

STCP 08-1 Issue 005 Protection Testing

STC Procedure Document Authorisation

Party	Name of Party Representative	Signature	Date
National Grid Electricity System Operator Ltd <u>The Company</u>			
National Grid Electricity Transmission plc			
SP Transmission Ltd			
Scottish Hydro-Electric Transmission Ltd			
Offshore Transmission Owners			

STC Procedure Change Control History

Issue 001	29/03/2005	BETTA Go-Live Version
Issue 002	26/05/2005	Issue 002 incorporating PA006
Issue 003	26/10/2005	Issue 003 incorporating PA034 and PA037
Issue 004	24/06/2009	Issue 004 incorporating changes for Offshore Transmission
Issue 005	01/04/2019	Issue 005 incorporating National Grid Legal Separation Changes
<u>Issue 006</u>	<u>X/X/2023</u>	<u>Issue 006 incorporating use of 'The Company' definition as made in the STC</u>

1 Introduction

1.1 Scope

- 1.1.1 This procedure describes the arrangements and processes across the ~~interfaces between The Company, as defined in the STC and meaning the licence holder with system operator responsibilities, and the TOs~~ NGESO~~-TO interface~~ for Protection Tests (with primary Plant and Apparatus in service). This does not include Protection Tests associated with commissioning or decommissioning activities, which are the subject of STCP19-4 Commissioning and Decommissioning or the planned tripping of circuits which are subject to the requirements of STCP 8-2 Circuit Live Trip and DAR Tests.
- 1.1.2 Protection Tests are complementary to the testing of Protection Apparatus and its associated electrical signalling that takes place when control of Protection equipment is transferred to a TO under a Transmission Status Certificate (TSC).
- 1.1.3 Any requests for Protection Tests shall be made by a TO. It is not anticipated that ~~NGESO~~The Company shall submit any requests under this procedure.
- 1.1.4 The primary information exchange between ~~NGESO~~The Company and TO for planning and implementing Protection Tests is set out in this procedure. Elements of information exchange mechanisms described in the STC, STCP 1-1 Operational Switching and STCP11-1 Outage Planning may also be used, where appropriate, in the planning and operation of Protection Testing.
- 1.1.5 This procedure applies to ~~NGESO~~The Company and each TO where, for the purpose of this document, the TOs are:
- NGET;
 - SPT;
 - SHETL; and
 - All Offshore Transmission Licence holders as appointed by OFGEM

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.

1.2 Objectives

- 1.2.1 This process specifies the following:
- the responsibilities of ~~NGESO~~The Company and the TO(s) in relation to Protection Tests;
 - the requirements for exchange of information across ~~the NGESO~~The Company-TO interface; and
 - the means of communication to be used across ~~the NGESO~~The Company-TO interface.
- 1.2.2 It is designed to enable the Parties to discharge their responsibilities under the appropriate section of the STC and to ensure that responsibilities are clear.

2 Key Definitions

2.1 For the purposes of STCP 08-1:

- 2.1.1 **Protection Tests** means the testing of Protection Apparatus and associated signalling with the primary Plant and Apparatus in service and may involve some depletion of protection coverage.
- 2.1.2 **Operational Effect** 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.

3 Process

3.1 General

- 3.1.1 Whenever possible Protection Tests should be planned in advance. However, this does not exclude the possibility of agreeing tests at shorter notice, including Control Phase timescales.
- 3.1.2 Protection Tests shall be planned and carried out by the Affected Parties such that, with the exception of the Plant and Apparatus subject to the Tests, there is minimal impact on the National Electricity Transmission System.
- 3.1.3 ~~NGESO~~The Company shall remain responsible for the operational management of the National Electricity Transmission System during the testing.
- 3.1.4 The TO shall be responsible for managing the Tests programme in accordance with the requirements of this procedure.

3.2 Operational Planning Phase

- 3.2.1 During the Operational Planning Phase, the TO shall submit all Outage requests for Protection Tests in accordance with STCP 11-1 Outage Planning.
- 3.2.2 Any request for an Outage shall state the Protection Apparatus, associated signalling and circuit involved, and shall be flagged as an 'in-service' Outage request. These Outages shall not be considered in security analysis by ~~NGESO~~The Company. Although these Outages do not form part of security analysis, the Operational Effect of a fault or unintended tripping of the 'in-service' circuit shall be considered as part of the Outage planning process.
- 3.2.3 During the Operational Planning Phase, any Protection Apparatus and associated signalling work requiring isolation of in-service Plant and Apparatus shall be requested as an Outage in accordance with STCP 11-1 Outage Planning and will be considered by ~~NGESO~~The Company in security analysis.
- 3.2.4 Outage requests for Protection Tests may be accepted with the primary Plant and Apparatus 'in-service' where:
- results of off-load testing would not be sufficient to confirm the performance of equipment involved; and/or
 - the operational and/or commercial consequences of switching out primary Plant and Apparatus are judged more onerous than retaining the primary Plant and Apparatus in service.
- 3.2.5 In all cases:
- the 400 and 275kV networks the primary Plant and Apparatus remaining in service must be fully protected by a main Protection system throughout the period of work. On the 132kV network equipment would not normally be left in service unless protected by an in-service main Protection; and
 - the work must be arranged to deplete the Protection Apparatus and associated signalling to be worked on for the minimum time and should not normally exceed 3 hours. If work on Protection Apparatus and associated signalling is judged at the planning stage to be likely to exceed 3 hours duration the work should normally be planned and requested with the primary Plant and Apparatus out of service.
- 3.2.6 Consideration shall be given by the TO and ~~NGESO~~The Company when proposing to carry out work on Protection Apparatus and associated signalling to the interaction with any other Protection Apparatus or automatic switching systems including Operational Intertripping schemes.
- 3.2.7 As part of the planning of Protection Tests on cross TO boundary circuits, liaison and agreement shall take place between the TOs involved. The requesting TO shall take the lead in co-ordinating discussions and reaching agreement with the other affected TO(s). The requesting TO shall be responsible for liaising with ~~NGESO~~The Company regarding such outcome of discussions.

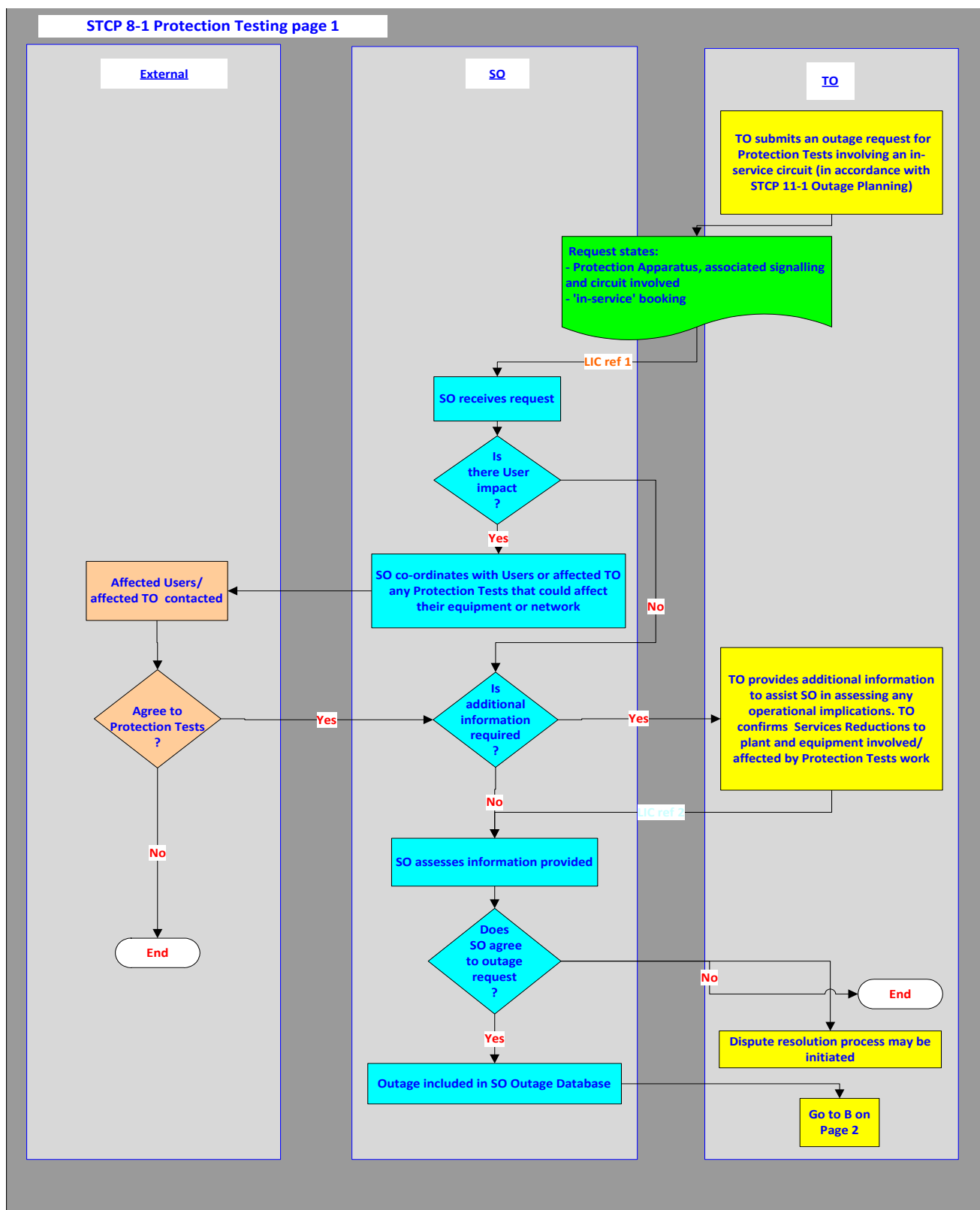
- 3.2.8 No Protection Tests will take place on circuits where the Tests would result in operation of an Operational Intertripping scheme. Any such Tests should normally be carried out under STCP 8-3 Operational Tests or System Tests or STCP 8-4 User Tests.
- 3.2.9 ~~NGESO~~The Company shall be responsible for obtaining the agreement of an affected User or affected TO to Protection Tests through normal operational liaison. Tests will only be carried out if and when agreement for the Tests has been reached with the affected User or affected TO.
- 3.2.10 Predicted weather and National Electricity Transmission System conditions at the time of testing must be taken into account by the TO and ~~NGESO~~The Company if planning to deplete Protection.
- 3.2.11 The TO will provide such additional information as may be reasonably requested by ~~NGESO~~The Company to assist in assessing any operational implications of Protection Tests including Services Reduction and Services Reduction Risks.

3.3 Control Phase

- 3.3.1 Where the proposed Protection Tests have been part of the Operational Planning Phase, normal liaison will take place between the TO and ~~NGESO~~The Company prior to the work commencing as detailed in STCP1-1 Operational Switching.
- 3.3.2 Where the proposed Protection Tests have not been part of the Operational Planning Phase operational staff representing the TO and ~~NGESO~~The Company shall consult and consider those aspects normally considered in the Operational Planning Phase prior to the work going ahead. Where necessary ~~NGESO~~The Company will liaise with Users. Normal liaison as detailed in STCP 1-1 Operational Switching will take place between the TO and ~~NGESO~~The Company prior to the work commencing.
- 3.3.3 In the Control Phase, agreement to release Protection Apparatus and associated signalling from operational service must be obtained by the TO from ~~NGESO~~The Company prior to commencing any Protection Tests.
- 3.3.4 The TO is responsible for specifying and carrying out the method of work or Testing and notifying ~~NGESO~~The Company of any associated Operational Effects (or potential Operational Effects) of the work or Testing, including Services Reduction and Service Reduction Risks in advance of testing.
- 3.3.5 Protection Tests shall be carried out in accordance with the requirements of STCP 1-1 Operational Switching for work on Protection Apparatus associated with Plant and Apparatus not released to the TO (i.e. Plant and Apparatus retained under ~~NGESO~~The Company control). The testing will normally be agreed under a verbal Switching Method and agreement recorded by ~~NGESO~~The Company and the TO.
- 3.3.6 The TO shall manage the Protection Tests on the released Protection Apparatus and associated signalling in accordance with the requirements of this procedure and any applicable additional internal TO company procedures.
- 3.3.7 When Protection Tests have commenced, any change in National Electricity Transmission System, Site or Testing conditions identified by the TO or ~~NGESO~~The Company that could affect or invalidate the Protection Tests must be communicated by that Party to the other Party as soon as reasonably practicable. Work shall be suspended until the implications of the change have been assessed by all parties involved. ~~NGESO~~The Company will co-ordinate any communication with affected Users and any affected TO.
- 3.3.8 The TO will ensure that the Protection Apparatus and associated signalling is restored to the appropriate Normal Capability Limit (NCL) or Operational Capability Limit (OCL). Where it is not appropriate to restore the Protection Apparatus and associated signalling to the capability applicable at the start of the Outage the TO shall advise ~~NGESO~~The Company of the new capability in accordance with STCP 4-4 Provision of Asset Operational Information.
- 3.3.9 On completion of Protection Tests the TO shall notify ~~NGESO~~The Company and, using an agreed methodology, restore the Protection Apparatus and associated signalling back to service.

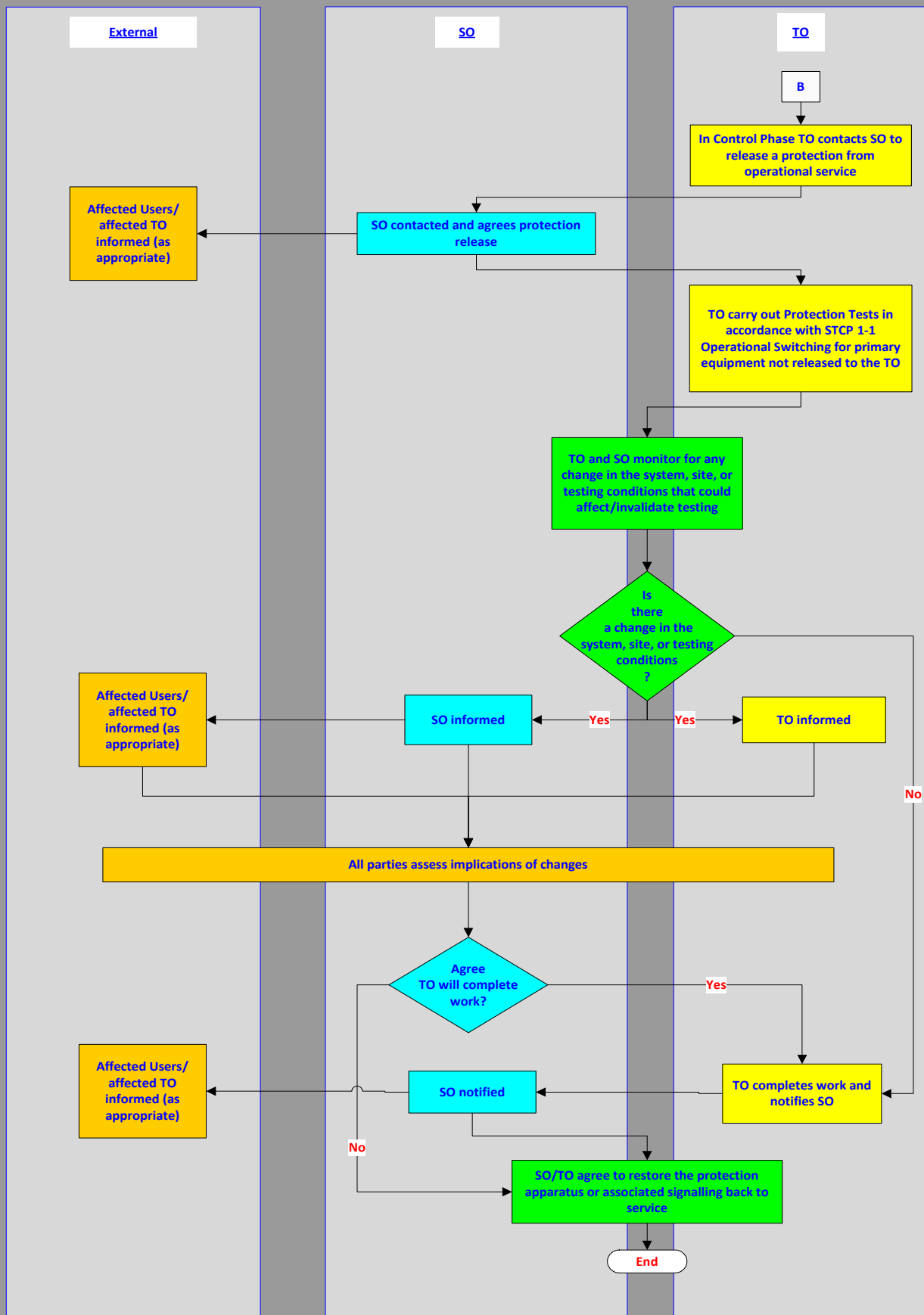
- | 3.3.10 ~~NGESO~~The Company shall inform any affected Users and any affected TO when the Protection Tests are completed, delayed or cancelled.
- | 3.3.11 A failure of communications between the TO and ~~NGESO~~The Company during the Protection Tests should not influence the outcome but if the Protection Tests are completed before communications are restored the TO may return the Protection to normal service and inform ~~NGESO~~The Company as soon as communications are restored.
- |

Appendix A: Process Diagrams



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.

STCP 8-1 Protection Testing page 2



Appendix B: Abbreviations & Definitions

Abbreviations

NCL	Normal Capability Limits
OCL	Operational Capability Limits
SHETL	Scottish Hydro-Electric Transmission Limited
SPT	SP Transmission Limited
STC	System Operator –Transmission Owner Code
STCP	System Operator –Transmission Owner Code Procedure
TO	Transmission Owner
TSC	Transmission Status Certificate

Definitions

STC definitions used:

Apparatus
Dispute
National Electricity Transmission System
Normal Capability Limits
~~NGESO~~The Company
NGET
Operational Capability Limits
Outage
Party
Plant
Protection
Services Reduction
Services Reduction Risk
Tests
User

Grid Code definitions used:

Control Phase
Operational Effect
Operational Intertripping
Operational Planning Phase

Definition used from other STCPs:

Transmission Status Certificate	STCP 1-1: Operational Switching
Switching Method	STCP 1-1: Operational Switching