode      5. Calculation of Constraint Payments and Charges      6. Calculation of Uninstructed Imbalance Payments and Charges      7. Credit & Settlement      8. Inclusion in the MSP software and uplift      9. Treatment of Energy Storage Units when under test   2. How the identified option(s) further(s) the objective of the Demand Side Vision and other SEM Committee policy objectives?   3. What are the likely high level impacts (time, cost and resources to implement option)? | **Closed**  Working Group 3   * Two preferred options Impact Assessed and results presented to the WG:   + Option 1 – Full Price Making Storage   + Option 2 – Availability Feasible Storage Unit |
| Whether one or more existing registration options could be amended to allow registration of a CAES unit (perhaps by changing definitions in the TSC). | **Closed**  Working Group 1:   * Agreed based on the level of changes required to the systems, registration is not possible at this point. |
| Recommend to the Modifications Committee the preferred option to pursue. | **Open**  Working Group 3   * TSO to conduct a RCUC assessment with GES and proposal to be put on hold while the group await some direction regarding the market arrangements in 2016. No consensus reached regarding the best way to proceed at this point. Working Group to get direction from Modifications Committee regarding next steps. |
| Make any necessary amendments to the legal drafting text of Mod\_11\_12 in the form of an alternative version if necessary. | **Open**  Working Group 3   * Pending the outcome of Modifications Committee decision regarding next steps. |

**Deliverables - Terms of Reference**

|  |  |
| --- | --- |
| **Objective** | **Status** |
| Working Group report detailing the discussion and outcome of the meeting. | **Closed**   * Working Group report published after each meeting |
| Recommendation to the Modifications Committee of how to best proceed. | **Open**   * Feedback to be provided to the Modifications Committee at Meeting 47 on 12th February. |
| Finalised drafting of the Modification Proposal (if necessary) for submission at next available Modifications Committee Meeting. | **Open**   * To be discussed by the Modifications Committee |