

Single Electricity Market

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| Working Group 2 Report  Mod\_11\_12 Proposal to extend the definition of special Unit’s to include caes  23 october 2012  The Clarion Hotel, dublin |

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Document History

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| **Version** | **Date** | **Author** | **Comment** |
| 3.5 | 26 October 2012 | Modifications Committee Secretariat | Issued to attendees at the meeting for review, Modifications Committee copied for information purposes |
| 4.0 | 07 November 2012 | Meeting Attendees and Modifications Committee Secretariat | Final draft published |

Distribution List

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

Reference Documents

|  |  |
| --- | --- |
| **Document Name** | **Document Reference** |
| [Trading and Settlement Code](http://semopub/MarketDevelopment/Pages/MarketRules.aspx) | V11.0 |
| [Modification Proposal](http://semopub/MarketDevelopment/ModificationDocuments/Mod_11_12%20Gaelectric.docx) | Mod\_11\_12 Proposal to extend the definition of special Unit’s to include CAES |
| [Presentation Slides](http://semopub/MarketDevelopment/ModificationDocuments/Mod_11_12%20slides.pptx) | Meeting 42 |
| [Modifications Committee Meeting Minutes](http://semopub/Meetings/Meeting%2042%20Minutes.docx) | Meeting 42 V3.0 |
| [Modifications Committee Meeting Minutes](http://semopub/Meetings/Meeting%2043%20Minutes.docx) | Meeting 43 V2.0 |
| [Terms of Reference](http://semopub/MarketDevelopment/ModificationDocuments/ToR_11_12_V4.doc) | V4.0 |
| [Presentation Slides](http://semopub/MarketDevelopment/ModificationDocuments/Mod_11_12%20Presentation_06092012.pptx) | Working Group 1 |
| [Working Group Agenda](http://semopub/MarketDevelopment/ModificationDocuments/Agenda%20WG%200.1.doc) | Working Group 2 |
| [Working Group Slides](http://semopub/MarketDevelopment/ModificationDocuments/GES_WorkingGroup2_New%20Options%20Evaluated_.pptx) | Working Group 2 |
| [Timeline](http://semopub/MarketDevelopment/ModificationDocuments/WG_11_12%20Timeline.jpg) | Working Group 2 |

In Attendance

|  |  |  |
| --- | --- | --- |
| **Name** | **Company** | **Modifications Committee** |
| Aisling O’Donnell - Chair | SEMO | Secretariat |
| Allison Wilson | Power NI | n/a |
| Aodhagan Downey | SEMO | MO Alternate |
| Angela Blair | Power NI | n/a |
| Brian Kennedy | Gaelectric | n/a |
| Brian Mongan | AES | Generator Alternate |
| Colin Spain | Gaelectric | n/a |
| Eimear O’ Flaherty | SONI | n/a |
| Elaine Gallagher | CER | n/a |
| Eoin Murphy | Gaelectric | n/a |
| Jody O’Boyle | UREGNI | RA Alternate |
| Karen Creighton | SONI | n/a |
| Marian Troy | SSE Generation Ireland | n/a |
| Mark Gormley | SONI | n/a |
| Michael Preston | SONI | TSO Member |
| Niamh Delaney | SEMO | MO Member |
| Patrick Liddy | Activation Energy | DSU Member |
| Sherine King | SEMO | Secretariat |
| Siobhan McHugh | EirGrid | TSO Alternate |
| Simon Street | RA Consultant | n/a |
| William Carr | Electric Ireland | Supplier Member |

# Introduction

Secretariat stated that the report from WG1 held on 06 September is published on the SEMO website and advised that Gaelectric’s comments were included. Secretariat further advised that the below timeline is published on the SEMO website.



Working Group 1 actions update:

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| --- | --- |
| **Action** | **Comments** |
| Gaelectric to further investigate all options presented, and proposed Negative Generator option as put forward by Supplier Alternate (Airtricity) | * Closed   WG 2 presentation addresses options |
| Participants to submit all possible options to the Secretariat in advance of WG2 | * Closed   No other options received post WG1 |

Chair advised that the focus of the WG will be to progress either one or two options prior to the final WG.

RA Consultant commented that developing the final drafting may be challenging due to knowledge of Appendix N being limited. Chair advised that the timeline is an estimated timeplan and may be subject to change.

# Background

Mod\_11\_12 *Proposal to extend the definition of Special Unit’s to include CAES* was received by the Secretariat on 15 May 2012. The proposal was discussed at Meeting 42 of the Modifications Committee on 29 May where it was deferred and an action was placed for a WG to be convened. The proposal was again discussed at Meeting 43 where an action was placed for final comments on the Terms of Reference (ToR) to be submitted to the Secretariat. Many dissenting views on the ToR were received from Participants; a conference call with the Modifications Committee took place in order to agree the final version of the ToR.

The first WG was held on 06 September where a number of options were put forward by both Gaelectric (GES) and Working Group Participants. The group agreed that GES further develop the options discussed in greater detail while any additional potential options that may arise be put forward by Participants. Attention was drawn to the original timeline that sets out all options for consideration during the first two Working Groups and the group move toward one or two candidate options for Impact Assessment following the second Working Group.

# Presentation of Options

The Proposer presented the three options that reflected the discussion of the first Working Group with the aid of PowerPoint Presentation [slides](http://semopub/MarketDevelopment/ModificationDocuments/GES_WorkingGroup2_New%20Options%20Evaluated_.pptx).

**Option 1 – Full Price Making Storage**

Existing Pumped Storage rules edited for inclusion of submitted prices with consideration for Constraint Payments.

PQ Pairs submitted for Pumping and Generation, no load and Start-Up Costs

Further consideration needed for treatment of:

* Start-Up Costs
* COD
* Pricing based on MSP capabilities

**Option 2 – Availability Feasible Storage Unit**

Similar to an Interconnector Unit with offers submitted as a Predictable Price Maker.

PQ Pairs submitted for negative storage (pumping) and adjusted during Trading Periods to reflect available storage for Generation.

Capacity Payments subject to energy limit

Further consideration needed for treatment of:

* Start-Up Costs
* Scheduled Storage – Availability may be secured through COD/TOD to reflect technical energy limit.
* Scheduled Generation - Availability may be secured through COD/TOD to reflect technical energy limit.
* Generation Eligibility Availability – technical Availability considerations
* COD – consideration for having both positive and negative PQ Pairs

**Option 3 Linked Energy Limited Generator**

Split Unit where pumping treated as Predictable Price Taker separate to Generation Unit, which acts as a Energy Limited Predictable Price Maker.

Further consideration needed for treatment of:

* Scheduled Storage – by nomination quantity
* Generation Eligibility Availability – technical Availability limited by ex-post energy limit
* COD – Nominated quantity for negative PPT and if dispatched off schedule, the Standard Energy Limited Generator with Limit referenced to Nominated Quantities

# Discussion

SONI Member questioned as to how Availability is being limited with Option 2. GES confirmed that Availability is not being limited but rather secured as an IC Unit. The nomination would be updated throughout runs to reflect capacity at any one trading period. MO Member sought clarification around the necessity to submit TOD for Option 2; presenter confirmed that a TOD entry would be necessary for part of the Unit’s input. A limit regarding the technical Availability of the Unit would be necessary to submit as the Unit would not be available to generate for the entire day as it would have a limit similar to that of a reservoir target. MO Alternate sought clarification with regard to securing Availability. Presenter advised that offers would change for each Gate Closure and the Unit’s limit could be reflected algebraically post scheduling or maybe an MSP software change to reflect this could be considered. DSU Member questioned the storage limit and its impact on submission of COD at any one point. TSO Alternate confirmed that the Market engine determines the reservoir level in which the schedule optimises a Unit. TSO Member confirmed that the schedule is determined throughout the day based on the prices submitted. SEMO Alternate added that the schedule aims to lower the production cost for the entire system and each unit is scheduled based on its effect on production cost..

TSO Member questioned why there is no Participant control during the scheduling phase in the first option and whether it is the intention that the Participant submit one price for the entire Trading Day. Presenter confirmed that the onus would be on TSO to schedule the Unit, whereas, the third option the Unit acts as a Price Taker so the Participant can control regarding what the nominated quantity would be to reflect the storage level at any one point.

An additional comment was put forward by the TSO Member with regard to submission of bids in order to gain a position in the market and what that would mean for BCOP compliance. GES representative advised that it would be expected that the MMU would have an interest to ensure bids are compliant and that a conversation may need to be had with the MMU regarding both the BCOP and licence requirements. RA Alternate confirmed that there may be issues that need consideration regarding the Generator licence.

GES advised that it is their preference that SEMO impact assess the full price maker storage (Option 1) or the IC type Unit (Option 2).

RA consultant questioned if the solutions put forward would be feasible for other storage technologies. GES advised that the proposal put forward aims to amend the rules to reflect inclusion of a CAES Unit in SEM and noted that others may feel it should be opened up to other energy storage devices. GES advised that other types of Units may fit better under the existing rules, whereas the CAES Unit differs in that the Unit type is different to that of any existing Units within the Code. GES further noted that the Terms of Reference was open for suggestions with regard to different technology types to be discussed at the Working Group. GES noted that it encourages other storage technologies but the focus for GES is on inclusion of rules that would allow a CAES Unit to operate in SEM.

The CAES Unit is a storage facility but the gas input introduces a level of complexity different to that of other Units in SEM. Supplier Member questioned as to how GES aims to deal with the physical supply of gas. One gas Supplier or taking on a shipper licence at the exit point are options under consideration by GES, however, this element introduces a complicating factor around price and how GES could bid in the Market. Generator Alternate commented that looking at the Unit from a basic point of view, one could summarise that the Unit could be treated as a normal Generator where fuel is burned. Again attention was drawn, by Generator Alternate, to the importance of the Unit being compliant with the BCOP and licence requirements, adding that the IC type Unit option (Option 2) is not, in his opinion, a preferred solution.

Generator Alternate asked if the second option would require separate PQ Pairs to be submitted for the pumping and generating elements of the Unit. Generator Alternate further queried as to whether it would introduce an element of risk where the MSP Software could schedule the Generation element and not the Pumping element of the Unit.

MO Alternate advised that GES would bid negatively when the Unit is pumping and positively when it is generating. GES sought clarification that if the bids submitted while pumping are negative, the MSP Software would choose those bids. MO Alternate noted that while the MSP Software may schedule the negative aspect of the Unit, it may not schedule a separate positive bid to reflect the Generation element, further consideration of this may be necessary as it introduces a risk for GES.

TSO Member noted that the IC type Unit (Option 2) would require a target in order to sculpt the Availability Profile to ensure it cannot exceed the storage available. GES representative suggested that a limit in the MSP Software or an algebraic solution post-run could solve this issue. MO Alternate noted that the algebraic solution after the event would be difficult to work out and may not be possible to implement in this market.

TSO representative noted that there needs to be distinction between different types of Availability; mechanical Availability or energy limited availability.

DSU Member queried, with regard to the third option, where two separate Units exist, how the market for air is measured. Further asked if in principle it could it be a dispatchable demand customer. RA consultant suggested that the third option should be considered as a starting point since it was close to what could be done in the market without changes. MO Alternate advised that some aspects of Option 3 do not exist in the market currently and added that Option 3 as defined would be difficult to implement. The Demand element would be treated as a PPT nomination and purchase of electricity would be at generation prices as opposed to demand prices. If a negative generator is used, one element of the Unit would be a PPT while the other would be a Predictable Price Maker in terms of energy limit. A risk would remain with regard to Generation. TSO representative felt Option 3 would also present difficulties regarding dispatch. GES advised that it is difficult to understand how an option will work until it is impact assessed by the vendor.

MO Member noted that the pumped storage (Option 1) may be easier to implement. Option 1 may be problematic over the Optimisation time horizon where the MSP optimises pumping and generating together; the risk here is under-recovery of costs. The sole cost of the unit is pumping, therefore the Unit should only pump if the price is sufficiently high enough to cover the cost of pumping and the gas input price.

Constraints including start-up costs for pumping and generating would require further consideration. MO Member noted that Option 1 may be easier to monitor as its PQ pairs would be based on gas prices. Prices submitted should reflect the actual cost as is the case for all other Units. GES acknowledged that an element of forecasting would be necessary if that option was pursued.

Generator Alternate added that Option 2 resembles that of an Interconnector, therefore, pricing would reflect that of an IC rather than a Predictable Price Maker.

Power NI representative sought clarification regarding pricing of a Pumped Storage Unit. The Market Operator confirmed that the software looks at the entire optimisation horizon and outputs a schedule that lowers production cost and will continue to increase pumping and/or generation once production cost is lowered for whole day. The cost for an existing Pumped Storage Unit is the cost of its pumping times its efficiency. Generator Alternate asked if a limit would have to be set in the MSP Software with regard to capacity for all three options. The Market Operator confirmed that for the first option, it is a requirement however in regard to the second option; Availability will be adjusted to reflect what is in the storage.

TSO Member put forward an issue around balancing; if the TSO were to dispatch CAES under either Option 1 or 2, would the TSO have to re-balance the GES position. It was decided that further investigation into the options may give a clearer indication.

Airtricity Generation Ireland representative noted that the third option was put forward by a Supplier Alternate (Airtricity) at the last Working Group and that representative was not at this Working Group. Chair advised that work should continue to progress at each Working Group and notification of meetings is issued well in advance of meetings. Supplier Member questioned as to how firm the third option could be. DSU Member suggested that gaming could be an issue with the third option; therefore there could be a number of governance issues to overcome. Licensing may also be an issue with Option 3. RA Member advised that there may be conflicting points with regard to the licence for Option 2 and 3.

**Action**: RA Alternate to check if options present difficulties from a licensing perspective.

With regard to Option 1, Generator Alternate queried as to whether the Unit would receive negative Generation Capacity Payments while pumping. MO Alternate confirmed that Capacity Payments are based on the reservoir level and when the Unit is purchasing energy from the pool to pump, it is a negative payment. TSO representative confirmed that ICs buy negatively from the pool. MO Alternate further added that the Unit would pay Generation prices to pump, not Demand prices. Supplier Member asked if the Unit type fit better as a DSU rather than a Pumped Storage type Unit.

It was noted by the Generator Alternate that the rules for a Special Unit should be set out in such a way as to facilitate future Special Units rather than the Committee having to address the rules for Special Units again. The group agreed that SEMO should impact assess Option 1 and 2.

The Group agreed that additional information would be necessary on the second option in order to impact assess it. MO Member advised that the more detail that is made available on the options, the greater the level of understanding the vendor will have when conducting an impact assessment.

**Action**: GES to forward additional information on Option 2 prior to impact assessment.

Chair advised that the information should be submitted to the Secretariat and circulated to the Working Group Participants and Modifications Committee prior to impact assessment. An additional meeting in advance of the next Working Group should not be necessary.

# Actions & Conclusions

## Actions

* RA Alternate to check if options present difficulties from a licensing perspective.
* GES to forward additional information on Option 2 prior to impact assessment.
* SEMO to impact assess option 1 and option 2 following receipt of additional information from GES.

## Conclusion

GES presented three options in greater detail and the uncertainties around each option. A good level of discussion was had by all Working Group Participants. The group agreed that options 1 and 2 should be further developed:

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

GES to forward additional information to the Secretariat for circulation to Working Group Participants and the Mods Committee regarding detail of the second option.

SEMO will request impact assessments for Option 1 and 2 upon receipt on additional information from GES. Working Group 3 remains provisionally booked for 11th December.