

Stage 02: Proposed Amendment Report

System Operator Transmission Owner Code
(STC)

CA047: Consequential Changes to Section K following implementation of Grid Code D/10 Frequency and Voltage Operating Range.

What stage is this document at?

01	Initial Amendment Report
02	Proposed Amendment Report
03	Amendment Report

This proposal seeks to modify the System Operator Transmission Owner Code (STC) to introduce consequential changes resulting from Grid Code D/10 Frequency and Voltage Operating Range.

This document is open for Industry Consultation. Any interested party is able to make a response in line with the guidance set out in Section 5 of this document.

Published on: 15 May 2012
Length of Consultation: 10 Working Days
Responses by: 29 May 2012



The STC Committee recommends:

That CA047 should be implemented as it better facilitates Applicable STC objectives (ii), (iii) and (v).



High Impact:



Medium Impact:



Low Impact:

Offshore Transmission Owners

Contents

1	Executive Summary	3
2	Description of Modification and its Effects.....	4
3	Impacts & Assessment	5
4	Recommendations	7
5	Responses	8
	Annex 1 - Amendment Proposal.....	9
	Annex 2 - Proposed Legal Text	12



Any Questions?

Contact:

Lucy Hudson

Committee Secretary



lucy.hudson@uk.ngrid.com



01926 653509

Proposer:

Louise McGoldrick

About this document

This Proposed Amendment Report is for Industry Consultation and outlines the information required for interested parties to form an understanding of a defect within the STC and the proposed solutions.

Document Control

Version	Date	Author	Change Reference
1.0	15th May 2012	STC Committee	Proposed Amendment Report for Industry Consultation

CA047 Proposed
Amendment Report

15 May 2012

Version 1.0

Page 2 of 12

1 Executive Summary

- 1.1 The Amendment Proposal CA047 is a consequential change following the implementation of Grid Code Modification – D/10 Frequency and Voltage Operating Range in July 2011. CA047 is proposing to amend the STC to reflect the introduction of limited operation requirements in certain frequency bands and to modify the under-voltage tripping times for Offshore Transmission Systems within Section K.
- 1.2 STC Amendment Proposal CA047 was proposed by NGET and was formally submitted to the STC Committee meeting on 25th January 2011.
- 1.3 Following consideration at the 25th January 2011 meeting, the STC Committee agreed that Proposed Amendment CA047 should proceed directly to the Assessment and Report Phase.

STC Committee Recommendation

- 1.4 The STC Committee provisionally recommends that STC Amendment Proposal CA047 be approved for implementation.
- 1.5 Should the Authority approve STC Amendment Proposal CA047, it is provisionally recommended that the STC be modified 5 days after the Authority decision.

2 Description of Modification and its Effects

- 2.1 The Amendment Proposal seeks to make changes to Section K of the STC in order to include the consequential changes resulting from Grid Code D/10 Frequency and Voltage Operating Range.
- 2.2 The Grid Code modification has highlighted a conflict in the STC between STC Section K 3.1.4 and Section K 3.1.2. Section K3.1.4 states that to avoid unwanted island operations there is a requirement for Offshore Transmission Systems connected to Onshore Systems in Scotland to trip if the voltage measured at the Interface Point drops below 80% for more than 2 seconds. However, Section K 3.1.2 requires the Offshore Transmission System to remain connected to the Onshore Transmission System without tripping for 2.5 seconds.
- 2.3 It is therefore recommended that STC - Section K 3.1.4 (c) should be amended from “below 80% for more than 2 seconds” to “below 80% for more than 2.5 seconds”.
- 2.4 Whilst reviewing the STC text National Grid has identified a housekeeping grammatical error within Section K 3.1.4 (d). Within the Grid Code Connection Condition 6.3.15 states that the obligation is at “the Connection Point or User System Entry Point”, the “or” was incorrectly transferred to the STC. It is therefore recommended that K3.1.4 (d) be amended from “Interface Point or above” to “Interface Point is above.”
- 2.5 Currently the STC obligation Section K 5.4 currently references Grid Code Connection Condition 6.1.3 and states that System Frequency could rise to 52Hz or fall to 47Hz and that each Offshore Transmission System or any constituent element must be capable of:

Continuous operation in the Frequency range 47.5Hz to 52Hz and

For at least 20 seconds on each occasion the Frequency is below 47.5Hz
- 2.6 This obligation is now inconsistent with the revised obligations contained within Grid Code Connection Condition.6.1.3; it is therefore proposed to update the STC to reflect the introduction of limited operation requirements in certain frequency bands.
- 2.7 No Alternative Amendments to CA047 were submitted.

3 Impacts & Assessment

3.1 STC Parties' Assessments

3.1.1 National Grid

National Grid is supportive of Amendment Proposal CA047, and has carried out an assessment of the Amendment Proposal.

The implementation of CA047 would not have any physical impact on National Grid's Transmission system or require 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 Amendment Proposal CA047 and do not believe the implementation of CA047 will have any physical impact on any currently operational Offshore Transmission systems. The change has the potential to impact on future projects, although the impact is expected to be minimal. It is unlikely to have any material financial, technical or programme impact.

3.1.3 Scottish Hydro-Electric Transmission Limited (SHETL)

SHETL is supportive of Amendment Proposal CA047. The implementation of CA047 would not have any physical impact on SHETL's Transmission system or require any changes to the IS systems.

3.1.4 SP Transmission Limited (SPT)

SPT is supportive of Amendment Proposal CA047. The implementation of CA047 would not have any physical impact on SPT's Transmission system or require any changes to the IS systems.

3.2 Impact on STC/STCPs

The Amendment Proposal will require changes to the following parts of the STC:

- Section K – Technical, Design and Operational Criteria and Performance Requirements for Offshore Transmission Systems

3.3 Impact on Greenhouse Gas emissions

The proposed amendment will not have an impact on Greenhouse Gas Emissions.

3.4 Assessment against STC Objectives

The STC objective(s):

- efficient discharge of the obligations imposed upon transmission licensees by transmission licences and the Act;
- development, maintenance and operation of an efficient, economical coordinated system of electricity transmission;
- facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity;

- (iv) protection of the security and quality of supply and safe operation of the national electricity transmission system insofar as it relates to interactions between transmission licensees; and
- (v) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC; and
- (vi) facilitation of access to the national electricity transmission system for generation not yet connected to the national electricity transmission system or distribution system.

The STC Committee considers that CA047 would better facilitate the STC objectives ii, iii and v and has a neutral impact on i,ii, vi.

The amendment of the frequency ranges to meet the standard capabilities of globally available generation plant, whilst avoiding any detrimental affect on to the security of the transmission system, avoids over investment in future generation equipment and avoids introducing a barrier to market entry and therefore better facilitates STC objectives (ii) and (iii).

By amending the STC as described above this will address the consequential change that has arisen as a result of a Grid Code Modification and therefore better facilities STC objective (v).

3.5 Impact on Industry Documents

3.5.1 Impact on core industry documents

The proposed amendment does not impact on any core industry documents

3.5.2 Impact on other industry documents

The proposed amendment does not impact on any other industry documents

4 Recommendations

- 4.1 The STC Committee recommends that this Initial Amendment Report be circulated to invite each of the Parties to provide its Assessment, following the Committee's referral to the Assessment and Report Phase on the 26 January 2012.

The STC Committee provisionally recommends that STC Amendment Proposal CAO47 be approved for implementation.

- 4.2 Should the Authority approve Amendment Proposal CA047, it is recommended that the STC be modified 5 business days after the Authority's decision.
- 4.3 The following timeline is suggested for progressing CA047:

25 th Jan 2012	Amendment Proposal referred to Assessment & Report Phase by STC Committee
29 th Feb 2012	NGET to submit draft Initial Amendment Report to STC Committee for Parties to provide their Assessment
28 th Mar 2012	STC Committee to confirm Assessment and provide approval for Proposed Amendment Report to be circulated for 10 day consultation at Committee meeting
15 th May 2012	NGET to issue out for 10 day consultation
29 th May 2012	10 day consultation closes
19 th Jun 2012	NGET to submit Proposed Amendment Report to STC Committee to consider representations made
27 th Jun 2012	STC Committee to approve Amendment Report for submission to the Authority at Committee meeting
28 th Jun 2012	NGET to submit Amendment Report to the Authority

5 Responses

- 5.1 This section will contain a summary of responses received during the Industry Consultation and will be completed as part of the Report to the Authority.
- 5.2 Views are invited upon the proposals outlined in this report, which should be received by 29th May 2012.
- 5.3 Your formal responses may be emailed to: STCTeam@nationalgrid.com

STC Amendment Proposal Form

CA047

1. Title of Amendment Proposal

Consequential Changes to Section K following implementation of Grid Code D/10 Frequency and Voltage Operating Range.

2. Description of the Proposed Amendment (mandatory field)

This Proposed Amendment is being raised as a consequential change as a result of Grid Code Modification - D/10 Frequency And Voltage Operating Range¹. Connection Condition 6 of the Grid Code was modified 18th July 2011, to ensure that the Grid Code obligations relating to the voltage and fault ride through ranges are clear, unambiguous and are appropriately consistent with international obligations.

Fault Ride Through Capability

As highlighted in the Grid Code Modification, there is a similar conflict in the STC between the obligation to trip if the voltage measured at the Interface Point drops below 80% for more than 2 seconds and the fault ride through obligation in STC - Section K 3.1.2 which requires the Offshore Transmission System to remain connected to the Onshore Transmission System without tripping for 2.5 seconds. It is therefore recommended that STC - Section K 3.1.4 (c) should be amended from "below 80% for more than 2 seconds" to "below 80% for more than 2.5 seconds"

In addition to the consequential change this proposal also seeks to address a housekeeping error identified by National Grid in 3.1.4.(d), and recommends that it should be amended from " Interface Point or above" to " Interface Point is above".

Frequency Obligations

STC - Section K 5.4 currently references Grid Code CC.6.1.3 and states that System Frequency could rise to 52Hz or fall to 47Hz and that each Offshore Transmission System or any constituent element must be capable of:

- Continuous operation in the Frequency range 47.5Hz to 52Hz and
- For at least 20 seconds on each occasion the Frequency is below 47.5Hz

This obligation is now inconsistent with the revised obligations contained within Grid Code CC.6.1.3; it is therefore proposed to update the STC to reflect the introduction of limited operation requirements in certain frequency bands. These proposed changes have been reflected in the attached proposed legal text.

The Grid Code Working Group for D/10 recommended that the Grid Code should be modified because it was assessed to have no impact on system security and may be beneficial for the procurement of generation plant.

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

Following the implementation of Grid Code Modification - D/10 Frequency and Voltage Operating Range, it is proposed to amend the STC to reflect the introduction of limited operation requirements in certain frequency bands and to modify the under-voltage tripping times in Section K paragraph 3.1.4 (c) which apply to Offshore Transmission systems connected to Onshore System in Scotland to align with the Grid Code Changes.

4. Impact on the STC

Section K paragraphs 3.1.4 & 5.4.

5. Impact on other frameworks e.g. CUSC, BSC

None

6. Impact on Core Industry Documentation

None

7. Impact on Computer Systems and Processes used by STC Parties

None

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

Grid Code D/10 Frequency and Voltage Operating Range changes implemented 18th July 2011.

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

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

(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;

(e) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC;

The amendment of the frequency ranges to better meet the standard capabilities of globally available generation plant, whilst avoiding any detrimental affect on to the security of the transmission system, avoids over investment in future generation equipment and avoids introducing a barrier to market entry and therefore better facilitates STC objectives (b) and (c).

By amending the STC as described above this will address the consequential change that has arisen as a result of a Grid Code Modification and therefore better facilities STC objective (e).

Details of Proposer Organisation's Name	National Grid Electricity Transmission plc
Capacity in which the Amendment is being proposed (i.e. STC Party or other Party as designated by the Authority pursuant to STC section B7.2.2.1 (b))	STC Party/Code Administrator
Details of Proposer's Representative Name Organisation Telephone Number Email Address	Louise McGoldrick National Grid Electricity Transmission plc 01926 65422 Louise.McGoldrick@uk.ngrid.com
Details of Representative's Alternate Name Organisation Telephone Number Email Address	Audrey Ramsay National Grid Electricity Transmission plc 01189 363633 Audrey.Ramsay@uk.ngrid.com
Attachments (Yes/No): Yes Appendix 1 – Legal Text to support this proposal	

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@uk.ngrid.com

Annex 2 - Proposed Legal Text

The following amendments shall be made to Section K of the STC

3.1.4 To avoid unwanted island operation, Offshore Transmission Systems connected to Onshore Systems in Scotland shall be tripped for the following conditions:

- (a) frequency above 52Hz for more than 2 seconds;
- (b) frequency below 47Hz for more than 2 seconds;
- (c) voltage as measured at the Interface Point below 80% for more than 2.5 seconds; and
- (d) voltage as measured at the Interface Point ~~is~~ above 120% (115% for 275kV) for more than 1 second.

Deleted: or

The times stated in (a) and (b) above are maximum trip times. Shorter times may be used to protect the integrity of an Offshore Transmission System or Power Stations connected to it.

5.4 As stated in Grid Code CC.6.1.3, the System Frequency could rise to 52Hz or fall to 47Hz. Each Offshore Transmission System or any constituent element must be capable of:

5.4.1	<u>Frequency Range</u>	<u>Requirement</u>
	<u>51.5Hz - 52Hz</u>	<u>Operation for a period of at least 15 minutes is required each time the Frequency is above 51.5Hz.</u>
	<u>51Hz - 51.5Hz</u>	<u>Operation for a period of at least 90 minutes is required each time the Frequency is above 51Hz.</u>
	<u>49.0Hz - 51Hz</u>	Continuous operation is required
	<u>47.5Hz - 49.0Hz</u>	<u>Operation for a period of at least 90 minutes is required each time the Frequency is below 49.0Hz.</u>
5.4.2	<u>47Hz - 47.5Hz</u>	Operation for a period for at least 20 seconds is required each occasion the Frequency is below 47.5Hz.

For the avoidance of doubt, disconnection, by frequency or speed based relays is not permitted within the frequency range 47.5Hz to 51.5Hz, unless NGET has agreed to any Frequency-level relays and/or rate-of-change-of Frequency relays which will trip such Offshore Transmission System and any constituent element within this Frequency range, under the relevant Offshore TO Construction Agreement or Transmission Interface Site Specification.