CM089 – Electricity System Restoration Standard

21 April 2023

STCP 01-1 Issue 010 Operational Switching

STC Procedure Document Authorisation

Party	Name of Party Representative	Signature	Date
National Grid Electricity System Operator plc			
National Grid Electricity Transmission plc			
SP Transmission plc			
Scottish Hydro Electric Transmission plc			
Offshore Transmission Owners			
Other TO licensees			

STC Procedure Change Control History

Issue 001	18/03/2005	BETTA Go-Live Version
Issue 002	04/07/2005	Issue 002 incorporating PA025
Issue 003	25/10/2005	Issue 003 incorporating PA034 & PA037
Issue 004	22/05/2008	Issue 004 incorporating PA050
Issue 005	14/01/2009	Issue 005 incorporating PA050
Issue 006	06/10/2010	Issue 006 incorporating changes for offshore transmission
Issue 007	20/11/2013	Issue 007 incorporating PM065 and PM068
Issue 008	30/07/2014	Issue 008 incorporating PM078
Issue 009	01/04/2019	Issue 009 incorporating National Grid Legal Separation Changes
Issue 10	01/06/2022	Issue 010 incorporating PM0125
Issue 11	25/04/2023	Issue 011 incorporating changes to facilitate the Electricity System Restoration Standard

1 Introduction

1.1 Scope

1.1.1 In the Control Phase, appropriate co-ordination between NGESO, Onshore and Offshore TOs and Affected Users is essential during the Operational Switching process. This document specifies the responsibilities of NGESO and TOs in relation to Operational Switching of Plant and/or Apparatus on the TOs' Transmission Systems and the procedures to be followed by each Party:

- NGESO in the role of NETSO shall be responsible for directing the configuration of the National Electricity Transmission System;
- TOs shall be responsible for instructing Operational Switching on their Transmission Systems; and
- The TO shall be responsible for the management of any part of their Transmission Systems released from operational service under a Transmission Status Certificate (TSC).

1.1.2 For the purposes of this document, the TOs are:

- NGET;
- SPT;
- SHE-T; and
- All Offshore and other Onshore Transmission Licence holders as appointed from time to time by OFGEM

1.1.3 In the event that specific conditions or exceptions are made in the document relating to an Onshore TO or Offshore TO these will be prefixed appropriately.

1.1.4 If an Offshore TO chooses to contract Operational Switching to another Transmission Licence holder then that contracted TO shall also become responsible for formulating and executing Operational Switching on that equipment.

1.1.5 This document excludes the obligations and processes associated with the testing of Plant and/or Apparatus on the TOs' Transmission Systems. These are specified in STCPs 08-1 to 08-4.

1.1.6 The National Electricity Transmission System is deemed to include Offshore transmission connections and equipment operated at 132kV and above. Offshore connections and equipment operated at below 132kV is deemed to be Distribution and is not subject to this procedure. (See Appendix F).

1.2 Objectives

1.2.1 The objective of this document is to provide for efficient co-ordination between NGESO and all TOs in relation to Operational Switching on the TOs' Transmission Systems.

1.2.2 To meet this objective, this document specifies the following:

- the responsibilities of NGESO and TOs in relation to Operational Switching on the TOs' Transmission Systems;
- the requirements for exchange of information between NGESO, TOs and Affected Users related to Operational Switching; and
- the lines of communication to be used.

2 Key Definitions

2.1 For the purposes of STCP 01-1:

2.1.1 **Affected User** means a User whose System, in the reasonable opinion of either NGESO or the relevant TO, will or may be subject to an Operational Effect caused by an Operation on a TO's Transmission System.

2.1.2 **Alternative Point of Contact** means a point of contact, other than the Primary Point of Contact, provided by the TO, for NGESO to contact in relation to operational liaison.

2.1.3 **Event** is as defined in the Grid Code as at the Code Effective Date and for purposes of this STCP only, not as defined in the STC.

2.1.4 **Switching Method** means the high-level methodology that identifies the actions required by NGESO of the TO in a clear and unambiguous manner or formal switching instruction where appropriate.

2.1.5 **Planning Phase** means the period covered by the Operational Planning Phase and the Programming Phase.

2.1.6 **Alternative Point of Contact** means a point of contact, other than the Primary Point of Contact, provided by the TO, for NGESO to contact in relation to operational liaison.

2.1.7 **Transmission Status Certificate (TSC)** means the form in Appendix C for Operational Switching

2.1.8 **Operational Effect** is as defined in the Grid Code as at the Code Effective Date and for the purposes of this STCP only, not as defined in the STC.

3 Procedure

3.1 Overview

3.1.1 Following the handover of Outages and/or Operational Switching requirements from the Planning Phase to the Control Phase, NGESO control staff shall discuss the Operational Effect (or potential Operational Effect) of the Outages and/or Operational Switching requirements with affected TOs, prior to real-time.

3.1.2 If an Outage, Outage change request or Operational Switching requirement not included in the handover, is required during the Control Phase, NGESO Control staff shall discuss the Operational Effect (or potential Operational Effect) with affected TOs as soon as possible after the requirement is identified.

3.1.3 An Outage, Outage change request or Operational Switching requirement may be made or provided verbally, where it is necessary and expedient to do so. Such a request shall be confirmed in writing as soon as reasonably practicable by the Party making it.

3.1.4 NGESO shall separately record any Services Reduction (if greater than 3 hours duration) or Outage in the Outage database.

3.1.5 An Operational Switching programme will be initiated by NGESO contacting the Primary Point of Contact. Following initiation of the Operational Switching programme, the Primary Point of Contact may use a Point of Contact at an alternative location to liaise with NGESO to complete the Operational Switching programme. NGESO's normal point of liaison will always be the Primary Contact Point, and the communication from an Alternative Point of Contact will always be managed by the relevant TO.

3.1.6 In respect of any circuit which crosses the Interface Point, NGESO will include in the TSC, the name and telephone number of the Alternative Point of Contact that the onshore TO will utilise for agreeing and implementing the switching. NGESO will also confirm to the Onshore TO that they are not required to contact the Offshore TO Primary Point of Contact before switching.

3.1.7 In respect of a Total Shutdown or Partial Shutdown, the requirements of the Electricity System Restoration Standard shall apply. Under these conditions special arrangements shall apply as detailed in section 3.17 of this STCP 01-01.

3.2 Use of a Switching Method

3.2.1 This document covers the use of:

- a Switching Method utilising a TSC;
- a Switching Method utilising a verbal Switching Method; and
- a Switching Method utilising another agreed method where applicable.

3.2.2 A TSC shall always be used:

- when removing equipment from operational service to allow the TOs to establish Safety Precautions; or
- if either Party does not agree to the use of the verbal or other Switching Method.

3.2.3 If a TSC is not required, a verbal Switching Method or other agreed method which maintains appropriate safeguards may be used. Situations when a verbal Switching Method or other agreed method may be used include:

- where an emergency situation exists (including a Total Shutdown or Partial Shutdown) requiring immediate Operational Switching and there is insufficient time to follow the TSC procedure in 3.4;
- where post fault actions are implemented;
- where TO Transmission System re-configuration is required that does not need any part of a TO Transmission System to be removed from operational service to allow the TOs to establish Safety Precautions;

- where Operational Switching is required for voltage control;
- to release Protection Apparatus associated with Plant and/or Apparatus not released under a TSC (i.e. retained under NGESO control);
- to release intertrip and/or Protection signalling channel whilst the associated Plant and/or Apparatus remains in operational service;
- to release a DAR scheme;
- to release busbar Protection Apparatus; or
- where work is required on Plant and/or Apparatus remaining in service under a risk of trip.

- To return to service Plant and / or Apparatus previously released under a TSC, where both parties agree that the return TSC procedure in 3.4 is not appropriate

3.2.4 Where work is required on Protection Apparatus (other than busbar protection) associated with Plant and/or Apparatus that has been released under a TSC, this Protection Apparatus shall be deemed to be transferred to the TO under the relevant TSC.

3.2.5 Throughout this procedure operational liaison between NGESO and the TOs shall take place as required.

3.3 Establishing a Switching Method

3.3.1 When using a TSC to establish a Switching Method for Operational Switching on a TO's Transmission System, the relevant Parties shall complete the TSC in a clear and unambiguous manner clearly identifying, where appropriate, the boundaries of the part of the System released from operational service. Guidelines on TSC completion are provided in Appendix B and the standard terms or Trigger Phrases are listed in Appendix D.

3.3.2 The communication of TSCs shall be by email or fax, unless these methods are unavailable in which event the contents of the TSC shall be conveyed by telephone and read back by the recipient to ensure both copies are identical.

3.3.3 If a TSC is not used and the Parties agree to the use of a verbal Switching Method, the Switching Method shall be given verbally by NGESO to the TO. NGESO and the relevant TO shall each record the Switching Method. The TO shall then confirm both copies are identical by reading back the Switching Method to NGESO.

3.3.4 For the avoidance of doubt, all telephone instructions shall be tape-recorded by NGESO and the relevant TO.

3.3.5 If a TSC is not used and the Parties agree to the use of another method which maintains appropriate safeguards, for example electronic communication, this shall be given by NGESO to the TO, and acknowledged, in a suitable and agreed format.

3.3.6 In the case of a Total Shutdown or Partial Shutdown, the requirements of the Electricity System Restoration Standard shall apply. Under the Electricity System Restoration Standard, 60% of peak National Demand is to be restored across all System Restoration Regions in 24 hours and 100% peak National Demand is to be restored across System Restoration Regions in 5 days. This requires TOs together with other Users as provided for in Grid Code CC.7.11.4 or ECC.7.11.4 to have the capability to switch Demand at sufficient speed to support NGESO in satisfying the requirements of the Electricity System Restoration Standard on the basis of:-

- the successful implementation of Restoration Plans,
- the successful delivery of the obligations of Restoration Contractors who are parties to Restoration Plans; and
- the further requirements of Grid Code OC9.

3.3.7 During a System Restoration, either as part of a Restoration Plan or subsequently as part of the wider System Restoration process, the switching method employed shall be agreed between the TO, NGESO and relevant Network Operator so as to ensure the requirements of 3.3.6 above can be satisfied whilst maintaining appropriate safeguards for Plant and personnel.

3.4 Planned Operational Switching of Plant and/or Apparatus (other than Protection Apparatus and associated equipment).

3.4.1 General

3.4.1.1 This section covers the procedures to be followed for:

- planned Operational Switching for the release of Plant and/or Apparatus, including cross TO:TO or TO:NGESO boundary circuits and/or additions to the Plant and/or and Apparatus previously released;
- full return to service of Plant and/or Apparatus; and
- partial return to service of Plant and/or Apparatus

3.4.2 Planned Operational Switching for the release of Plant and/or Apparatus

3.4.2.1 Prior to planned Operational Switching on a TO's Transmission System, the Party requesting that Operational Switching, shall contact the other relevant Parties to discuss the Operational Switching of Plant and/or Apparatus. The timing of the initial discussion will be dependent on the complexity of the Operational Switching and shall, in any case, allow sufficient time for NGESO and the relevant TO to evaluate the following:

- the proposed Switching Method;
- in the case of NGESO, National Electricity Transmission System re-configuration requirements;
- in the case of the relevant TO, the impact on their Transmission System;
- requirements for modifications to Plant and/or Apparatus e.g. changes to Protection Apparatus;
- issues or restrictions (including Operational Capability Limits (OCLs)) on Transmission Plant and/or Apparatus associated with the proposed Operational Switching; and/or
- other operational information relevant to the Operational Switching.

3.4.2.2 Prior to the planned Operational Switching time, NGESO shall also contact Affected Users In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the Switching Method and/or the resulting System configuration.

3.4.2.3 NGESO shall inform the Affected User(s) of the approximate start time of the Operational Switching and that the relevant TO shall become the operational contact with the Affected User(s) at the affected site for the duration of the Operational Switching.

3.4.2.4 NGESO shall develop the proposed Switching Method for the release of the Plant and/or Apparatus required for the Outage(s), taking into account any operational issues, or requirements raised verbally or in writing by the TO(s) or Affected User(s) in the appropriate timescales

3.4.2.5 NGESO shall complete part 1, 1.1, 1.2 and 2.1 of the TSC and fax /email the TSC to the relevant TO as soon as reasonably practicable.

3.4.2.6 On receipt of the TSC the relevant TO shall check the Switching Method and, if necessary, inform NGESO of any required alterations. If a change to the TSC is required, either:

- both Parties shall verbally agree any required change(s) to the TSC, modify their copies of the TSC accordingly and initial the agreed change(s); or
- NGESO shall prepare a new TSC, completing and fax /email the new TSC as described in 3.4.2.5.

3.4.2.7 If the change(s) to the Switching Method are significant, it may be necessary for NGESO to notify Affected User(s) of the proposed change(s) and discuss any relevant issues listed in Section 3.4.2.3 with Affected User(s) prior to preparing a new TSC. The Switching Method shall be developed taking into account any further operational issues or requirements raised by the relevant TO or Affected User(s).

3.4.2.8 Prior to commencing the Operational Switching programme (developed by the TO to meet the aims of the Switching Method), the relevant TO shall contact NGESO and each Party shall complete part 1.3 of the TSC, by exchange of names, date and time. The relevant TO shall then:

- have control of that Plant and/or Apparatus stated in the TSC;
- become the point of operational contact for the Affected User(s) at the affected site for the duration of the Operational Switching;
- notify the Affected User(s) of the change in operational contact from NGESO to TO; and
- implement the Operational Switching programme.

3.4.2.9 During an Operational Switching sequence to switch out Plant and/or Apparatus detailed in part 2.1 of the TSC, the TO may decide to leave the respective boundary;

- disconnector(s) closed, open, or open and isolated as required; or
- circuit breaker(s) open or open and isolated as required.

3.4.2.10 On completion of the Operational Switching programme, the TO shall notify the Affected User(s) of its completion and inform the Affected User(s) that their operational contact is now NGESO. The TO shall then notify NGESO that the Operational Switching programme has been completed.

3.4.2.11 Part 2.2 of the TSC shall be completed by both Parties through exchange of names, date and time, which transfers operational control of the Plant and/or Apparatus detailed in part 2.1 to the relevant TO. Earthing devices shall not be applied or safety documents issued until part 2.2 of the TSC has been completed.

3.4.3 Change of Conditions

3.4.3.1 If a change of conditions (as described in section 3.15) requires the Operational Switching to be delayed or stopped, either NGESO or the relevant TO (as appropriately agreed between the Parties at the time) shall inform the Affected User(s) as soon as practicable.

3.4.4 Cross Boundary circuits

3.4.4.1 Where a circuit crosses a TO:TO or TO:NGESO boundary, NGESO shall contact all TOs that may be affected and Affected User(s) prior to establishing the Switching Method. A separate TSC will be agreed and issued to each relevant TO following the procedure in section 3.4.2. In Part 1.2 of each TSC, reference shall be made to the requirement for operational liaison with other relevant Parties and the number(s) of the related TSCs. Part 2.1 shall state the full Plant and/or Apparatus released and any boundaries relevant to that particular Party.

3.4.5 Additions to the Plant and Apparatus previously released

3.4.5.1 Where necessary to extend the Plant and Apparatus released to the TO the procedure in section 3.4.2 shall be followed and either:

- a new TSC covering the enlarged zone shall be issued, prior to the cancellation of the original TSC (the preferred approach); or
- a new TSC may be issued that adjoins the existing TSC.

3.4.5.2 Where changes to the details contained in a TSC are required, for instance when an HVDSCC is agreed, a new TSC shall be issued in line with 3.4.5.1 above.

3.4.6 Planned Operational Switching for the Full Return to Service of Plant and/or Apparatus

3.4.6.1 As soon as reasonably practicable prior to the full return to service of Plant and/or Apparatus, the relevant TO shall inform NGESO of the impending return to service of any Plant and/or Apparatus. The TO shall provide NGESO with any appropriate information. Both Parties shall evaluate the following, where appropriate:

- the proposed Switching Method;
- in the case of NGESO, National Electricity Transmission System re-configuration requirements;
- in the case of the relevant TO, the impact on their Transmission System;
- requirements for modifications to Plant and/or Apparatus e.g. changes to Protection Apparatus;
- issues or restrictions (including Operational Capability Limits (OCLs)) on Transmission Plant and/or Apparatus associated with the proposed Operational Switching; and/or
- other operational information relevant to the Operational Switching.

3.4.6.2 After receipt of this notification and prior to the planned Operational Switching time, NGESO shall contact Affected User(s) In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the Switching Method and/or the resulting System configuration.

3.4.6.3 NGESO shall inform the Affected User(s) of the approximate start time of the Operational Switching and that the relevant TO shall become the operational contact with the Affected User(s) at the affected site for the duration of the Operational Switching.

3.4.6.4 If required, the TO shall note any exceptions, such as changes to Plant and/or Apparatus within the released zone, in Part 3 of the original TSC and communicate the details to NGESO. Part 3 of the original TSC will then be completed by both Parties through exchange of names, date and time signifying that the Plant and/or Apparatus is fully available for operational service (apart from any exceptions stated) and that operational control of the Plant and/or Apparatus has returned to NGESO.

3.4.6.5 NGESO shall develop the proposed Switching Method and complete a new TSC (the Return TSC) for the return to service of the Plant and/or Apparatus taking into account any operational issues or requirements raised by the relevant TO or Affected User.

3.4.6.6 NGESO shall complete parts 1, 1.1 and 1.2 of the Return TSC and fax /email the Return TSC to the relevant TO, as soon as reasonably practicable.

3.4.6.7 On receipt of the Return TSC, the relevant TO shall check the Switching Method and, if necessary, inform NGESO of any required alterations. If a change to the Return TSC is required, either:

- both Parties shall verbally agree any required change(s) to the Return TSC, modify their copies of the Return TSC accordingly and initial the agreed change(s); or
- NGESO shall prepare a new Return TSC, completing and fax /email the new Return TSC as described in 3.4.6.6.

3.4.6.8 If the change(s) to the Switching Method are significant, it may be necessary for NGESO to notify the Affected User(s) of the proposed change(s) and discuss any relevant issues listed in Section 3.4.6.2 with the Affected User(s) prior to preparing a new Return TSC. The Switching Method shall be developed taking into account any operational issues or requirements raised by the relevant TO or Affected User(s).

3.4.6.9 Prior to commencing the Operational Switching programme (developed by the TO to meet the aims of the Switching Method), the relevant TO shall contact NGESO and each Party shall complete part 1.3 of the Return TSC, by exchange of names, date and time. The relevant TO shall then:

- have control of that Plant and/or Apparatus stated in the TSC;
- become the point of operational contact for the Affected User(s) at the affected site for the duration of the Operational Switching;
- notify the Affected User(s) of the change in operational contact from NGESO to TO; and
- implement a Operational Switching programme.

3.4.6.10 On completion of the Operational Switching programme, the TO shall notify the Affected User(s) of its completion and inform the Affected User(s) that their operational contact is now NGESO. The TO shall then notify NGESO that the Operational Switching programme has been completed. Both Parties shall complete part 3 of the Return TSC, by exchange of names, date and time.

3.4.7 Planned Operational Switching for the Partial return to Service of Plant and/or Apparatus

3.4.7.1 As soon as reasonably practicable prior to the partial return to service of Plant and/or Apparatus, the relevant TO shall inform NGESO of the impending return to service of any Plant and/or Apparatus. The TO shall provide NGESO with any appropriate information. Both Parties shall evaluate the following, where appropriate:

- the proposed Switching Method;
- in the case of NGESO, National Electricity Transmission System re-configuration requirements;
- in the case of the relevant TO, the impact on their Transmission System;
- requirements for modifications to Plant and/or Apparatus e.g. changes to Protection Apparatus;
- issues or restrictions (including Operational Capability Limits (OCLs)) on Transmission Plant and/or Apparatus associated with the proposed Operational Switching; and/or

- other operational information relevant to the Operational Switching.

3.4.7.2 After receipt of this notification and prior to the planned Operational Switching time, NGESO shall contact Affected Users In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the Switching Method and/or the resulting System configuration.

3.4.7.3 NGESO shall inform the Affected User(s) of the approximate start time of the Operational Switching and that the relevant TO shall become the operational contact with the Affected User(s) at the affected site for the duration of the Operational Switching.

3.4.7.4 In part 3 of the original TSC under the heading 'exceptions', the TO shall identify:

- the Plant and/or Apparatus that shall remain on Outage; and
- the operational status of the disconnector(s) or physical separation that shall become the new boundary from the live National Electricity Transmission System.

3.4.7.5 Communicate the above details to NGESO who shall append their copy of the relevant TSC accordingly.

3.4.7.6 NGESO shall prepare and fax /email a new TSC (the Isolation TSC) detailing the Plant and/or Apparatus that is to remain on Outage.

3.4.7.7 Part 2.2 of the Isolation TSC shall be completed by both Parties, by exchange of names, date and time. This document is then issued, leaving that Plant and/or Apparatus remaining on Outage under the TO's control.

3.4.7.8 Part 3 of the original TSC shall then be completed by NGESO and the TO through the exchange of names, date and time, returning the stated Plant and/or Apparatus to NGESO's control and cancelling that TSC.

3.4.7.9 NGESO shall develop the proposed Switching Method and complete a new TSC (the Return TSC) for the return to service of the Plant and/or Apparatus that is not remaining on Outage, taking into account any operational issues or requirements raised by the relevant TO or Affected User.

3.4.7.10 NGESO shall complete parts 1, 1.1 and 1.2 of the Return TSC and fax /email the Return TSC to the relevant TO as soon as reasonably practicable.

3.4.7.11 On receipt of the Return TSC, the relevant TO shall check the Switching Method and, if necessary, inform NGESO of any required alterations. If a change to the Return TSC is required, either:

- both Parties shall verbally agree any required change(s) to the Return TSC, modify their copies of the Return TSC accordingly and initial the agreed change(s); or
- NGESO shall prepare a new Return TSC, completing and fax /email the new Return TSC as described in 3.4.7.9.

3.4.7.12 If the change(s) to the Switching Method are significant, it may be necessary for NGESO to notify the Affected User(s) of the proposed changes and discuss any relevant issues listed in section 3.4.6.2 with the Affected User(s) prior to preparing a new Return TSC. The Switching Method shall be developed taking into account any operational issues or requirements raised by the relevant TO or Affected User(s).

3.4.7.13 Prior to commencing the Operational Switching programme (developed by the TO to meet the aims of the Switching Method), the relevant TO shall contact NGESO and each Party shall complete part 1.3 of the Return (or new Return) TSC, by exchange of names, date and time. The relevant TO shall then:

- have control of that Plant and/or Apparatus stated in the TSC;
- become the point of operational contact for the Affected User(s) at the affected site for the duration of the Operational Switching;

- notify the Affected User(s) of the change in operational contact from NGESO to TO; and
- implement a Operational Switching programme.

3.4.7.14 On completion of the Operational Switching programme, the TO shall notify the Affected User(s) of its completion and inform the Affected User(s) that their operational contact is now NGESO. The TO shall then notify NGESO that the Operational Switching programme has been completed. Both Parties shall complete part 3 of the Return (or new Return) TSC, by exchange of names, date and time.

3.5 Alarms and/or Events during Switching

3.5.1 If, immediately prior to or during implementation of an Operational Switching programme, an unexpected alarm or Event occurs that the relevant TO believes has or may have an Operational Effect on the proposed Operational Switching programme, the TO shall contact NGESO to discuss the implications and agree any actions that maybe required. STCP 02-1 Alarm and Event Management shall be followed as appropriate.

3.5.2 If, during Operational Switching, NGESO becomes aware of any reason to stop or delay, including changes of conditions (as described in section 3.15). NGESO shall contact the relevant TO to discuss and agree any actions that may be required. STCP 02-1 Alarm and Event Management shall be followed as appropriate.

3.5.3 When ferro-resonance conditions are identified, the relevant TO shall endeavour (in accordance with TO procedures) to remove the ferro-resonance by:

- initiating any quenching schemes (automatic or manual); or
- manually opening the respective disconnector(s), as appropriate.

3..5.4 As soon as is reasonably practicable the TO shall notify NGESO of the occurrence of ferro-resonance conditions and any actions taken.

3.6 Unplanned Switching

3.6.1 Emergency Switching

3.6.1.1 Emergency action shall be taken in accordance with STCP 09-2 Site and Public Safety.

3.6.1.2 In emergency situations, immediate Operational Switching of Plant and/or Apparatus on a TO's Transmission System may be required. The relevant TO may carry out Operational Switching to release the equipment concerned without reference to NGESO and/or the Affected User(s) in accordance with the STCP 09-2 Site and Public Safety.

3.6.1.3 When time allows, the procedure outlined in section 3.4.2 shall be followed. However, it may be necessary for the TSC to be completed after the Operational Switching. In such cases, a verbal Switching Method shall be used.

3.6.1.4 The relevant TO will be responsible for operational contact with the Affected User(s) (where time allows) before completing the required Operational Switching.

3.6.1.5 If a TSC has not been completed under section 3.6.1.3, when the Plant and/or Apparatus cannot be immediately returned to operational service, a TSC will be issued as soon as reasonably practicable and in any case before a TO establishes Safety Precautions (if required).

3.6.1.6 Where relevant, the TO shall supply NGESO with appropriate OCLs as soon as practicable.

3.6.2 Post fault Operational Switching

3.6.2.1 As soon as reasonably practicable after the automatic Operation of Protection Apparatus, removing any Plant and/or Apparatus from operational service, NGESO shall contact the relevant TO to evaluate the Operational Effects.

3.6.2.2 NGESO shall contact the Affected User(s) In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users, Systems that may have an Operational Effect on the National Electricity Transmission System.

3.6.2.3 NGESO shall take into account any operational issues or requirements raised by the Affected User(s) in its evaluation of the Operational Effects.

3.6.2.4 Following a fault, the relevant TO will provide the necessary information in accordance with STCP 03-1 Post Event Analysis and Reporting.

3.6.2.5 If the fault is a permanent fault and the faulted Plant and/or Apparatus remains out of service, NGESO shall complete a TSC and fax / email the TSC to the relevant TO as soon as reasonably practicable.

3.6.2.6 If manual removal of Plant and/or Apparatus is required following the receipt of an alarm and/or site report, a verbal Switching Method shall be used, unless either Party requests the use of a TSC. In such case the procedure for planned Operational Switching in section 3.4.2 shall be followed.

3.6.3 Return to Service of faulted Plant and/or Apparatus

3.6.3.1 The relevant TO shall inform NGESO as to whether the faulted Plant and/or Apparatus can be made available for operational service.

3.6.3.2 The procedure to be followed for returning faulted Plant and/or Apparatus to operational service is that stated in section 3.4.6 or 3.4.7, as appropriate.

Post Fault Actions

Services Restoration Proposals may be agreed in advance between NGESO and a TO in the Planning or Control Phase. (These may include post fault actions to secure Transmission System operation following an Event on the National Electricity Transmission System.

Services Restoration Proposals may include post fault and/or special actions that are required as part of an Outage arrangement. These will be confirmed by NGESO in real time with the appropriate provider. Any changes that could affect planned Outage arrangements should be agreed between TO and NGESO as they become known.

3.6.4.3 For post fault and /or special actions, NGESO and the TO may pre define the action(s) by use of a Post Fault Agreement form (Appendix C).

3.6.4.4 When an Event occurs that has an associated post fault and/or special actions, NGESO and the TO shall enact the Post Fault Action agreement form, or use a Verbal Switching Method. The TO shall then implement the agreed action(s) and confirm completion to NGESO.

3.7 System Reconfiguration

3.7.1 Where TO Transmission System re-configuration is required by NGESO or a TO, a verbal Switching Method may be used if no part of the TO Transmission System needs to be removed from operational service in order for a TO to establish Safety Precautions.

3.7.2 If Plant and/or Apparatus needs to be removed from operational service in order for a TO to establish Safety Precautions, the procedure in 3.4.2 shall be followed.

3.7.3 The Party requesting the TO Transmission System re-configuration shall contact the other Party to evaluate the required Operational Switching. The timing of the initial discussion will be dependent on the complexity of the Operational Switching process, and shall in any case allow sufficient time for NGESO and relevant TO, to evaluate the proposed actions.

3.7.4 Prior to the planned Operational Switching time, NGESO shall also contact the Affected User(s) In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected User's' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the Switching Method and/or the resulting System configuration.

3.7.5 NGESO shall inform the Affected User(s) of the approximate start time of the Operational Switching and that the relevant TO shall take over any operational contact with the Affected User(s) at the affected site for the duration of the Operational Switching.

3.7.6 NGESO shall develop the proposed Switching Method for the re-configuration of the System, taking into account any operational issues or requirements raised by the TO(s) and/or Affected User(s).

3.7.7 A verbal Switching Method may be used. If so, the procedure in section 3.3.3 shall be followed.

3.7.8 The relevant TO shall check the Switching Method and, if necessary, inform NGESO of any required alterations. If a change to the Switching Method is required, both Parties shall verbally agree any required change(s) to the Switching Method and modify their copies of the Switching Method accordingly.

3.7.9 If the change(s) to the Switching Method are significant, it may be necessary for NGESO to notify Affected User(s) of the proposed changes and discuss any relevant issues as listed in 3.7.4 with Affected User(s) prior to agreeing a new Switching Method with the TO.

3.7.10 In the case of a System Restoration either as a result of a Total Shutdown or Partial Shutdown, the switching arrangements as provided in each Restoration Plan would be followed as provided for in STCP 06-1 and Grid Code OC9, unless a variation to the Restoration Plan is agreed in accordance with Grid Code OC9.4.7.6.3. Switching following termination of Restoration Plans would be carried out upon instructions from NGESO.

3.8 Voltage Control

3.8.1 NGESO has a responsibility for managing voltage control on the National Electricity Transmission System. Manual tapping of transformers, switching of circuits, switching of reactors, mechanically switched capacitors (MSCs), which may be manually or automatically controlled, and static VAr compensators (SVCs) including changes to target voltage and mode of operation, may be initiated by NGESO using a verbal Switching Method or other agreed method which maintains appropriate safeguards. If so, the procedure in section 3.3 shall be followed. NGESO will liaise with the relevant TO to ensure that any actions in this respect are co-ordinated.

3.8.2 Within two minutes of an instruction being received from NGESO relating to Reactive Power at the Interface Point, OFTOs will comply with such instruction.

3.8.3 NGESO and a relevant TO may agree voltage control actions to be undertaken by that TO. In such cases, NGESO and that TO shall agree any required voltage targets by using a verbal Switching Method or other agreed method which maintains appropriate safeguards. The procedure in section 3.3shall be followed. In such cases.

3.8.3.1 The relevant TO shall use reasonable endeavours to maintain the voltage within agreed dead bands, by tapping of the relevant transformers only.

3.8.3.2 The relevant TO shall notify NGESO as soon as possible if the TO is unable, or likely to be unable, to maintain voltage within the agreed dead bands, by tapping of the relevant transformers.

3.8.3.3 When agreed between NGESO and the relevant TO, the TO shall take due consideration of the prevailing System conditions, including associated reactive power flows when maintaining the agreed voltage profile.

3.9 Protection Apparatus (other than Busbar Protection Apparatus)

3.9.1 Work on Protection Apparatus associated with Plant and/or Apparatus released to the Transmission Owner

3.9.1.1 Operational responsibility and control for Protection Apparatus will rest with NGESO unless control of a TO's Transmission System Plant and/or Apparatus has been transferred to the relevant TO using the TSC process (in section 3.4.2). Under these circumstances, operational responsibility for the associated Protection Apparatus will also transfer to the relevant TO.

3.9.1.2 The TO is responsible for ensuring that all necessary precautions have been taken to ensure that there is no impact on the live System prior to the commencement of, and during the Protection work. The TO shall retain responsibility for the management of associated Protection Apparatus, ensuring there is no impact on the live System, informing NGESO as soon as reasonable practicable if there is, or likely to be, an impact on the live System.

3.9.2 Work on Protection Apparatus associated with Plant and/or Apparatus not released to relevant TO (i.e. retained under NGESO control)

3.9.2.1 Where work or testing is required on Protection Apparatus associated with Plant and/or Apparatus that is not released to the relevant TO, a verbal Switching Method may be used. If so, the procedure in section 3.3.3 shall be followed.

3.9.2.2 In such cases, the relevant TO shall:

- inform NGESO of any Operational Effect (or potential Operational Effect) of the work or testing on the associated Plant and/or Apparatus;
- take all necessary precautions to ensure that any potential Operational Effect on the National Electricity Transmission System is minimised prior to the commencement of protection work;
- inform NGESO where it is not possible to maintain all necessary precautions to ensure that any potential Operational Effect on the National Electricity Transmission System is minimal through reasonable endeavours, thus increasing the likely Operational Effect on the live National Electricity Transmission System; and
- ensure that the Protection Apparatus is restored to relevant OCL(s). Where it is not possible to restore the Protection Apparatus to normal service condition, the state of the Protection Apparatus on its return to NGESO shall be recorded by the TO and NGESO.

3.9.3 Where it is necessary to switch Protection Apparatus, or Protection blocking Apparatus out of service, or modify protection settings whilst the associated Plant and/or Apparatus is in operational service, a verbal Switching Method shall be used. The procedure in section 3.3.3 shall be followed.

3.9.4 STCP 08-1 Protection Testing will be followed as applicable.

3.10 Intertrip and/or Protection Signalling Channels

3.10.1 When it is necessary to work on and/or test intertrip and/or Protection signalling channels whilst associated Plant and/or Apparatus remains in operational service the relevant TO shall inform NGESO of all available relevant information regarding the Operational Effect (or potential Operational Effect) of the proposed action on the TO's Transmission System prior to the work taking place.

3.10.2 NGESO shall consider the Operational Effects on the National Electricity Transmission System.

3.10.3 NGESO shall contact the Affected User(s) In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the National Electricity Transmission System.

3.10.4 NGESO shall take into account any operational issues or requirements raised by the Affected User(s) in its evaluation of the Operational Effects. If any operational issues are considered to be acceptable, NGESO shall agree to the release of an intertrip and/or Protection signalling channels.

3.10.5 A verbal Switching Method may be used to release intertrip and/or Protection signalling channels. The procedure in section 3.3.3 shall be followed.

3.10.6 The relevant TO will then manage the testing and/or work. STCP 08-1 Protection Testing will be followed as applicable.

3.11 Delayed Auto Reclose (DAR)

3.11.1 If NGESO or a TO requires a DAR scheme to be switched out of service for operational or safety reasons, they shall contact the TO or NGESO, as appropriate, to request the DAR to be switched out of service. A verbal Switching Method may be used and the procedure in section 3.3.3 shall be followed.

3.11.2 Where the DAR scheme is associated with a TO-TO or TO-NGESO cross boundary circuit, NGESO shall co-ordinate the request to switch the DAR scheme out of service with the relevant Parties and issue a verbal Switching Method to each Party as appropriate.

3.12 Busbar Protection Apparatus

3.12.1 Unless specifically released (through a verbal Switching Method), busbar Protection Apparatus will remain under the operational control of NGESO at all times. No planned work or testing on busbar Protection Apparatus shall be carried out unless the TO has provided confirmation to NGESO that they have a written method statement in place that sets out the actions to be taken to minimise the Operational Effects of the work or testing on the live National Electricity Transmission System. Prior to the release or agreement for work and/or testing of the busbar Protection Apparatus, NGESO and the relevant TO(s) will discuss:

- any measures to be taken as part of the method statement to mitigate any Operational Effects during testing and/or work;
- the acceptability of any Operational Effects, where it is not possible to mitigate against all Operational Effects during testing and/or work; and
- where appropriate, agree the any Operational Effects prior to releasing the busbar Protection Apparatus. This agreement should be recorded by both Parties.

3.12.2 Guidance on dealing with busbar Protection faults is outlined in STCP 02-1 Alarm and Event Management

3.13 Risk Of Trip

3.13.1 When work is required on Plant and/or Apparatus remaining in service and it is not possible to remove all reasonable tripping risks to the System through reasonable endeavours, a formal risk of trip shall be agreed between the relevant TO and NGESO. NGESO shall only agree to a risk of trip if NGESO:

- has the agreement of Affected Users; and
- is satisfied that the Operational Effect, if the trip occurred, would not result in unacceptable System operating conditions.

3.13.2 If Plant and/or Apparatus trips following agreement of a risk of trip, the TO should determine the cause of the trip and report the cause to the NGESO as soon as reasonable practicable.

3.13.3 If the cause of the trip is as a result of the agreed action, the Plant and/or Apparatus affected by the trip may be put back into operational service using a verbal Switching Method. If so, the procedure in section 3.3.3 shall be followed.

3.13.4 Prior to issuing a verbal Switching Method, NGESO shall contact the Affected User(s) In accordance with GB Grid Code OC7 to discuss:

- any Operational Effect on the Affected Users' Systems;
- requirements for re-configuration of the Affected Users' Systems; and/or
- any issues/restrictions associated with the Affected Users' Systems that may have an Operational Effect on the Switching Method and/or the National Electricity Transmission System.

3.13.5 The verbal Switching Method shall take into account any operational issues or requirements raised by the TO(s) and/or Affected User(s).

3.13.6 All necessary precautions should be taken by the TO to avoid further inadvertent tripping.

3.14 Commissioning / Decommissioning

3.14.1 The process for commissioning or decommissioning of Plant and/or Apparatus is detailed in STCP 19-4 Commissioning/Decommissioning. If Operational Switching takes place as part of the process, and NGESO and the relevant TO have agreed that a Switching Programme is correct and in sufficient detail, NGESO may, if appropriate, agree that the TO may complete a number of steps at a time. This agreement, including the steps that shall be carried without further reference to NGESO, will be recorded by both TO and NGESO.

3.14.2 If the relevant TO conducts any commissioning and/or trip testing that may have an Operational Effect on the System, the process in 3.4.2 Planned Release of equipment on a TO's Transmission System shall be followed.

3.15 Change of Conditions

3.15.1 If at any time NGESO or the relevant TO becomes aware of a change of conditions that has a reason to delay or stop the Operational Switching or Outage they shall notify the other Party and either NGESO or the relevant TO (as appropriately agreed between the Parties at the time) shall inform the Affected User(s) as soon as practicable. Changes of condition include:

- Operational changes including System Restoration;
- Changes in weather conditions;
- Change in resource availability;
- Safety issues; and
- Changes to commercial/market conditions

3.16 Remote Control Facilities

3.16.1 Under the STC, the default arrangement is that OFTO Network Assets, including voltage control equipment, are operated by the OFTO at the request of NGESO. However it is acceptable under the STC for NGESO and OFTO to enter into an agreement under which NGESO operates the assets directly. To facilitate such agreements it may be expedient to build this operational capability into the OFTO's SCADA and TCI. Please refer to STCP 4-6 for details of the telecontrol interface requirements.

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3.17 System Restoration

3.17.1 Under a System Restoration, special provisions shall apply as detailed in section 3.3.6, 3.3.7, and 3.7.10 of this STCP 01-1. Please also refer to the System Restoration requirements in STCP 06-1, Grid Code OC9, Grid Code OC5.7, Grid Code CC7.10, CC.7.11, ECC.7.10 and ECC.7.11.

4 Dispute Resolution

4.1 Objections

4.1.1 In the event of an objection or failure to agree by either Party, to an Operation or sequence of Operations, including a declaration that it would compromise the security of the National Electricity Transmission System or place personnel in an unsafe environment, every reasonable attempt will be made to resolve the matter at the time. If the objection or failure to agree arises on safety grounds, then the proposed Operation shall not be carried out and an alternative Switching Method shall be proposed by NGESO, where practicable. If the objection or failure to agree arises from operational or commercial concerns, NGESO will, after considering the objection or failure to agree, decide if it is appropriate to continue with the operation or sequence of operations. A formal dispute may be raised by either Party.

Appendix A: Operational Switching Process [Circuit release/return]

Note that the Process Diagrams shown in this Appendix A are for information only. In the event of any contradiction between the process represented in this Appendix and the process described elsewhere in this STCP, then the text elsewhere in this STCP shall prevail.

Commented [J(A1]: This will need some minor amendment bit will require a diagram in an editable format.

STCP 01-1 Operational Switching - Planned
Page 2
External
SO
TO
SO contact any Affected User to discuss any Operational Effects on User's system
TO notifies SO and Users of impending return to service of Plant/Apparatus
Affected Users contacted and advised of approx. start time of Operational Switching and that TO is the operational contact.
Is there to be a full return to service?
No
Yes
SO & TO complete part 3 of TSC
TO identifies the Plant and/or Apparatus to remain on Outage, under 'Exceptions' in part 3 of the original TSC
SO completes part 1, 1.1 and 2.1 of a new TSC (the isolation TSC) for the Plant and/or Apparatus remaining on Outage and forwards it to TO
TO communicates TSC details to SO
SO and TO complete part 2.2 of the isolation TSC
SO and TO complete part 3 of the original TSC
SO contacts Affected Users to discuss any Operational Effect and any issues/restrictions on User's system. User notified of approx. start time
C
SO develops a Switching Method for return to service of appropriate Plant and/or Apparatus
SO completes part 1, 1.1 & 1.2 of a return TSC and fax to relevant TO as soon as reasonably practicable
TO checks Switching Method in the return TSC
Are changes significant?
Yes
Are any changes required to the return TSC?
Yes
No
SO/TO modify their copy of the return TSC, initialling the change(s)/or SO issues new return TSC
No
D
Users contacted
SO contacts Affected Users to discuss any Operational Effect and any issues/restrictions on User's system
Yes
Are the changes significant to the User?
No
TO develops switching programme
Go to C
Yes
Is a new return TSC required?
SO/TO complete part 1.3 of TSC
TO contacts SO to complete part 1.3 of the return TSC
No
Go to D
User informed
TO notifies Users that is point of Operational contact for duration of Operational Switching
TO implements Switching Programme
User informed
SO informed
TO contacts SO and the User once Switching Programme is complete
Operational responsibility passes to SO
SO & TO complete part 3 of the return TSC

STCP 01-1 Operational Switching - Unplanned - Emergency Switching
Page 1
External
SO
TO
Is emergency action required?
No
Yes
Has an ESR event been declared
Yes
No
TO may carry out emergency action in accordance with Site & Public Safety STCP 9-2
TO to carry out switching in accordance with 3.3.6 and STCP06-1
Can Plant and/or Apparatus be immediately returned to service?
Yes
Follow "Planned Switching"
SO completes part 1.1 & 2.1 of TSC and forwards it to TO
SO & TO complete part 2.2 of TSC
Operational responsibility passes to TO
TO notifies SO and relevant Users of impending return to service of Plant/Apparatus

STCP 01-1 Operational Switching - Unplanned - Post Fault Switching
Page 1
External
SO
TO
Automatic Operation of Protection Systems, removes Plant and/or Apparatus from Operational service
SO contact TO to discuss Operational Effects
Affected Users informed
SO inform Affected Users
Is the fault a permanent Fault?
No
TO provides necessary information in accordance with STCP 3-1 Post Event Analysis
Yes
Is TO planning work on Plant and/or Apparatus?
No
Yes
SO complete Part 2.1 of TSC and forward to TO asap
SO & TO complete part 2.2 of TSC
TO completes work
Can Plant and / or Apparatus be returned to service?
No
End
SO & TO agree Verbal Switching Method to restore Plant and/or Apparatus to service , or TSC completed
Follow Planned Switching
Yes

Appendix B: Transmission Status Certificate (TSC) Completion

A Transmission Status Certificate (TSC) will be used to formally sanction the release of Plant and/or Apparatus, or for activities such as a complex re-configuration, transferring operational authority to the relevant TO for Operational Switching in accordance with an agreed Switching Method.

Transmission Status Certificate Pro-forma

Each TSC will use a unique code, generated by NGESO with a prefix. Examples of these for Onshore TOs are SST (for SHETL) or SPT (for SPT). Unique codes will be allocated for Offshore TOs as appropriate. If required, the TO may use their own additional code.

Part 1.0 Activity

To include details of the reconfiguration or Outage booking, E.g. Kilmarnock South SGT1 maintenance.

Part 1.1: System Identification

To include that part of the TO's Transmission System required on Outage, including any equipment that it is required for Operational Switching time. e.g. a transformer Outage may require the release of part of a mesh or a circuit for Operational Switching time.

Examples of identification

The full circuit/ equipment name will be identified along with the appropriate voltage level. e.g. Bonnybridge – Cumbernauld 2 132kV circuit.

SHETL use a circuit identification code. This will be used in addition to the full circuit / Plant / Apparatus name. e.g. Beauly – Blackhillock HB1 275kV circuit

Part 1.2: Method

The method detailed in part 1.2 of the TSC is a high level methodology, which shall identify in a clear and unambiguous manner, the actions required by NGESO of the TO. It relies on the expertise of the relevant TO to develop a detailed Operational Switching programme in line with the TO's safety rules and procedures. Where necessary to avoid doubt, the method shall be more specific (e.g. open CB X500).

It shall include the method of Operational Switching for the release of equipment detailed in 2.1 including the Operational Switching out and return to service of those parts of the TO's Transmission System not required on Outage, but required for Operational Switching time. It will;

- stipulate the order in which Operational Switching is to be carried out
- be unambiguous and in sufficient detail to allow the relevant TO to develop a formal, detailed Operational Switching programme for implementation.
- detail any requirements for selection/ de-selection of operational intertrips
- detail the requirement for any specific operational liaison with the Affected User(s).
- Where completing a series of switching operations in strict order is not essential, e.g. when de-loading a number of transformers to facilitate the de-energising of a circuit, the relevant switching operations may be listed horizontally, identifying to the TO that these switching operations may be carried out in any order that aligns with the operational requirements of the TO..

Where the Outage involves a TO–TO or TO– NGESO circuit, reference shall be made to the need for operational liaison between the relevant parties and to the TSC number relevant to the other party.

For operations on the SHETL Transmission System, the SHETL circuit code detailed in section 1.1 may be used in place of or in addition to the circuit name.

Part 1.3 Start time

For planned Operational Switching, the TSC will normally be faxed / emailed to the relevant TO sometime prior to the reconfiguration or Outage commencing. The TO will contact NGESO when staff have arrived on site and the TO is ready to proceed. Both Parties will then review the content of the TSC. If the content of the TSC is correct part 1.3 will be completed by exchange of names date and time, sanctioning the Operational Switching.

Part 2.1 System Released

System Identification

The part of the TO's Transmission System required on Outage will be clearly defined geographically. The standard four-letter Substation code or other identification code(s) as agreed from time to time between a TO and NGESO may be used to identify location.

In the case of operations on the SHETL System, the circuit code(s) may be used in place of the circuit name.

Boundaries

The boundary Plant (disconnector- or circuit breaker) or disconnection point of the circuit at each geographical location will be identified. Wherever practicable the maximum possible amount of System should be released e.g. bus section and bus coupler switches should be included with a busbar and circuits isolated on busbar isolators. This will avoid the requirement for an additional TSC for work on additional equipment.

The relevant TO will have operational control of the boundary equipment. When operation of boundary equipment will have an impact on the live System the relevant TO will make NGESO - aware of the impending operation.

Any change in operational status of the boundary Plant and/or Apparatus (e.g. from open to closed) will be noted under Exceptions in part 3 when the circuit is handed back by the relevant TO.

In the case of a partial return of Plant / Apparatus, the operational status (open or closed) of the Plant and/or Apparatus that forms the new boundary from the National Electricity Transmission System will be noted under Exceptions.

Interface with other Transmission Owner/ User

Identification of a safety interface between the relevant TO, the Affected User(s) and / or other TO, shall be identified by the substation, Affected User name and circuit names. Four letter substation codes or other identification codes as agreed from time to time between a TO and NGESO may be used where appropriate.

2.2 System Released from operational service

Once the items in part 2.1 have been checked and agreed by both Parties, formal release of the circuit shall be indicated by exchange of names date and time.

Part 3: Certificate Cancellation

When returning equipment to operational service, the relevant TO shall return the equipment fully available, with all safety precautions removed. Any exceptions shall be identified and communicated to NGESO. This shall include any part of the TO's Transmission System

remaining out of service and changes in Plant and/or Apparatus state. The TSC shall then be . completed by NGESO and the TO through an exchange of names, time and date, confirming the availability of the Plant and/or Apparatus for operational service and cancelling that TSC.

When the TSC is used solely to communicate an Operational Switching method, e.g. a complex re-switch not associated with an Outage, then completion of part 3 shall signify that the Operational Switching has been completed.

Appendix C: Standard Forms / Certificates

Transmission Status Certificate. Document No: TO Ref No:

1. Activity
1.1 System Identification
1.2 Method
1.3 Start Time Time_____ Date_____ NGESO_____ _TO_____
2.1 System Released • System Identification • Boundaries • Interface with other Transmission Owners/System Users
2.2 System Released from Operational Service Time_____ Date_____ NGESO_____ TO_____
3. Certificate Cancellation • Exceptions: Cancellation Time_____ Date_____ NGESO_____ TO_____

Example 1

Transmission Status Certificate. Document No: TSC SPT00001 **TO Ref No:**

1. Activity

Neilston SGT2 Maintenance

1.1. System Identification

Nielston – Windyhill 275kV cct
Nielston 275/132kV SGT2 cct
Neilston MC1

1.2. Method

- NEIL2 de-load SGT2 cct
- Switch out NEIL – WIYH 275kV cct de-energise from NEIL2
- NEIL2 Disconnect SGT2 cct
- Switch in NEIL – WIYH 275kV cct energise from NEIL2

1.3. Start Time

Time_____ Date_____ NGESO_____ _TO_____

2.1. System Released

- System Identification

NEIL 275/132kV SGT2 cct

- Boundaries

  NEIL2 H13

  NEIL1 286 284

- Interface with other Transmission Owners/System Users

  N/A

2.2. System Released from Operational Service

Time_____ Date_____ NGESO_____ TO_____

3. Certificate Cancellation

- Exceptions:

Cancellation Time_____ Date_____ NGESO_____ TO_____

Example 2

Transmission Status Certificate. Document No: TSC SST00001 **TO Ref No:**

1. Activity

Kintore – Tealing 1 XT1 275Kv Overhead Maintenance

1.1 System Identification

Kintore – Tealing 1 XT1 275kV cct
Kintore 275/132kV SGT3
Kintore –Tealing 2 XT2 275kV cct (for on load changeover)

1.2 Method

- KINT2 complete on load changeover of XT2 cct to RB1
- KINT1 Deload SGT3 cct
- Switch out XT1 275kV cct de-energise from KINT2
- KINT2 Disconnect XT1 cct
- KINT2 Energise SGT3 cct
- KINT1 Load SGT3 cct

1.3 Start Time

Time_____ Date_____ NGESO_____ _TO_____

2.1. System Released

- System Identification

  XT1 275kV cct

- Boundaries

  KINT2 L113

  TEAL2 L84 L86

- Interface with other Transmission Owners/System Users

  N/A

2.2. System Released from Operational Service

Time_____ Date_____ NGESO_____ TO_____

3. Certificate Cancellation

- Exceptions:

Cancellation Time_____ Date_____ NGESO_____ TO_____

Example 3

Transmission Status Certificate. Document No: TSC SST00002 **TO Ref No:**

1. Activity Kintore – Kincardine XZ1 275kV Overhead line maint (SPT-SHETL Inter-connector cct)
1.1 System Identification Kintore – Kincardine XZ1 275kV cct
1.2 Method • Switch out XZ1 275kV cct de-energise from KINC2 in liaison with SPT (REF TSC - SPT 00002)
1.3 Start Time Time_____ Date_____ NGESO_____ _TO_____
2.1. System Released • System Identification XT1 275kV cct • Boundaries KINT2 L26 L24 • Interface with other Transmission Owners/System Users XZ1 275kV cct – with SPT
2.2. System Released from Operational Service Time_____ Date_____ NGESO_____ TO_____
3. Certificate Cancellation • Exceptions: Cancellation Time_____ Date_____ NGESO_____ TO_____

Example 4

Transmission Status Certificate. Document No: TSC SPT00002 **TO Ref No:**

1. Activity Kintore – Kincardine XZ1 275kV Overhead line maint (SPT-SHETL Inter-connector cct)
1.1 System Identification Kintore – Kincardine XZ1 275kV cct
1.2 Method • Switch out KINT – KINC XZ1 275kV cct de-energising from KINC2 in liaison with SHETL (REF TSC - SST 00002)
1.3 Start Time Time_____ Date_____ NGESO_____ _TO_____
2.1. System Released • System Identification KINT- KINC XZ1 275kV cct • Boundaries KINC2 L34 L36 • Interface with other Transmission Owners/System Users KINT – KINC XZ1 275kV cct with SHETL
2.2. System Released from Operational Service Time_____ Date_____ NGESO_____ TO_____
3. Certificate Cancellation • Exceptions: Cancellation Time_____ Date_____ NGESO_____ TO_____

Post Fault Action Agreement Form . Document No: YYYXXXPFA TO Ref No:

2. Fault Contingency
2.1 Post Fault Switching System Identification
2.2 Method
2.3 Post Fault Action Agreement Time_____ Date_____NGESO_____TO_____ **1.3.1 Method to be invoked upon instruction from NGESO.**
1.4. Post Fault Action Cancellation Cancellation Time_____ Date_____ NGESO_____ TO_____

Example 5

Post Fault Action Agreement Form. Document No: SST0063PFA TO Ref No:

1. Fault Contingency

Fault on the ERRO – BUMU EPN 132kV cct (during MD1 and MD2 cct fault outages)

1.1 Post Fault Switching System Identification

LYND 3 : 2TO

CHAR1 : 105

1.2 Method

LYND 3 : open 2TO
CHAR 1 : Switch out Blocking on TCW cct at CHAR end only
CHAR 1 : Close CB105 (to energise and load the LYND / BUMU CM1 / PCN 132kV cct)

1.3 Post Fault Action Agreement

Time_____ Date_____NGESO_____TO_____

1.3.1 Method to be invoked upon instruction from NGESO.

1.4 Post Fault Action Cancellation

Cancellation Time_____ Date_____ NGESO_____
TO_____

Appendix D: Trigger Phrases

A formal understanding by all Parties of what each phrase used in the high-level code entails is vital to the safe and secure operation of the System. The trigger phrases shall encompass all actions and checks required, including operational liaison with Users, to fulfil both relevant TO responsibilities and those NGESO responsibilities that will be discharged by the relevant TO in carrying out the operations specified in the method. For example, the responsibility to minimise voltage step change during a Operational Switching operation to de-load a transformer or circuit. The following trigger phrases are included for clarification of the Operational Switching process.

De- Load / Load
(--------) (Substation) load / deload (-------) kV circuit

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out to close/ open a CB or other suitable device to load/de-load equipment, in accordance with procedures and safety rules. It will normally be a single action at one location, applying to a circuit end or transformer circuit.

De-Energise / Energise
(----------)substation energise / de-energise (-----) kV circuit

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out, in accordance with procedures and safety rules. It encompasses all the operations required, at one location, to de-energise or energise a circuit or equipment.

Switch in /Switch Out
Switch in /out (-----) /(----) kV circuit energising / de-energising from (-----)substation

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out, in accordance with procedures and safety rules. It encompasses all the operations required, at one or more locations, to de- load and de-energise, or energise and load a circuit or equipment, including which end to de- energise/energise from.

On load / Off load Select
(--------) (Substation) On/Off load Select (---------) circuit(s) to (---------) BB

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out to select a circuit or circuits from one busbar to another utilising either an on load or off load changeover. It encompasses all operations at a location to select a circuit or circuits from one busbar to another. The trigger phrase includes, where relevant, the operation to de-load and load the specified circuit(s) at the specified location to allow an off load changeover to be completed

Disconnect
(-------) substation disconnect (-----) circuit

This term acts as a trigger phrase to open the relevant device(s) to segregate equipment (for example a transformer) or circuit before restoring the associated circuit or equipment to service, when only required for Operational Switching time.

Reconnect
(-------) substation reconnect (-----) circuit

This term acts as a trigger phrase to close the relevant device(s) to segregate equipment (for example a transformer) or circuit before restoring the associated circuit or equipment to service, when only required for Operational Switching time.

Select to [Test/In/Out] [Protection / DAR / Protection Channels / Intertrip schemes / channels]

(--------) circuit select to [Test/ In/Out First/Second/ Third/ Main protection/ Intertrip/ DAR]
(------) substation select to test/in/ out First/Second/Third Main protection Zone 1 extension on (-------) kV circuit
(------) Select to test/in/out First/Second/Third Main protection blocking on (-----) kV circuit
(--------) select to test/in/out (---------) operational intertrip scheme

This term encompasses the operations required, at one or more locations, to select Protection Apparatus, protection channels, operational intertrip and DAR systems in and out of service, as well as change the settings of Protection Apparatus by Operational Switching blocking systems or Zone extension systems in and out of service. It implies that the relevant TO Control Engineer will *Select the appropriate system and either switch it out of service or switch it in service.*

Voltage Target

(------) substation(s) Maintain Target Voltage xxx kV +/- deadband xxx kV

This term encompasses all the operations required, including selection of appropriate voltage targets on AVC schemes and tapping transformers, at one or more locations, to maintain System voltage within the deadband of the agreed target voltage, specified using a verbal recorded method.

Transformer Tapping

On (------) Tap from position (x) to position (x)

This method encompasses the operation(s) required, including Operational Switching in/out controlling schemes, at one or more locations, to select a particular tap position on primary transmission equipment. (including Supergrid Transformer, Grid Transformer, Quad Booster and Reactor).

Trip and Auto Reclose Test

(------) substation(s) Carry Out Trip & Auto Reclose Test on (-------) kV circuit from (----) Main Protection

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out to trip the relevant circuit in accordance with procedures and safety rules. It encompasses all the operations required, at one or more locations, to cause operation of the appropriate protection.

Load to

Load (-----) / (----) kV circuit to (amount/direction) at a ramp rate of (MW/minute)

This term acts as a trigger phrase to ensure all the required checks and actions are completed before an operation is carried out to change the load on a DC transmission line, in accordance with procedures and safety rules, and that the quantity, direction and speed of change are defined.

Appendix E: Abbreviations & Definitions

Abbreviations

ESR	Electricity System Restoration
HVSCC	High Voltage System Change Certificate
OCL	Operational Capability Limits
SPT	SP Transmission plc
SHE-T	Scottish Hydro Electric Transmission plc
TO	Transmission Owner
STC	System Operator Transmission Owner Code
~~OCL~~	~~Operational Capability Limits~~
TO	Transmission Owner
TSC	Transmission Status Certificate

Definitions

STC definitions used:
Apparatus
Code Effective Date
Electricity System Restoration Standard
National Electricity Transmission System
Network Operator
NGESO
NGETOperational Capability Limits
Outage
Partial Shutdown
Party
Plant
Protection
Restoration Contractor
Restoration Plan
Services Reduction
Services Restoration Proposal
System
System Restoration
Total Shutdown
Transmission Owner
Transmission System

Grid Code definitions used:
Control Phase
Demand
Electricity System Restoration Standard
Event
Intertrip Apparatus
National Demand
Operation
Operational Effect
Operational Switching
Plant
Programming Phase
Protection Apparatus
Safety Precautions

System Restoration Region
User

Definition used from other STCPs:

STCP 06-1	System Restoration
STCP 19-4	Commissioning Switching Programme
STCP 11-1	NGESO Outage Database

Appendix F: Examples of offshore to onshore connection arrangements

OFFSHORE CONNECTION - all 132kV and above is part of GB transmission network

ONSHORE CONNECTION
132/275/400kV circuits are part of GB Transmission network in Scotland
Only 275/400 circuits are part of GB Transmission network in England & Wales

T is a Transmission connection
D is a Distribution or DNO connection

Scenario A would be deemed Distribution as the equipment is operated at nominal system voltages below 132kV and therefore not subject to this procedure.

Scenarios B, C and D would be covered by this procedure