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| **MODIFICATION PROPOSAL FORM** |
| **Proposer** | **Date of receipt** | **Type of Proposal** | **Modification Proposal ID** |
| **Gaelectric Energy Storage Ltd** | **15 May 2012** | **Standard** | **Mod\_11\_12** |
| **Contact Details for Modification Proposal Originator** |
| **Name** | **Telephone number** | **Email address** |
| **Brian Kennedy** | **01-6430820** | **bkennedy@gaelectric.ie** |
| **Modification Proposal Title** |
| **Proposal to extend the definition of Special Units to include Compressed Air Energy Storage.** |
| **Documents affected** | **Section(s) Affected** | **Version number of T&SC or AP used in Drafting** |
| **T&SC** | **Section 5.0** | **V10.0** |
| **Explanation of Proposed Change***(mandatory by originator)* |
| Proposed Change is to extend the definition of Special Units to include Compressed Air Energy Storage Units. |
| **Legal Drafting Change***(Clearly show proposed code change using* ***tracked*** *changes, if proposer fails to identify changes, please indicate best estimate of potential changes)* |
| A number of definitions may change as a result of this modification, and there are numerous approaches which can be taken. As such GES will consult with SEMO, RAs & TSOs on the most suitable definition. |
| **Modification Proposal Justification***(Clearly state the reason for the Modification)* |
| No.6 of The Code Objectives states ***“to ensure no undue discrimination between persons who are parties to the Code”.***As a registered party to the code, Gaelectric Energy Storage are being discriminated against, through the inability of its Compressed Air Energy Storage (“CAES”) facility to effectively ascend to the code whilst effectively managing its risk, as it does not have a place in the current format of the T&SC. Given its unique characteristics as an energy storage facility, CAES would be incorporated into the code as a *Special Unit*. Currently, however, a special unit is limited to Interconnector Units, Energy Limited Generator Units, Pumped Storage Units, Autoproducer Units, Generator Units under test, and Demand Side Units, as per its definition in the current version of the T&SC.This issues faced by CAES in relation to modifying sections to accept the technology include, but are not limited to, the following:* **Pumped Storage**:
	+ The Pumped Storage section in the T&SC would not be suitable for CAES. The dual fuel nature of CAES (electricity and natural gas) results in the combination of two efficiency metrics being required to describe the operation of the technology, whereas pumped storage declares a cycling efficiency based upon the use of electrical energy alone. Given the fact that CAES must account for the variable nature of natural gas costs in its commercial offer data, the technology could not operate effectively if it were to be incorporated into the pumped storage section of the code.
* **Demand Side Units**:
	+ Demand side units must meet certain criteria including; “*1. The demand site shall house a final customer”*. Technically CAES demand side unit will not be a final customer as the electricity consumed is for the purposes of generating electricity (>De Minimis) to sell into the market, on the same site.
	+ Other criteria include; *“2. the Demand site shall have the technical and operational capability to deliver Demand Reduction…”*. The CAES Demand side unit would be mainly used to increase demand on the system, thereby allowing for more “room” on the system for priority dispatched wind, and aide in reducing curtailment on the system.
	+ Furthermore, demand side units do not submit commercial offer data in their bids. CAES cannot operate effectively in this way.
* **Energy Limited Generator Units**
	+ Given the unique characteristics of the proposed CAES plant, it has the ability to generate as and when required and is therefore not subject to a physical energy limit related to its store.

The future requirements of the Irish Electricity System will require the development of bespoke technologies which will provide system services in a flexible, quick and relatively low carbon manner, as recognised by the SEM in Decision paper SEM/11/022; “Demand Side Vision for 2020”, which states the following;*“However other forms of storage such as compressed air storage are becoming available and the rewards for and value to the system of system level storage needs to be reviewed. To this end the SEM Committee will request that the TSOs undertake a review covering payments for system wide storage and provide recommendations to the SEM Committee*.”The current format of the T&SC does not make provisions for the adoption of new technologies.We therefore propose that the definition of “Special Units” be extended to include Compressed Air Energy Storage. |
| **Code Objectives Furthered***(State the Code Objectives the Proposal furthers, see Section 1.3 of T&SC for Code Objectives)* |
| By implementing this modification, competition on the island would be promoted by allowing for new technologies to compete against incumbent generators, resulting in Objective 4 being furthered; “*to promote competition in the single electricity wholesale market on the island of Ireland”*Objective 6 of the code will be promoted by allowing the inclusion of a new technology such as CAES into the T&SC; “*to ensure no undue discrimination between persons who are parties to the Code” and,*Furthermore, by providing an opportunity for the inclusion of CAES as a bespoke technology into the T&SC, Objective 7 of the code is further developed; *“to promote the short-term and long-term interests of consumers of electricity on the island of Ireland with respect to price, quality, reliability, and security of supply of electricity”.* |
| **Implication of not implementing the Modification Proposal***(State the possible outcomes should the Modification Proposal not be implemented)* |
| Should this modification not be implemented:* GES will continue to be discriminated against
* The Market will not have efficient access to an additional bulk energy storage facility
* Competition in the market will not be improved
* The barrier of entry for new market participants will become widely apparent in the market place
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| **Working Group***(State if Working Group considered necessary to develop proposal)* | **Impacts***(Indicate the impacts on systems, resources, processes and/or procedures)* |
| GES request that joint meetings are conducted with GES, TSOs, SEMO & RAs. | Unable to Assess at present |
| ***Please return this form to Secretariat by email to*** ***modifications@sem-o.com*** |

**Notes on completing Modification Proposal Form:**

1. **If a person submits a Modification Proposal on behalf of another person, that person who proposes the material of the change should be identified on the Modification Proposal Form as the Modification Proposal Originator.**
2. **Any person raising a Modification Proposal shall ensure that their proposal is clear and substantiated with the appropriate detail including the way in which it furthers the Code Objectives to enable it to be fully considered by the Modifications Committee.**
3. **Each Modification Proposal will include a draft text of the proposed Modification to the Code unless, if raising a Provisional Modification Proposal whereby legal drafting text is not imperative.**
4. **For the purposes of this Modification Proposal Form, the following terms shall have the following meanings:**

**Agreed Procedure(s): means the detailed procedures to be followed by Parties in performing their obligations and functions under the Code as listed in Appendix D “List of Agreed Procedures”.**

**T&SC / Code: means the Trading and Settlement Code for the Single Electricity Market**

**Modification Proposal: means the proposal to modify the Code as set out in the attached form**

**Derivative Work: means any text or work which incorporates or contains all or part of the Modification Proposal or any adaptation, abridgement, expansion or other modification of the Modification Proposal**

**The terms “Market Operator”, “Modifications Committee” and “Regulatory Authorities” shall have the meanings assigned to those terms in the Code.**

**In consideration for the right to submit, and have the Modification Proposal assessed in accordance with the terms of Section 2 of the Code (and Agreed Procedure 12), which I have read and understand, I agree as follows:**

**1. I hereby grant a worldwide, perpetual, royalty-free, non-exclusive licence:**

* 1. **to the Market Operator and the Regulatory Authorities to publish and/or distribute the Modification Proposal for free and unrestricted access;**
	2. **to the Regulatory Authorities, the Modifications Committee and each member of the Modifications Committee to amend, adapt, combine, abridge, expand or otherwise modify the Modification Proposal at their sole discretion for the purpose of developing the Modification Proposal in accordance with the Code;**
	3. **to the Market Operator and the Regulatory Authorities to incorporate the Modification Proposal into the Code;**

**1.4 to all Parties to the Code and the Regulatory Authorities to use, reproduce and distribute the Modification Proposal, whether as part of the Code or otherwise, for any purpose arising out of or in connection with the Code.**

**2. The licences set out in clause 1 shall equally apply to any Derivative Works.**

**3. I hereby waive in favour of the Parties to the Code and the Regulatory Authorities any and all moral rights I may have arising out of or in connection with the Modification Proposal or any Derivative Works.**

**4. I hereby warrant that, except where expressly indicated otherwise, I am the owner of the copyright and any other intellectual property and proprietary rights in the Modification Proposal and, where not the owner, I have the requisite permissions to grant the rights set out in this form.**

**5. I hereby acknowledge that the Modification Proposal may be rejected by the Modifications Committee and/or the Regulatory Authorities and that there is no guarantee that my Modification Proposal will be incorporated into the Code.**