nationalgrid

# Stage 03: Modification Report

## System Operator Transmission Owner Code (STC)

# CA049 Amendment to Section K to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes

What stage is this document at?

| | |
|---|---|
| 01 | Initial Modification Report |
| 02 | Proposed Modification Report |
| 03 | Modification Report |

This proposal seeks to modify the System Operator Transmission Owner Code (STC) to place an obligation on developers of offshore transmission networks to provide OFTOs with the capability to vary the reactive flows at the Interface Point within two minutes.

This document assists the Authority in their decision of whether to implement the above modification.

**Published on:** **XX March 2012**

***The STC Committee recommends:***
that CA049 should be implemented as it better facilitates Applicable STC objective (b)

***High Impact:***
None identified

***Medium Impact:***
None identified

***Low Impact:***
Owners and Developers of Offshore Networks

## Contents




**Any Questions?**

Contact:

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Proposer:

**Brian Taylor**

National Grid Electricity Transmission


## About this document

Further to the submission of Modification Proposal CA049 and the subsequent wider industry consultation that was undertaken by STC Modification Panel, this document is addressed and furnished to the Authority in order to assist them in their decision whether to implement Modification Proposal CA049.

## Document Control

| Version | Date | Author | Change Reference |
|---|---|---|---|
| 0.1 | 20 February 2013 | STC Modification Panel | Draft Modification Report for Authority Submission |
| 0.2 | 20 March 2013 | STC Modification Panel | Draft Modification Report for Authority Submission |

# 1 Executive Summary

1.1 As the capacity of offshore transmission increases, the System Operator will become increasingly reliant on the OFTO's reactive capability at the offshore to onshore interface to manage onshore voltages. To cope with changing system conditions, OFTOs will be expected to vary the reactive flows at the interface point shortly after being instructed by the National Electricity Transmission System Operator (NETSO). Generators are obliged to respond to similar instructions within 2 minutes hence it is proposed to place the same obligation on OFTOs.

1.2 To ensure that OFTOs are able to fulfil this obligation, it is proposed to amend Section K of the STC to ensure offshore networks are built with control systems which will enable reactive flows to be varied within these timescales. A modification will also be required to the Grid Code to ensure that generators fulfil this obligation under Generator Build.

1.3 STC Modification Proposal CA049 was proposed by NGET and was formally submitted to the STC Modification Panel on 26th July 2012, where it was agreed for the proposal to proceed directly to the Assessment and Report Phase.

## STC Committee Recommendation

1.4 The STC Committee recommends that STC Modification Proposal CA049 be approved for implementation.

1.5 Should the Authority approve STC Modification Proposal CA049, it is provisionally recommended that the STC be modified 10 days after the Authority decision.

## 2 Description of Proposed Modification and its Effects

2.1 The NETSO uses reactive compensation equipment connected to the Onshore Transmission System and the reactive capability of onshore Generating Units to keep system voltages within limits defined in the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS). Under BC 2.8.4 of the Grid Code, Generators are obliged to vary the reactive power within 2 minutes of receiving an instruction from the NETSO.

2.2 As the capacity of offshore generation increases and displaces onshore generation, the loss in onshore reactive compensation will need to be replaced both in terms of quantity and timescales for delivery following instruction.

2.3 OFTOs are obliged under the STC to provide reactive assets with a capability similar to Generators at the Interface Point and STCP01-1 allows the NETSO to alter the output. Response times are not mentioned explicitly but it is recognised that they need to be short. To avoid ambiguity, an amendment to STCP01-1 (PA065) has been proposed which will place an obligation on OFTOs to respond within the same timescales as Generators (i.e. 2 minutes).

2.4 It is proposed to amend Section K of the STC to ensure that OFTOs are able to fulfil this obligation. Additionally, an obligation will have to be placed on offshore developers to build offshore networks with adequate control systems and this will be addressed through a modification to the Grid Code.

2.5 To expediate the process of changing Reactive Power, the OFTO could provide the NETSO with a means of issuing the instruction by electronic data transfer or a means of changing the Reactive Power directly.

2.6 The view of the Workgroup is that this capability is inherent in offshore networks and therefore this modification should not increase costs. However, it is possible that some Offshore transmission networks which have either been built or are at an advanced stage of design may be incapable of meeting this obligation. If this is the case, derogations may be required if modifying equipment is not deemed economically efficient.

2.7 For the avoidance of doubt, this modification applies to offshore transmission networks, which under the relevant legislation, is a network operating at 132kV regardless of point of connection.

2.8 No Alternative Modifications to CA049 were submitted.

# 3 Impacts & Assessment

## 3.1 STC Parties' Assessments

### 3.1.1 National Grid

National Grid is supportive of Modification Proposal CA049 and has carried out an Assessment of the Proposed Modification.

The implementation of CA049 would not have any physical impact on National Grid's Transmission system or require any changes to the IS systems. No additional works or monies would be required to implement the proposed change.

### 3.1.2 Offshore Transmission Owners (OFTOs)

The OFTOs are supportive of Modification Proposal CA049, and have completed an Assessment on the Proposed Modification.

There may be a number of existing offshore transmission networks or networks at an advanced stage of construction/design that are unable to meet the requirements of CA049. The cost and time taken to achieve compliance should be taken into consideration. Information in this regard has been collected from OFTOs and Developers as part of the consultation.

### 3.1.3 Scottish Hydro-Electric Transmission (SHET)

SHET is supportive of Modification Proposal CA049, and has completed an Assessment on the Proposed Modification.

The implementation of CA049 would not have any physical impact on SHET System(s) or require changes to IS systems. No additional works or monies would be required to implement the proposed change.

### 3.1.4 SP Transmission Limited (SPT)

SPT is supportive of Modification Proposal CA049, and has completed an Assessment on the Proposed Modification.

The implementation of CA049 would not have any physical impact on SPT System(s) or require changes to IS systems. No additional works or monies would be required to implement the proposed change.

## 3.2 Impact on STC/STCPs

The proposed modification will require a change to STC Section K, Section 2. Amendments to STCP01-1 are also required and these are being addressed under PA065.

## 3.3 Impact on Greenhouse Gas emissions

The proposed modification will not have an impact on Greenhouse Gas emissions.

### 3.4 **Assessment against STC Objectives**

The STC Committee considers that CA049 would better facilitate the STC objective(s):

(b) development, maintenance and operation of an efficient, economical coordinated system of electricity transmission;

*The modification will ensure that offshore transmission networks are built in way which will enable NGET to use the reactive capability at the interface point in a timely manner for the purpose of managing voltages on the onshore network. This will mitigate the cost of managing onshore voltages by avoiding:-*

- *Running generation for voltage control*
- *Installing additional compensation equipment onshore*

### 3.5 **Impact on core industry documents**

A proposal to amend the Grid Code has been made to the Grid Code Review Panel (GCRP) to ensure that the basic rules for designing and building an Offshore Transmission System applicable to Users and Offshore Transmission Owners (as defined in the Grid Code and STC respectively) will remain equivalent after this modification to the STC has been implemented.

### 3.6 **Impact on other industry documents**

The proposed modification does not impact on any other industry documents.

# 4 Views and Representations

4.1 Views have been invited from Industry Parties upon the Proposed Modification CA049. The Industry Consultation opened on 15 November 2012 and closed 20 working days later on 13 December 2012.

4.2 The STC Modification Panel received 4 responses during the Industry Consultation and the following table provides an overview of the representations. The complete representations are attached in Annex 3.

| Reference | Company | Summary of Comments |
|---|---|---|
| CA049-AC-01 | Cardiff Power | Agreed with objective but disagreed that the obligation should be in the STC. Objected to the implication that the equipment should be able to operate in constant MVAr mode. Proposed that an obligation to change the slope within a defined time should be included. Supported short term derogations but not permanent derogations. |
| CA049-AC-02 | Blue Transmission | Supported the proposal providing the further clarification on modes of operation is given. |
| CA049-AC-03 | Thanet Offshore Wind Ltd | Supported the proposal providing that an obligation to operate in constant MVAr mode does not arise. Indicated that there may a requirement for a temporary derogation. |
| CA049-AC-04 | Thanet OFTO Ltd | Supported the proposal providing it will be possible to seek derogations. Raised concerns about operating in constant MVAr mode. |

## National Grid Comments on Responses

One respondent, whilst supporting the objective of the proposal, is opposed to the obligation being included in STC Section K. In their opinion, because this is a detailed technical requirement, it should be in STCP01-1 (which already deals with

voltage control instructions) not Section K which deals with high level primary plant and main control system functionality.

The Working Group does not agree with this comment because the requirement is applicable to primary equipment and it is specified at a high level; it defines what needs to be done not how to do it. In its current form Section K places an obligation on OFTO/OTSDUWs to build reactive equipment which can deliver reactive power within a defined a range. This proposed modification is an extension to this requirement to ensure that the reactive equipment has the capability to effect a change in reactive output by changing the voltage set point within two minutes. This is a pre-requisite to enable the OFTO to change the voltage set point within 2 minutes an instruction in accordance with STCP01-1. Therefore the view of the Working Group is that the obligation should be in STC Section K as proposed.

All respondents were concerned that the proposal, as currently worded, would place an obligation for the reactive equipment to have the capability to operate in constant MVAr mode which is not an existing requirement. This was not the intention of the proposal and it has been reworded to reflect this.

One respondent raised an inconsistency with the Grid Code which obliges Generators to be able to change the slope setting on the reactive equipment within one week of receiving an instruction. Section K allows NGET to request the OFTO to effect a change in the slope but does not refer to a timescale in which this should be implemented. To implement such a change on an offshore transmission network may require access to the offshore platform to alter settings on control equipment which would be dependent on weather and sea conditions hence it would not be appropriate to define a time within which the change should be effected.

2 of the respondents identified a need for time limited derogations on existing networks to achieve compliance. Another respondent identified a need for derogation on an offshore network but did not specify whether this was a permanent or temporary derogation. The possibility that derogation may be required for some existing and networks which area at an advanced stage of design is acknowledged and these will be managed in accordance with Code governance.

# 5 Recommendations

5.1 The STC Modification Panel recommends that STC Modification Proposal CA049 be approved for implementation.

5.2 Should the Authority approve Modification Proposal CA049, it is recommended that the STC be modified 10 business days after the Authority's decision.

# STC Amendment Proposal Form

**CA049**

**1. Title of Amendment Proposal**

Amendment to Section K, to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes

**2. Description of the Proposed Amendment** *(mandatory field)*

Section K of the STC will be amended to oblige offshore transmission systems to provide OFTOs with the capability to change the reactive output at the Interface Point in accordance with an instruction given by NGET within 2 minutes of receiving that instruction

**3. Description of Issue or Defect that Proposed Amendment seeks to Address** *(mandatory field)*

To keep voltages within limits as system conditions change, the System Operator instructs Generators to vary the reactive power at the Grid Entry Point. The Grid Code places an obligation on Generators to implement these instructions within 2 minutes of receipt.

As the capacity of offshore transmission systems increases, NGET will become increasingly reliant on the OFTO's reactive capability at the Interface Points to control voltages on the onshore network. As this reactive capability will be displacing the capability provided by onshore Generators, OFTOs will be required to vary the reactive output within 2 minutes of an instruction being received. An amendment to STCP 01-1 (PA065) has been proposed which will place an obligation on OFTOs to meet this deadline. However for this to be possible the offshore transmission systems must be capable of being operated in this way and therefore it is proposed to include an obligation to this effect in Section K of the STC.

**4. Impact on the STC** *(information should be given where possible)*

Indicative Legal Text

Amendment to Section K:

**REACTIVE CAPABILITY AND VOLTAGE CONTROL**

2.1 All Offshore Transmission Systems must be capable of delivering Reactive Power at the Interface Point as described in paragraphs 2.2 and 2.3 of Section K below. The Reactive Power capability that an Offshore Transmission System must be able to provide at the Interface Point may be delivered using a combination of Plant owned by the Offshore Transmission Owner concerned and Plant owner by a Generator or Generators connected to that Offshore Transmission System. Where Generator Plant is out of service, these Reactive Power capability requirements will be reduced pro rata to the maximum Active Power capability of Generator Plant in service.

***2.2 All Offshore Transmission Systems must be designed to enable the OFTO to comply within two minutes of an instruction being received from NGET relating to a change in Reactive Power or voltage set point at the Interface Point***

**5. Impact on other frameworks e.g. BSC, CUSC, Grid Code** *(information should be given where possible)*

None identified

**6. Impact on Core Industry Documentation** *(information should be given where possible)*

None identified

**7. Impact on Computer Systems and Processes used by STC Parties** *(information Offshore transmission networks which have been built or at an advanced stage of design may not be capable of meeting the obligation. Therefore a derogation against modification of a start date for obligation to become active may be required.*

None identified

**8. Details of any Related Modifications to Other Industry Codes** *(where known)*

An amendment to STCP 01-1 (PA065) has been proposed which will place an obligation on OTFOs to respond to an instruction to change reactive output within 2 minutes

**9. Justification for Proposed Amendment with Reference to Applicable STC Objectives** ***(mandatory field)***

STC Objectives

(b) development, maintenance and operation of an efficient, economical and co-ordinated system of electricity transmission;

The modification will ensure that offshore transmission networks are built in way which will enable NGET to use the reactive capability at the interface point in a timely manner for the purpose of managing voltages on the onshore network. This will mitigate the cost of managing onshore voltages by avoiding :-

- Running generation for voltage control
- Installing additional compensation equipment onshore

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| **Details of Proposer** Organisation's Name | Brian Taylor<br>National Grid |
| Capacity in which the Amendment is being proposed<br>(i.e. STC Party or other Party as designated by the Authority pursuant to STC section B7.2.2.1 (b)) | STC Party |

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| **Details of Proposer's Representative**<br>Name<br>Organisation<br>Telephone Number<br>Email Address | <br>Brian Taylor<br>National Grid Electricity Transmission plc<br>01189 363458<br>brian.taylor@nationalgrid.com |
| **Details of Representative's Alternate**<br>Name<br>Organisation<br>Telephone Number<br>Email Address | <br>Audrey Ramsay<br>National Grid Electricity Transmission plc<br>01189 363633<br>audrey.ramsay@nationalgrid.com |
| **Attachments (Yes/No):** | |

**Notes:**

1. Those wishing to propose an Amendment to the STC should do so by filling in this "Amendment Proposal Form" that is based on the provisions contained in Section 7.2 of the STC.

2. The Committee Secretary will check that the form has been completed, in accordance with the requirements of the STC, prior to submitting it to the Committee. If the Committee Secretary accepts the Amendment Proposal form as complete, then she/he will write back to the Proposer informing them of the reference number for the Amendment Proposal and the date on which the Committee will consider the Proposal. If, in the opinion of the Committee Secretary, the form fails to provide the information required in the STC, then he/she may reject the Proposal. The Committee Secretary will inform the Proposer of the rejection and report the matter to the Committee at their next meeting. The Committee can reverse the Committee Secretary's decision and if this happens the Committee Secretary will inform the Proposer.

   The completed form should be returned to:

   Lucy Hudson
   STC Committee Secretary
   Regulatory Frameworks
   National Grid
   National Grid House
   Warwick Technology Park
   Gallows Hill
   Warwick, CV34 6DA

   Or via e-mail to: Lucy.Hudson@nationalgrid.com

## Annex 2 - Draft Legal Text

For ease of reference, the text in red is the proposed additional text within Section K.

**2. REACTIVE CAPABILITY AND VOLTAGE CONTROL**

2.1 All Offshore Transmission Systems must be capable of delivering Reactive Power at the Interface Point as described in paragraphs 2.~~2~~3 and 2.~~3~~4 of Section K below. The Reactive Power capability that an Offshore Transmission System must be able to provide at the Interface Point may be delivered using a combination of Plant owned by the Offshore Transmission Owner concerned and Plant owner by a Generator or Generators connected to that Offshore Transmission System. Where Generator Plant is out of service, these Reactive Power capability requirements will be reduced pro rata to the maximum Active Power capability of Generator Plant in service.

2.2 All Offshore Transmission Systems must be capable of enabling the OFTO to comply with an instruction received from NGET relating to a variation of the voltage set point at the Interface Point within 2 minutes of such instruction being received.

2.~~2~~3 All Offshore Transmission Systems must be capable of transmitting Active Power equivalent to the Interface Point Capacity at any point between the limits 0.95 Power Factor lagging and 0.95 Power Factor leading at the Interface Point. The Reactive Power limits defined at the Interface Point Capacity:

2.3.1 at lagging Power Factor will apply to all Active Power transfer levels above 20% of the Interface Point Capacity as defined in Figure K1 below;

# Annex 3 – Copies of Representations received

## CA049-AC-01

### STC Industry Response Proforma

**CA049 – Amendment to Section K to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes**

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **14/12/2012** to STCTeam@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Modification Report which is drafted by the STC Committee and submitted to the Authority for a decision.

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| **Respondent:** | *Dafydd Rickard*<br>*Email: Dafydd.rickard@cardiffpower.co.uk* |
| **Company Name:** | *Cardiff Power Limited*<br>*(Cardiff Power provides electrical power engineering and project management services to a variety of clients across the UK Electricity Supply Industry and associated industries including Offshore Wind)* |

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| **Question 1.** Do you believe that the proposal better facilitates the Applicable STC Objectives? Please include your reasoning. | **Answer 1:**<br>There is a clear need for operational co-ordination and control functionality being available to support UK transmission and generation.<br>The general aim of the proposal appears to further this however the introduction of this requirement into STC Section K does not appear necessary or desirable. We are therefore opposed to the proposals in their current form.<br>The functionality and necessary response times should be included in STCP01-1 which already deals with voltage control instruction requirements. It is understood from the CA049 Consultation Documentation that STCP01-1 is to be subject to separate modification to introduce appropriate timescales.<br>Such an approach of providing detailed technical requirements in the STCP appears consistent with the way other technical requirements (such as real time data provision) are covered in relevant STCP rather than in STC Section K. Generators building assets on behalf of future OFTOs already need to take account of STCP in specifying and building plant. As such addition of the |

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| | requirement to STC Section K appears an unnecessary duplication – with all the dangers of contradictory requirements existing in the separate documents.<br><br>Section K can be used to deal with high level primary plant and main control system functionality – as per its existing structure and the proposed change appears out of place in this context.<br><br>*For reference, the Applicable STC Objectives are:*<br><br>*(a) efficient discharge of the obligations imposed upon transmission licensees by transmission licences and the Act;*<br><br>*(b) development, maintenance and operation of an efficient, economical and co-ordinated system of electricity transmission;*<br><br>*(c) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity;*<br><br>*(d) protection of the security and quality of supply and safe operation of the national electricity transmission system insofar as it related to interactions between transmission licensees;*<br><br>*(e) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC; and*<br><br>*(f) facilitation of access to the national electricity transmission system for generation not yet connected to the national electricity transmission system or distribution system.* |
| **Question 2.** Do you support the proposed implementation approach? If not, please state why and provide an alternative suggestion where possible. | **Answer 2:**<br><br>We do not support the proposed implementation method for the reasons set out above. The preferred implementation method should be via modification of STCP01-1 in line with the above reasoning.<br><br>In any case the detailed wording revision for STC Section K appears open to some interpretation with regard to:<br><br>1. Existing generator obligations are normally to operate in Voltage Control Mode with other forms of control disabled. The wording requires the ability to implement "*a change in Reactive Power or voltage set point …within 2 minutes*". Most plant will only have capability to operate in |

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| | Voltage Control Mode. The obvious question arising from the STC Section K wording becomes - is the plant required to have a Reactive Power as well as a Voltage Controller installed and commissioned? (Note that the Reactive Power Controller will presumably need to be disabled in accordance with other parts of STC Section K anyway?)<br>2. The wording is potentially ambiguous in that it does not explicitly specify that the plant will only be required to operate in one control mode with ability to respond to the relevant form of instruction. i.e. the wording implies that additional functionality to respond to two types of instructions and to switch between control modes may also be required.<br>3. Voltage Slope setting is not mentioned – whereas there is a Grid Code obligation on generators to be able to respond to an instruction to change slope setting in 1 week. It seems logical that the same requirement should apply to OFTOs. |

***Questions 3, 4 and 5 only relevant if you are a Generator constructing Offshore assets***

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| **Question 3.** Has the plant or apparatus which will be transferred to an Offshore Transmission Owner (OFTO) been built/designed with the capability to enable the OFTO to change reactive flows at the Interface Point within 2 minutes of receiving an instruction from the System Operator? | **Answer 3:**<br>While the plant or apparatus may be capable of responding to changes in voltage set point from site there is a need for considerable infrastructure to allow response to an instruction within 2 minutes. i.e. Control Point infrastructure and relevant control/ communication links to site to change plant parameters.<br>The responsibility for providing the facility falls jointly between the Generator building the assets and the OFTO that needs to provide control point functionality. The question could be interpreted as implying that this is a developer responsibility for generator build schemes – however the main obligation relates to Control Point capability which rests with the OFTO. |
| **Question 4.** If the capability is not available, are you able to provide an estimate of the cost to include it? | **Answer 4:**<br>No cost estimate available |
| **Question 5.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for | **Answer 5:**<br>It appears preferable to manage any short term non-compliance whether to STC Section K or revised STCP01-1 via STC Interim Section K Notification to the |

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| what period of time the derogation would be requested. | OFTO and/ or Generator ION (Balancing Code obligations).<br><br>Possible requests for short term derogations against code conditions such as capability to receive voltage control instructions seem an overly bureaucratic approach.<br><br>It appears a reasonable requirement to ultimately be able to respond to control instructions in line with existing obligations on generators. Application for permanent derogation appears to be contrary to STC objectives and therefore would be unlikely to be supported or granted. |

***Questions 6 , 7 and 8 only relevant if you are an Offshore Transmission Owner (OFTO)***

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| **Question 6.** Are you able to change the reactive flows at the Interface Point within 2 minutes of receiving instructions from the System Operator? | **Answer 6:**<br><br>See answers under Generator above in response to Questions 6, 7 and 8. |
| **Question 7.** If this is not achievable, are you able to provide an estimate of the cost to enable this to be achieved? | |
| **Question 8.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | |

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| **Question 9.** Do you have any other comments? | **Answer 9:**<br><br>STCP01-1 appears the appropriate place for this issue to be dealt with for the reasons stated above. This would also allow proper handling of emergency de-energisation requirements to be covered. These emergency requirements appear of at least equal importance to the change of reactive power / voltage control settings but are not mentioned in the proposed CA049 modifications.<br><br>It also appears important that any proposals should make it clear that this is Control Point functionality and that there is no requirement to modify plant to provide both Voltage Control and Reactive Power Control capability. |

**CA049-AC-02**

## STC Industry Response Proforma

### CA049 – Amendment to Section K to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **14/12/2012** to STCTeam@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Modification Report which is drafted by the STC Committee and submitted to the Authority for a decision.

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| **Respondent:** | *David Lyon* |
| **Company Name:** | *Blue Transmission 1 & 2* |

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| **Question 1.** Do you believe that the proposal better facilitates the Applicable STC Objectives? Please include your reasoning. | *No Change to Blue Transmission 1 & 2* |
| **Question 2.** Do you support the proposed implementation approach? If not, please state why and provide an alternative suggestion where possible. | *Yes- providing there is further clarification on specific mechanism of voltage and reactive control.* |

***Questions 3, 4 and 5 only relevant if you are a Generator constructing Offshore assets***

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| **Question 3.** Has the plant or apparatus which will be transferred to an Offshore Transmission Owner (OFTO) been built/designed with the capability to enable the OFTO to change reactive flows at the Interface Point within 2 minutes of receiving an instruction from the System Operator? | |
| **Question 4.** If the capability is not available, are you able to provide an estimate of the cost to include it? | |

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| **Question 5.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | |

***Questions 6 , 7 and 8 only relevant if you are an Offshore Transmission Owner (OFTO)***

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| **Question 6.** Are you able to change the reactive flows at the Interface Point within 2 minutes of receiving instructions from the System Operator? | *For Walney 1 & 2 the generator will provide the response in accordance with the STC code. The onshore reactors were designed for compensation for cable capacitance.* |
| **Question 7.** If this is not achievable, are you able to provide an estimate of the cost to enable this to be achieved? | |
| **Question 8.** If the capability is not available, please indicate if you would apply for derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | |

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| **Question 9.** Do you have any other comments? | |

## STC Industry Response Proforma

**CA049 – Amendment to Section K to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes**

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **14/12/2012** to STCTeam@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Modification Report which is drafted by the STC Committee and submitted to the Authority for a decision.

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| **Respondent:** | *Louise Pepper*<br>*louise.pepper@vattenfall.com* |
| **Company Name:** | *Thanet Offshore Wind Limited* |

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| **Question 1.** Do you believe that the proposal better facilitates the Applicable STC Objectives? Please include your reasoning. | *For reference, the Applicable STC Objectives are:*<br>*(a) efficient discharge of the obligations imposed upon transmission licensees by transmission licences and the Act;*<br>*(b) development, maintenance and operation of an efficient, economical and co-ordinated system of electricity transmission;*<br>*(c) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity;*<br>*(d) protection of the security and quality of supply and safe operation of the national electricity transmission system insofar as it related to interactions between transmission licensees;*<br>*(e) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC; and*<br>*(f) facilitation of access to the national electricity transmission system for generation not yet connected to the national electricity transmission system or distribution system.*<br>*As Thanet Offshore Wind Farm is a transitional Tender* |

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| | *Round 1 project that is already generating and also Thanet Offshore Wind Limited is a Generator then we appreciate the need for efficient operation and coordination. However, we do not feel that it is our place to comment on requirements for overall system operation.* |
| **Question 2.** Do you support the proposed implementation approach? If not, please state why and provide an alternative suggestion where possible. | *Yes, as The Grid Code for generators sets out a response time of 2 minutes for generators to respond to an instruction to change Voltage Set Point so we agree that it is reasonable that this should also apply under the STC.*<br><br>*However, the wording of the consultation seems vague in that it makes reference to "reactive power or voltage set point at the Interface within 2 minutes of such instruction being received"*<br><br>*For Thanet Offshore Wind Farm the BCA specify voltage control as the only operating mode.* |

***Questions 3, 4 and 5 only relevant if you are a Generator constructing Offshore assets***

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| **Question 3.** Has the plant or apparatus which will be transferred to an Offshore Transmission Owner (OFTO) been built/designed with the capability to enable the OFTO to change reactive flows at the Interface Point within 2 minutes of receiving an instruction from the System Operator? | *The equipment installed at Thanet is not yet capable of changing reactive flows at the interface point. However, we are pursuing this matter with the supplier to ensure that the functionality is delivered and believe it is a software issue.* |
| **Question 4.** If the capability is not available, are you able to provide an estimate of the cost to include it? | *Not at this point in time* |
| **Question 5.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | *If the capability is still not available at the time when the assets are transferred to the OFTO, then TOWL would support the need for the OFTO to seek a time limited derogation.* |

***Questions 6 , 7 and 8 only relevant if you are an Offshore Transmission Owner (OFTO)***

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| **Question 6.** Are you able to change the reactive flows at the Interface Point within 2 minutes of receiving instructions from the | |

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| System Operator? | |
| **Question 7.** If this is not achievable, are you able to provide an estimate of the cost to enable this to be achieved? | |
| **Question 8.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | |

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| **Question 9.** Do you have any other comments? | |

## STC Industry Response Proforma

### CA049 – Amendment to Section K to provide OFTOs with the capability to respond to Reactive Power Instructions within 2 minutes

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **14/12/2012** to STCTeam@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Modification Report which is drafted by the STC Committee and submitted to the Authority for a decision.

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| **Respondent:** | *Bob Reid*<br>*Bob.Reid@bbcap.co.uk* |
| **Company Name:** | *Thanet OFTO Ltd (Company is preferred bidder for Thanet OFTO assets)*<br>*NB Balfour Beatty Capital is also part of a consortium which is the preferred bidder for the Greater Gabbard OFTO assets.* |

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| **Question 1.** Do you believe that the proposal better facilitates the Applicable STC Objectives? Please include your reasoning. | *For reference, the Applicable STC Objectives are:*<br>*(a) efficient discharge of the obligations imposed upon transmission licensees by transmission licences and the Act;*<br>*(b) development, maintenance and operation of an efficient, economical and co-ordinated system of electricity transmission;*<br>*(c) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity;*<br>*(d) protection of the security and quality of supply and safe operation of the national electricity transmission system insofar as it related to interactions between transmission licensees;*<br>*(e) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC; and*<br>*(f) facilitation of access to the national electricity transmission system for generation not yet* |

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| | *connected to the national electricity transmission system or distribution system.*<br><br>Answer: We appreciate the need for efficient co-ordination of operations, with a particular emphasis on the future when wind farms are responsible for a significant share of generation in the UK. National Gird is better placed than we are to comment on what is required for overall system operation. |
| **Question 2.** Do you support the proposed implementation approach? If not, please state why and provide an alternative suggestion where possible. | Answer: Yes, provided that Thanet OFTO Limited can rely on appropriate derogations as Thanet OFTO's assets have not yet been provided with this functionality .<br><br>We understand that the equipment fitted at Greater Gabbard is capable of meeting the requirement.<br><br>Balfour Beatty will also need to rely on similar derogations for other offshore transmission assets which it acquires, wherever this functionality has not been installed at the time of takeover of the assets. |

***Questions 3, 4 and 5 only relevant if you are a Generator constructing Offshore assets***

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| **Question 3.** Has the plant or apparatus which will be transferred to an Offshore Transmission Owner (OFTO) been built/designed with the capability to enable the OFTO to change reactive flows at the Interface Point within 2 minutes of receiving an instruction from the System Operator? | |
| **Question 4.** If the capability is not available, are you able to provide an estimate of the cost to include it? | |
| **Question 5.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | |

***Questions 6 , 7 and 8 only relevant if you are an Offshore Transmission Owner (OFTO)***

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| **Question 6.** Are you able to change the reactive flows at the | Our understanding is that the equipment currently installed at Thanet is not yet capable of changing |

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| Interface Point within 2 minutes of receiving instructions from the System Operator? | reactive flows at the interface point within 2 minutes of receipt of an instruction from the System Operator using the control phone .<br><br>Reactive flows at the Interface Point at Greater Gabbard can be changed within 2 minutes of receiving instructions from the System Operator using the control phone . |
| **Question 7.** If this is not achievable, are you able to provide an estimate of the cost to enable this to be achieved? | Not at present. |
| **Question 8.** If the capability is not available, please indicate if you would apply for a derogation. If a derogation is requested, please indicate for what period of time the derogation would be requested. | Thanet OFTO will need a derogation and we would intend to apply for one.<br><br>It is likely that this will be a time limited derogation for 12 months from the date when the assets transfer to OFTO ownership . We understand that the Developer anticipated that this functionality would be provided and is in discussion with his supplier to ensure that the functionality is delivered.<br><br>Balfour Beatty reserves the right to apply for a derogation in relation to any future OFTO assets which come up as part of the Ofgem tendering exercise until we are satisfied that future transmission assets are capable of the functionality which this amendment requires. |

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| **Question 9.** Do you have any other comments? | We would also wish to discuss with Ofgem the extent to which a licence revenue adjustment would be forthcoming if the OFTO (as opposed to the Developer) had to incur expense in order to deliver the required functionality to any set of Transmission Assets.<br><br>With respect to the proposed wording for a change to Section K of the STC, we note that the current wording could be clarified to set out the requirements to change set point and slope under voltage control mode (the normal mode of operation) and to change the amount of reactive power to be supplied under Fixed Reactive Control ("Constant Q") mode. We note that the Constant Q mode is expected to be used only in exceptional circumstances and we understand that NG is required to give a longer period of notice ( hours rather than minutes) for the mode to be changed. A suggested wording is : :<br><br>*"All Offshore Transmission Systems must be designed to enable the OFTO to comply within two minutes of an* |

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| | *instruction being received from NGET relating to a voltage set point or slope when in voltage control mode and relating to a reactive power output when in constant reactive power mode ("Constant Q" mode).* |