

STCP Amendment Proposal Form

PA029

1. Title of Amendment Proposal

STCP 19-4 – Incorporation of Outstanding Change Requests

2. Description of the Proposed Amendment (mandatory field)

Incorporation of the following Change Requests that were outstanding at BETTA Go-Live:

C243.

This Change Request is attached at Attachment 1 to this STCP Amendment Proposal Form.

Minor changes to the Headers and Footers within the document are also proposed. These changes serve to ensure that the name of the STCP and its Issue Number and date are clearly visible on all pages.

All of the above changes are reflected within the change-marked STCP attached as Attachment 2 to this STCP Amendment Proposal Form.

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

Prior to Go-Live a number of changes to “signed off” STCPs were identified by the User Groups. The incorporation of these Change Requests before Go-Live was not however deemed by the same User Groups as critical for Go-Live and it was agreed between the Parties that such Change Requests should be considered and where appropriate incorporated within the STCP following Go-Live. This STCP Amendment Proposal therefore summarises the outstanding Change Requests for this STCP and outlines draft legal text that would give effect to those outstanding Change Requests.

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

Effects on STCP 19-4 Commissioning and Decommissioning Issue 001 are as detailed in the Change Marked version attached at Attachment 2 to this STCP Amendment Proposal.

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

NONE

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

NONE

7. Impact on Computer Systems and Processes used by STC Parties (information should be given where possible)

NONE

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

NONE

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

Although these changes were not deemed as critical for Go-Live it is the view of the proposer that should these Change Requests now be incorporated within STCP 19-4 this would better facilitate the following Applicable STC Objectives:

- the development, maintenance and operation of an efficient, economical and co-ordinated system of electricity transmission
- protection of the security and quality of supply and safe operation of the GB Transmission System insofar as it relates to the interactions between transmission licensees
- promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC.

Details of Proposer Organisation's Name	National Grid Company 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
Details of Proposer's Representative Name Organisation Telephone Number Email Address	Mark Duffield National Grid Company plc 01926 654971 mark.duffield@ngtuk.com
Details of Representative's Alternate Name Organisation Telephone Number Email Address	Ben Graff National Grid Company plc 01926 656368 Ben.Graff@ngtuk.com
Attachments (Yes/No): Yes If yes, title and number of pages of each attachment: Attachment 1 : Original Change Requests Attachment 2 : Revised legal text for STCP 19-4: Commissioning and Decommissioning	

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:

Lilian Macleod
STC Committee Secretary
Commercial Frameworks
National Grid Company plc

NGT House
Warwick Technology Park
Gallows Hill
Warwick, CV34 6DA

Or via e-mail to: STCTeam@uk.ngrid.com

Attachment 1: Incorporated Outstanding Change Requests

ID	Raised On	Originating Body	Description	Affected Category 2 Documents	Business Owner	CDA Owner	Status	DG1	Last Updated	Comments
C243	13/06/2005	OPUG	Changes required to reflect the agreed comments as described in the CDA Consistency Form dated 25th April 2005 relating to STCP19-4 Commissioning and Decommissioning. For a breakdown of the comments see the consistency form	STCP 19-4	Chris Whitley	Nadim Al-Hariri	Accepted	X	13 June 05	13 June 05: CR raised 13 June 05: OPUG accepted the CR

Change Request

(Yellow Shaded Boxes For CDA Use Only)

CDA CR ID	C243	Status¹	Accepted
Company CR ID		Associated CR's	
Description of Change			
Changes required to reflect the agreed comments as described in the CDA Consistency Form dated 25th April 2005 relating to STCP19-4 Commissioning and Decommissioning. For a breakdown of the comments see the consistency form.			
Reasons for Change			
To implement the agreed changes in the CDA Consistency form			
Affected Category 2 Document(s)²		DG's Informed	
STCP19-4 Commissioning and Decommissioning, Issue 2		OPUG	
Originating Body³		HLIA ID	
Raised On	13 th June 2005	DLIA ID	
Business Owner	Chris Whitley	Time Impact⁴	
CDA Owner	Nadim Al-Hariri	Effort Impact⁵	
<Group> Agreed Action – <Date>			
Change Request Source Document			
STCP19-4 Consistency Form.doc			
Document Version Included In			
To Be Included In	<input type="checkbox"/> Testing	<input checked="" type="checkbox"/> STCP Drafting	<input checked="" type="checkbox"/> Post "Go-Live"

¹ One of *Raised*, *HLIA Submitted*, *DLIA*, *DLIA Submitted*, *Accepted*, *Rejected* or *Pending*.

² Identifies the directly affected Category 2 documents. A full list of affected Category 1 & 2 documents will be identified by the HLIA.

³ One of DG1, DG2, DG3, DG4, Ofgem/DTI or Companies.

⁴ One of **Red** (impact on critical path), **Amber** (impact on plan but not critical path) or **Green** (no impact on plan)

⁵ One of **High** (>5 Working Days), **Amber** (>1 and <5 Working Days) or **Green** (<1 Working Day)

Category 2 Document Consistency Form

Consistency Form Status		Issued		Consistency Form Version		I1.0		
Document Name	STCP 19-4 Commissioning and Decommissioning				Version		Issue 2	
							16/03/05	
					Review Ref			
Reviewer	Nadim Al-Hariri				Date		25/04/05	
Checked by	Tony Mason				Date		25/04/05	
<p>Category 2 Documents – Detailed Level Processes and STCPs</p> <p>C: Indicates documents have been checked for consistency and no action required.</p> <p>A: Indicates documents have been checked for consistency and action may be required.</p> <p>N: Indicates documents are related but are unavailable to be checked for consistency.</p>								
DG	Id	Issue	STCP/DL	Name				Action
0	-		-	SO-TO Code				A
0	-	2/8/04	-	Assumptions Register				C
1	-	-	-	Internal Consistency				A
1	STCP19-3	-	DL	Operational Notification & Compliance				C
1	STCP19-2	-	STCP	Construction				C
1	STCP4-1	-	STCP	Real Time Data Change Management				C
1	STCP4-4		STCP	Provision of Asset Operational Information				C
1	STCP1-1		STCP	Operational Switching				C
1	STCP11-1		STCP	Outage Planning				C
1	STCP10-1		STCP	Asset Nomenclature				C

Key:

Cat (Category of comment)

I Inconsistency comment

C Other type of comment

Q Question

Type (Type of comment)

O Inconsistent with Other doc.

D Inconsistent within review doc.

F Clarification/Format/ Grammatical

Sevty (Impact Severity)

H(igh) e.g. Process will not work

M(edium) e.g. Work-a-round required

L(ow) e.g. Cosmetic

Eff (Effort to correct)

H(igh) More than 4 hours

M(edium) More than 10 minutes but less than 4 hours

L Up to 10 minutes

Consistency Form Status

Author Review -

Sent to Author for review

Owning DG Review -

Sent to owning DG for agreed actions

Other DG Review -

Sent to other DG's affected for agreeing actions

Issued -

Issued

Following table should be filled in for every available related document.

Category 2 Document		Internal Consistency			Version		
Id	Sect	Comment	Cat	Type	Severity	Effort	Proposed/Agreed Action
1	Typos	<p>3.1.2 – Project Listing should be Project Listing Document</p> <p>3.1.7 – Uncapitalise Minutes</p> <p>3.3.23 – delete HV (or define HV Safety Rules)</p> <p>3.2.4 , 7th bullet– missing end bracket</p> <p>Paragraph after 3.3.6 – There is no paragraph number</p> <p>3.3.13 – capitalise operational switching (and add to Grid Code definitions in Appendix F)</p> <p>1.1.1/3.1.4 – Capitalise connection</p> <p>3.2.4 (& others) – impedences should be impedances</p>	C	F	L	L	<p>Proposed Action:</p> <p>Agreed Action:</p> <p>3.1.2 Agreed</p> <p>3.1.7 Agreed</p> <p>3.2.23 Disagreed. This is specific to the HV Safety Rules, there are other Safety Rules still applicable.</p> <p>Renumber 3.3.6</p> <p>3.3.13 Agreed</p> <p>1.1.1/3.1.4 Agreed</p> <p>3.2.4 + others Agreed</p>
2	2	<p>Missing definitions-</p> <p>Stage 1 Commissioning Panel (several occurrences)</p> <p>Stage 2 Commissioning Panel (several occurrences)</p>	I	D	L	L	<p>Proposed Action:</p> <p>Insert new definitions</p> <p>Agreed Action: Add these definitions</p>
3	2	Suggest that the definitions should be sorted into alphabetical order	C	F	L	L	<p>Proposed Action:</p> <p>Sort the definitions</p> <p>Agreed Action: Sort into alphabetical order</p>
4	2.1.6	Is the “commissioning Operational Switching programme” specified in STCP1-1 (para 3.14.1) the same as the “Commissioning Switching Programme”. If so then it would be useful to relate them in the definition.	I	O	L	L	<p>Proposed Action:</p> <p>Amend definition of Commissioning Switching Programme</p> <p>Agreed Action: It is. Definition amended.</p>
5	1.1.7	Remove this paragraph as STCP18-1 is not involved in charging Users.	C	F	L	L	<p>Proposed Action:</p> <p>Remove paragraph.</p> <p>Agreed Action:</p> <p>Delete 1.1.7</p>
6	Definitions	<p>The attached documents is an updated version of Appendix F – Definitions</p> <p>STCP19-4 Definitions Appendix F.doc</p>	C	F	L	L	<p>Proposed Action:</p> <p>Amend Appendix F with the attached version.</p> <p>Agreed Action:</p> <p>Definitions updated</p>

Category 2 Document		<i>Internal Consistency</i>			Version		
Id	Sect	Comment	Cat	Type	Severity	Effort	Proposed/Agreed Action
7	3.2.4, 4 th bullet	Operational Tripping and Equipment are not defined. Suggest changing the bullet point to "written description of Plant, Apparatus and Operational Intertripping operation" Operational Intertripping is defined in the Grid Code.	C	F	L	L	Proposed Action: Amend as suggested Agreed Action: Amend to read ' written description of Operational Intertripping operation.'
8	Formatt ing	Remove Disputes section and reformat Front Page to be consistent with the STC committee decision.	C	F	L	L	Proposed Action: Amend as suggested Agreed Action: delete section 4.

Attachment 2: Revised Legal Text for STCP 19-4 Commissioning and Decommissioning

Document Ref: ~~STCP 19-4~~ Issue 002
Commissioning and Decommissioning

STC Procedure Document Authorisation

Company	Name of Representative	Signed-off (date)	
Ofgem			
NGT			
SP			
SSE			
<u>Company</u>	<u>Name of Party Representative</u>	<u>Signature</u>	<u>Date</u>
<u>National Grid Company plc</u>			
<u>SP Transmission Ltd</u>			
<u>Scottish Hydro-Electric Transmission Ltd</u>			

STC Procedure Change Control History

~~Issue 1 — 28/02/2005 — First Issue~~

~~Issue 2 — 16/03/2005 — Includes Change Request C218~~

~~Outstanding issues to be resolved post company sign-off~~

~~Dispute resolution process~~

<u>Issue 001</u>	<u>16/03/2005</u>	<u>BETTA Go-Live Version</u>
<u>Issue 002</u>	<u>22/06/2005</u>	<u>Issue 002 incorporating PA029</u>

1 Introduction

1.1 Scope

- 1.1.1 This document sets out the procedure for the commissioning and decommissioning of new, or modified ~~connection~~ **Connection** or infrastructure assets on the TO Transmission System, and describes the associated responsibilities and requirements of Parties.
- 1.1.2 Where commissioning and decommissioning activities are required to restore faulted Plant and Apparatus to service, the stated timescales for notification and production of the documentation and certification required in accordance with this procedure may not be achievable. In such circumstances the principles of the procedure should be followed.
- 1.1.3 This procedure shall also be used for the commissioning of a Connection provided by a TO and the first energisation of that Connection. As a User is involved, the additional requirements of STCP 19-3 Operational Notifications and Compliance Testing should be followed.
- 1.1.4 Technical data relating to proposed Transmission System changes shall be exchanged between all affected Parties, to ensure that all affected Parties are made aware of the sequence, timing and extent of any proposed changes, and allow each affected Party to predict the effect of the change.
- 1.1.5 Some data exchanged as part of commissioning /decommissioning will form part of the TO Service Capability Specification (SCS). Such data will be updated in accordance with the SCS update process. Some of the certificates used for commissioning / decommissioning may also trigger updates to the SCS.
- 1.1.6 This procedure applies to NGC and each TO. For the purposes of this document, TOs are:
- SPT; and
 - SHETL.

~~1.1.7 Data exchanges related to charging Users are outside the scope of this document and are covered in STCP 18-1 Connection and Modification Application.~~

1.2 Objectives

- 1.2.1 This process specifies the following:
- the responsibilities of Parties, in relation to commissioning and decommissioning activities;
 - the requirements for the exchange of information related to commissioning and decommissioning activities across the NGC ~ TO interface; and
 - the means of communication to be used across the NGC ~ TO interface.

2 Key Definitions

2.1 For the purposes of STCP 19-4:

- 2.1.1 ~~Commissioning Panel means a panel chaired by the relevant TO to manage and facilitate the commissioning and decommissioning of Plant and Apparatus~~ **Acceptance Certificate** means the document exchanged between the TO and NGC to record the completion of Off-load Testing and On-load Testing.
- 2.1.2 **Commissioning Method Statement** means an approved step-by-step procedure defining On-load Testing activities which do not require a switching methodology issued from NGC.

2.1.3 **Commissioning Panel** means a panel chaired by the relevant TO to manage and facilitate the commissioning and decommissioning of Plant and Apparatus.

~~2.1.3~~**Commissioning Switching Programme** means proposed sequence of switching to energise, load and facilitate the commissioning or decommissioning of Plant and Apparatus. This programme will be prepared and issued by the TO and approved by NGC and any affected Users, and signed by NGC, the TO and any affected ~~Users~~.

2.1.4 **Users**. This is also referred to as the commissioning Operational Switching programme in STCP 1-1.

2.1.5 **Decommissioning Report** means the document used by the TO to notify NGC of Plant and Apparatus decommissioned and no longer available for operational service or configuration by NGC.

2.1.6 **HV Safety Rules** means the rules used by the TO to manage safety in respect of transmission assets connected to or remaining within safety distances of the GB Transmission System.

2.1.7 **HV System Change Certificate** means document used by the TO to notify NGC of changes to the GB Transmission System relating to additions, removals or changes to names or nomenclature of Plant and Apparatus.

2.1.8 **Off-load Testing** means the inspections, tests and off-load switching operations carried out as part of the Stage 1 Commissioning Programme.

2.1.9 **On-load Testing** means the tests and switching operations carried out as part of the Stage 2 Commissioning Programme.

2.1.10 **Risk of Trip** means a formal acknowledgement involving specified in-service Plant or Apparatus of a risk materially beyond the normal level of risk of an imminent Services Reduction where it is not possible to remove, through reasonable endeavour, all tripping risks associated with a planned activity and that the trip event does not result in unacceptable System operating conditions.

2.1.11 **Stage 1 Commissioning Panel** means a panel chaired by the relevant TO and whose responsibilities are described in 3.1 and 3.2 below.

2.1.12 **Stage 1 Commissioning Programme** means a series of inspections, tests and off-load switching operations prepared, approved and carried out by the TO or nominee to verify that Plant and Apparatus is suitable for energisation.

2.1.13 **Stage 2 Commissioning Panel** means a panel chaired by the relevant TO and whose responsibilities are described in 3.1 and 3.3 below.

2.1.14 **Stage 2 Commissioning Programme** means a series of inspections, tests and on-load switching operations prepared by the TO and approved and carried out jointly by the TO and NGC that verify Plant and Apparatus is suitable for operational service.

~~2.1.7~~**Off-load Testing** means the inspections, tests and off-load switching operations carried out as part of the Stage 1 Commissioning Programme.

~~2.1.8~~**On-load Testing** means the tests and switching operations carried out as part of the Stage 2 Commissioning Programme.

~~2.1.9~~**HV System Change Certificate** means document used by the TO to notify NGC of changes to the GB Transmission System relating to additions, removals or changes to names or nomenclature of Plant and Apparatus.

~~2.1.10~~**Acceptance Certificate** means the document exchanged between the TO and NGC to record the completion of Off-load Testing and On-load Testing.

~~2.1.11~~**Decommissioning Report** means the document used by the TO to notify NGC of Plant and Apparatus decommissioned and no longer available for operational service or configuration by NGC.

~~2.1.12~~2.1.15 **TO nominated Contractor(s)** means the representative(s) of the Company or Companies assigned by the TO to carry out work on their behalf.

3 Procedure

3.1 Establishing the Commissioning Panels

- 3.1.1 The relevant TO shall set up, chair and provide secretarial support for the Stage 1 and Stage 2 Commissioning Panels.
- 3.1.2 An inaugural Commissioning Panel meeting shall be in accordance with the agreed timetable in the TO Construction Offer as defined in 18-1, the Project Listing Document or as subsequently agreed by the TO and NGC. The inaugural Commissioning Panel meeting shall normally include representatives from both the Stage 1 and Stage 2 Commissioning Panels.
- 3.1.3 At the inaugural Commissioning Panel meeting the split of responsibilities between the Stage 1 and Stage 2 Panels shall be confirmed.
- 3.1.4 The Stage 1 Commissioning Panel shall be responsible for developing a Stage 1 Commissioning Programme covering the Off-load Testing and preparation of Commissioning documents, as specified in this procedure, to allow the TO to connect, disconnect and rename Plant and Apparatus. The Stage 1 Commissioning Panel will consist of the TO, the TO nominated Contractor(s) and if appropriate due to a ~~User connection, Connection,~~ User and NGC representatives.
- 3.1.5 The Stage 2 Commissioning Panel shall be responsible for developing a Stage 2 Commissioning Programme and ensuring the necessary commissioning documentation is in place to allow the initial energisation and On-load Testing of Plant and Apparatus. The Stage 2 Commissioning Panel will consist of the TO, NGC and where appropriate, User representatives.
- 3.1.6 When commissioning or decommissioning assets relating to interconnector circuits the affected Parties may agree to set up a single Stage 1 Commissioning Panel for the project, or to hold separate Stage 1 Commissioning Panels for their own work with a nominated TO representative to co-ordinate across the Panels. There shall be a joint Stage 2 Commissioning Panel.
- 3.1.7 Appropriate parts of the ~~Minutes~~ minutes of the Stage 1 and Stage 2 Commissioning Panel meetings shall be circulated to NGC and TO representatives of both Commissioning Panels.
- 3.1.8 In those instances where a User is being connected, the additional requirements of STCP 19-3 Operational Notifications and Compliance Testing shall be followed.
- 3.1.9 The Stage 1 & 2 Commissioning Panels will be responsible for appropriate Compliance issues when they have been passed to the Commissioning Panel under STCP 19-3 Operational Notifications and Compliance Testing.

3.2 Stage 1 Commissioning Panel

- 3.2.1 The Stage 1 Commissioning Panel shall prepare and progress the documentation, certificates and technical data detailed in section 3.2.
- 3.2.2 The Stage 1 Commissioning Panel shall be responsible for developing the Off-load Testing and programme documentation. Off-load Testing will include but is not limited to :
- pre-commissioning inspections;
 - off-load commissioning tests; and
 - pre-energisation inspections.
- 3.2.3 The Stage 1 Commissioning Programme will include a plan which defines the timing and staging of the Off-load Testing work, and the planned date for the start of On-load Testing. This date will be made available to the Stage 2 Commissioning Panel.

3.2.4 The TO will be responsible for delivering operational data and technical information prior to Plant and Apparatus being commissioned. This requirement relates to the TO Service Capability Specification (SCS) for such items as:-

- Normal Capability Limits;
- Protection and DAR schedules;
- schedule of technical data (including but not limited to branch impedances) impedances);
- written descriptions of Operational Tripping/Equipment Intertripping operation;
- details of operational procedures (where appropriate); and
- operational diagrams.

Other applicable information not forming part of the SCS are:

- The 'Modification of Facilities' certificate and associated spreadsheet (STCP 4-1 Real Time Data Change Management, Appendix C);
- Commissioning Switching Programme; and
- Grid Code compliance data exchange (for which the TO is responsible).

Appendix C summarises these requirements together with the target timescale for completion.

3.2.5 The TO shall monitor the preparation and scheduling of these activities as part of the Stage 1 Commissioning Panel against the target timescales in Appendix C and report progress to the Stage 2 Commissioning Panel.

3.2.6 Some parts of the initial data submissions may be based on generic type data where final connection arrangements or measured data will not be available until later in the construction process. This should be reviewed by the TO throughout the commissioning process to ensure the best quality data is being submitted as it becomes available.

3.2.7 Where a Connection is involved, the Stage 1 Commissioning Panel will progress the requirements of the STCP 19-3 Operational Notifications and Compliance Testing timetable to ensure Grid Code compliance of the User's Plant and Apparatus. NGC shall require the exchange of technical and non-technical data and information between the User and TO as required to meet commissioning requirements. If a User fails to provide any such data or information, the TO may require NGC to obtain the appropriate data or information.

3.2.8 The TO shall provide a HV System Change Certificate(s) (HVSCC) (contained in Appendix D Attachment A) to indicate the effective time, date and details when Plant and Apparatus is to be added or removed from the TO's Transmission System, or is subject to a name or nomenclature change. The HVSCC:

- Part 1 details the proposed time and date of the change ;
- Part 2 is an acknowledgement by NGC to the proposed changes
- Part 3 provides details of the proposed change; and
- Part 4 is signed in Control Phase on completion of commissioning.

- 3.2.9 Parts 1, 2 and 3 should be signed or completed and exchanged by the TO and NGC on the issue of a draft, agreed and final HVSCC ahead of the proposed change. Part 4 will be signed and exchanged by the TO and NGC in Control Phase and issued to confirm the change has taken place. For the avoidance of doubt, the completion of this certificate does not by itself make Plant and Apparatus available to NGC for operation or configuration. The Stage 1 Commissioning Panel will schedule and progress an HVSCC to the target timescale in Appendix C and report progress to the Stage 2 Commissioning Panel.
- 3.2.10 The TO will provide an Operation Diagram or equivalent of the Transmission site, incorporating Plant and Apparatus numbering and nomenclature. In the early stages of work construction other drawings may be used but these must be supplemented by the Operation Diagram or equivalent to the target timescales in Appendix C. The Operation Diagram, or equivalent, will form part of the SCS. The Stage 1 Commissioning Panel will schedule and progress the preparation of the Operation Diagram or equivalent and report progress to the Stage 2 Commissioning Panel.
- 3.2.11 The TO will provide Site Responsibility Schedules (SRS) to meet the target timescales in Appendix C. The format of the schedule used by each Party shall be as stated in the Grid Code. The Stage 1 Commissioning Panel will schedule and progress the SRS to the target timescale in Appendix B and report progress to the Stage 2 Commissioning Panel. A copy of the relevant SRS(s) must be available prior to the start of On-load Testing or decommissioning for the sites involved.
- 3.2.12 Real time data change management documentation exchange shall be carried out in accordance with STCP 4-1 Real Time Data Change Management and STCP4-4 Provision of Asset Operational Information. The Stage 1 Commissioning Panel will schedule and progress the data exchange required to the target timescale in Appendices B and C and report progress to the Stage 2 Commissioning Panel.
- 3.2.13 The completion of Off-load Testing will be marked by completion of the Acceptance Certificate Part 1 which also confirms agreement to proceed to On-load Testing for the purpose of Plant and Apparatus being put into service. Part 1 of the Acceptance Certificate will be completed by the TO and signed and exchanged to NGC to acknowledge when the required Off-load Testing is completed, and the new Plant and Apparatus is ready for first energisation.
- 3.2.14 When decommissioning is taking place under this procedure, the Stage 1 Commissioning Panel shall be responsible for defining the decommissioning process. If the TO deems that decommissioning is such that no Stage 1 Commissioning Panel is necessary the TO and NGC will agree to discuss the decommissioning process further at System access meetings called under STCP 11-1 Outage Planning. The requirements of this procedure will be followed regarding certificates and technical data required to be issued as part of the decommissioning of Plant and Apparatus.

3.3 Stage 2 Commissioning Panel

- 3.3.1 The Stage 2 Commissioning Panel shall monitor the progress of the documentation and certificates provided through the Stage 1 Commissioning Panel and the technical data detailed below in readiness for the On-load Testing.
- 3.3.2 Where a User is involved there are additional Grid Code compliance requirements placed on affected Parties, STCP 19-3 Operational Notifications and Compliance Testing provides further guidance.
- 3.3.3 Where a User is involved NGC shall ensure that the data and information provided by the User pursuant to Grid Code obligations accurately represents the Plant and Apparatus installed or removed by the User including name and nomenclature changes advised by the User. NGC shall exchange information provided by the User as part of commissioning with the TO, in accordance with the requirements STCP 19-3 Operational Notifications and Compliance Testing.

- 3.3.4 The Stage 2 Commissioning Programme will be prepared by the TO and shall include:-
- a plan which details the delivery dates for the required documentation;
 - the Commissioning Switching Programme or Commissioning Method Statements approved jointly by the TO, NGC and any affected User; and
 - post commissioning inspections to be carried out by the TO or nominee.
- 3.3.5 The On-load Testing will be carried out jointly by NGC and the TO in accordance with the requirements of STCP1-1 Operational Switching.
- 3.3.6 Where commissioning does not involve an agreed Switching Method, Commissioning Method Statements shall be prepared by the TO and approved by NGC (and Users as appropriate).
- 3.3.7 The Commissioning Switching Programme and any Commissioning Method Statements shall include both the method of first energisation and the On-load Testing of the Plant and Apparatus to be commissioned to the System.
- 3.3.8 The TO is responsible for the preparation, issue and change management (unique version nos. etc.) of the draft and approved Commissioning Switching Programme, in accordance with the target time scales shown in Appendix C. A model form for a Commissioning Switching Programme is shown in Appendix E. This form or similar containing the information shown may be used.
- 3.3.9 NGC will receive the draft Commissioning Switching Programme for comment and will liaise with affected Users and respond to the TO with details of required changes in accordance with the timetable shown in Appendix C.
- 3.3.10 Complex Commissioning Switching Programmes shall contain break points where commissioning can be safely halted, to be continued later.
- 3.3.11 The final Commissioning Switching Programme shall be approved by NGC and any affected Users, and signed by NGC, the TO and any affected Users.
- 3.3.12 Relevant Operation Diagrams or equivalent shall be referenced in the Stage 2 Commissioning Switching Programme, and a copy of the referenced diagrams shall be confirmed available between all Parties involved prior to the start of On-load Testing or decommissioning at the sites involved.
- 3.3.13 If it is necessary to modify the content of an approved Commissioning Switching Programme either prior to, or during, implementation, the following process shall be followed:
- Prior to implementation, the TO will contact the Stage 2 Commissioning Panel NGC and affected User representatives to agree and approve any essential changes. If agreement cannot be reached any Party may raise a dispute. The approved revised programme will be re-issued by the TO with a revised unique version issue number.
 - Immediately prior to the start of the Commissioning Switching Programme the TO shall confirm to NGC the unique version issue number for the Commissioning Switching Programme to be used.

- Following commencement of the Commissioning Switching Programme should a need for subsequent changes to the programme be identified the programme will be temporarily suspended. The TO shall be responsible for obtaining the agreement to changes and modification to the Commissioning Switching Programme from NGC and affected Users involved in the development of the Commissioning Programme or their nominee. The TO will be responsible for ensuring all copies of the Commissioning Switching Programme in use are amended in line with the agreed changes. Changes at this stage are normally due to site or real time System changes and are handled in the Control Phase. In extreme circumstances the Commissioning Switching Programme may have to be abandoned for re-planning and referral back to the Stage 2 Commissioning Panel.

~~3.3.13~~ 3.3.14 Where commissioning does not involve ~~operational switching~~, Operational Switching, the TO shall be responsible for preparation of any Commissioning Method Statements required during On-load Testing. Commissioning Method Statements shall be approved by NGC (and Users as appropriate).

3.3.15 The TO is responsible for notifying NGC of any potential Operational Effect on the GB Transmission System associated with a Commissioning Method Statement of which they are or become aware. NGC may require a change to the Commissioning Method Statement to minimise or alleviate the potential Operational Effect. Any such change to a Commissioning Method Statement must also be approved by NGC (and Users as appropriate).

3.3.16 A separate Commissioning Method Statement should be prepared for each stage of multi-stage work. The target timescales for preparing and issuing Commissioning Method Statements are the same as for Commissioning Switching Programmes and are specified in Appendix C.

3.3.17 The TO will sign Part 1 of the Acceptance Certificate as confirmation that all Off-load Testing and inspections are completed and the asset is ready for On-load Testing. The TO will provide a copy of the signed Acceptance Certificate to NGC and NGC will acknowledge the Part 1 certificate.

3.3.18 Prior to the start of the On-load Testing the following documentation will be confirmed as available between NGC and TO for all sites involved and the issue and revision numbers of individual items checked, including:

- Operation Diagram(s) or equivalent;
- Site Responsibility Schedule(s);
- Commissioning Switching Programme; and
- Acceptance Certificate (Part 1 signed by TO).

3.3.19 When the Commissioning Switching Programme has been successfully completed and the TO has carried out final inspections, the TO shall sign Part 2 of the Acceptance Certificate. This will confirm completion of the On-load Testing and that the Plant and Apparatus is commissioned and made available for operational service and configuration by NGC. Part 2 of the Acceptance Certificate will be signed and exchanged by the TO and NGC. Completion of this Acceptance Certificate may be used to activate the entries in accordance with the SCS update process.

3.3.20 At this time the TO will also declare as Services Reductions (in accordance with STCP 4-4 Provision of Asset Operational Information), any known defects or limitations associated with the asset that could affect the operational use of the asset, and will progress the resolution of these issues. This may result in the issue of an Operational Capability Limit Record against the asset.

- 3.3.21 Any Plant or Apparatus being decommissioned under this procedure shall be covered by a Decommissioning Report. A pro-forma of the Decommissioning Report can be found in Appendix D Attachment C. The Decommissioning Report will be issued in the Control Phase by the TO and signed and exchanged by the TO and NGC.
- 3.3.22 Decommissioning results in the Plant and Apparatus being declared permanently unavailable by the TO. Completion of this form may be used to update the SCS in accordance with the SCS update process. The Decommissioning Report provides notification that the Plant and Apparatus is decommissioned, and confirms whether the Plant and Apparatus either remains within safety distance, or where the TO considers there to be safety implications.
- 3.3.23 Where Plant and Apparatus is outside safety distance and has been physically disconnected, it shall be declared as having been removed from the GB Transmission System, through completion of a HV System Change Certificate.
- 3.3.24 Where the Plant and Apparatus remains within safety distance and therefore subject to the TO HV Safety Rules this may necessitate the Plant and Apparatus being retained on the Operation Diagram, or equivalent, and retained in the TO and NGC SCADA databases. Subject to the SCS update process this Plant and Apparatus would remain in the SCS but would be defined as non-operational.
- 3.3.25 It is envisaged a final joint meeting of the Stage 1 and Stage 2 Commissioning Panels shall be called by the TO at an appropriate time after the Plant and Apparatus has been commissioned. Any outstanding issues shall be addressed at this meeting.

3.4 Commissioning Outages

- 3.4.1 All Outages of Transmission Plant and Apparatus associated with commissioning and or decommissioning, will be recorded in the NGC Outage Database as outlined under STCP 11-1 Outage Planning. In the case of new Plant and Apparatus that will be subject to commissioning, these will be included prior to the date of connection of the Plant and Apparatus to the GB Transmission System. These entries in the database must be agreed by NGC and will be flagged as not yet commissioned.

Typical Outage requests are:

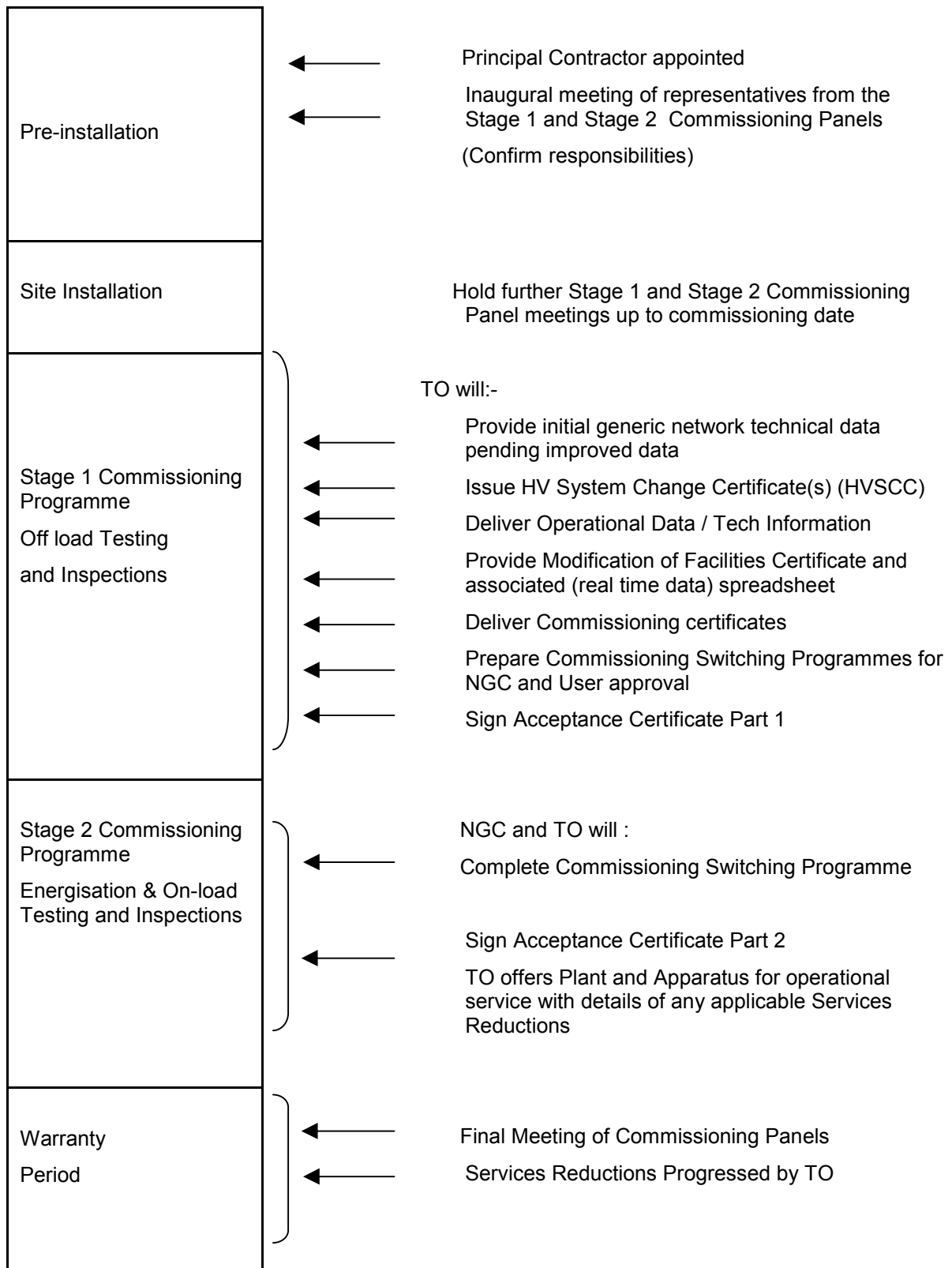
- Risk of Trip circuits;
- proximity Outage circuits;
- primary Outages;
- new Outage requests (including the addition of new basic data entries and removal of redundant basic data entries);
- other Outages required to implement the Commissioning Switching Programme; and
- information entries to indicate resource restrictions such as circuit name or nomenclature changes requiring significant safety documentation changes or switching programme involvement;

~~4 Dispute Resolution~~

~~4.1.1 Dispute resolution procedure in line with STC XXXXXX~~

4 Appendices

Appendix A: OVERVIEW OF COMMISSIONING PROCESS



Appendix B: Commissioning & Decommissioning Certificates Requirements

ITEM	ACTIVITY	SOURCE	TARGET TIMESCALES
1	HV System Change Certificate (HVSCC)	STCP19 -4	<p>(1) 9 WEEKS in advance of Plant and Apparatus being connected to the System, a DRAFT HVSCC is provided to NGC by the TO completed up to Part 3. Part 2 is signed by NGC and a copy exchanged with the TO. 4 WEEKS in advance of Plant and Apparatus being connected to the System, an AGREED HVSCC is issued to NGC by the TO completed up to Part 3. Part 2 is signed by NGC and a copy exchanged with the TO.</p> <p>(2) 3 DAYS in advance of Plant and Apparatus connected to the System, the FINAL HVSCC is issued to NGC by the TO completed up to Part 3. Part 2 is signed by NGC and a copy exchanged with the TO.</p> <p>(3) Date document becomes effective Part 4 of the FINAL HVSCC is signed and exchanged by the TO and NGC</p>
2	Acceptance Certificate	STCP 19-4	<p>(1) Part 1 of the Acceptance Certificate is signed by TO and acknowledged by NGC in Control Phase on completion of Off-Load Testing and prior to first energisation.</p> <p>(2) Part 2 of the Acceptance Certificate is signed and exchanged by the TO and NGC in Control Phase on completion of Stage On-load Testing.</p>
3	Decommissioning Report	STCP 19-4	<p>(1) Issued by TO in Control Phase immediately following decommissioning of Plant and Apparatus</p>
4	Real Time Data Management Modification of Facilities Certificate	STCP 4-1 STCP 4-4	<p>(1) Issued by TO not less than 6 weeks in advance of the planned database change implementation date that aligns to either</p> <p>a) the planned date the Plant and Apparatus becomes subject to or is removed from TO Safety Rules or the Plant and Apparatus numbering or nomenclature changes</p> <p>or</p> <p>b) the planned date of commissioning of Plant and Apparatus .</p>

Appendix C: Operational Data and Technical Information Requirements

ITEM	ACTIVITY	SOURCE	TARGET TIMESCALES
1	Normal Capability Limits	SCS	(1) 12 WEEKS in advance of ENERGISATION date, recipients receive schedule from Asset Owner
2	Protection and DAR Schedules	SCS	(1) 12 WEEKS in advance of ENERGISATION date, recipients receive schedule from Asset Owner
3	Schedule of Technical Data (including but not limited to branch impedences);	SCS	(1) Asset Owner provides Generic data at outset of scheme (2) 20 wks in advance of ENERGISATION date Asset Owner provides update or confirms generic data (3) Further updates as more accurate data becomes available.

ITEM	ACTIVITY	SOURCE	TARGET TIMESCALES
3	<u>Schedule of Technical Data (including but not limited to branch impedances) ;</u>	SCS	<p>(1) <u>Asset Owner provides Generic data at outset of scheme</u></p> <p>(2) <u>20 wks in advance of ENERGISATION date Asset Owner provides update or confirms generic data</u></p> <p>(3) <u>Further updates as more accurate data becomes available.</u></p>
4	Written Description (a) Operational tripping (b) Equipment Operation	SCS	<p>(1) Requirement confirmed at Stage 2 Commissioning Panel</p> <p>(2) To be provided prior to first energisation where applicable</p>
5	Details of operational procedures	SCS	<p>(1) Requirement confirmed at Stage 2 Commissioning Panel</p> <p>(2) To be provided prior to first energisation where applicable</p>
6	Operation Diagram or equivalent	SCS	<p>(1) 9 WEEKS in advance of ENERGISATION date, or on issue of HVSCC, draft new/revised diagram /sheet issued by TO for comment</p> <p>(2) 4 WEEKS in advance of ENERGISATION/HVSCC, final diagram/sheet issued and circulated by the TO.</p>
7	Modification of Facilities (Real Time Data spreadsheet)	STCP 4-1	<p>(1) Not less than 6 weeks in advance of the planned database change implementation date that aligns to either</p> <p>(a) the planned date the Plant & Apparatus is connected to or is removed from the Transmission System, or the Plant and Apparatus numbering, or nomenclature changes or the capability changes with or without a physical change to the Plant or Apparatus</p> <p>(b) the planned date of commissioning of Plant & Apparatus</p>
8	Commissioning Switching Programme Commissioning Method Statements	STCP 19-4	<p>(1) 6 WEEKS in advance of Equipment ENERGISATION draft issued.</p> <p>(2) 4 WEEKS in advance of ENERGISATION, comments returned.</p> <p>(3) 2 WEEKS in advance of ENERGISATION, signatures obtained.</p> <p>(4) 1 WEEK in advance of ENERGISATION, final issued.</p>
9	Site Responsibility Schedule	Grid Code	<p>(1) 6 weeks in advance of either the issue of HVSCC, or energisation/ decommissioning of secondary Plant and Apparatus, draft SRS circulated by the TO.</p> <p>(2) 2 weeks in advance of either issue of HVSCC or energisation / decommissioning of secondary Plant and Apparatus, final SRS issued and circulated by the TO.</p> <p>(4) 3 DAYS in advance of HVSCC, or energisation/ decommissioning copies signed by all parties and circulated by the TO.</p>
10	Grid Code compliance data	STCP19-3	See STCP 19-3 'Operational Notifications and Compliance Testing'

Appendix D – Attachment A :

HV SYSTEM CHANGE CERTIFICATE

Location.....

Certificate No.....

To:

(NGC)

From:

(SPT/SHETL)

PART 1: NOTICE

This DRAFT / AGREED / FINAL ¹ H.V. System Change Certificate is effective from

Date

Time

Tick below where applicable.

- The Plant and Apparatus scheduled in Part 3A will be removed from the GB Transmission System.
- The Plant and Apparatus scheduled in Part 3B is subject to a circuit name/nomenclature change.
- The Plant and Apparatus scheduled in Part 3C will be declared as part of the GB Transmission System but is NOT made available for configuration by NGC.

Please retain a copy of this document and any attached diagrams.

Signed: Date.....

(SPT/SHETL)

PART 2: ACKNOWLEDGEMENT

To be returned to (SPT/SHETL)

by: Time..... Date

- I acknowledge receipt of this DRAFT / AGREED / FINAL ¹ HV System Change Certificate.

Signed: Date.....

(NGC)

¹ Delete as appropriate

Appendix D - Attachment A (contd.)

HV System Change Certificate Part 3

Location

Certificate No

Associated new / revised Operation Diagram (or equivalent) Reference and Issue number

A: * Plant and Apparatus being removed from the GB Transmission System	
Description	
B: *Name and / or Nomenclature Change	
Old Plant and Apparatus Identification and Location:	New Plant and Apparatus Identification and Location:
C: * Plant and Apparatus being added to the GB Transmission System	
Description	

* Mark those sections not required N/A

Appendix D - Attachment A (contd.):

HV SYSTEM CHANGE CERTIFICATE (contd.)

Location.....

Certificate No.....

PART 4: DECLARATION

The following H.V. System changes have now taken effect :

(Tick below where applicable.)

- The Plant and Apparatus scheduled in Part 3a is removed from the GB Transmission System .
- The change scheduled in Part 3b becomes effective.
- The Plant and Apparatus scheduled in Part 3c is declared as part of the GB Transmission System but not available for operational service or configuration by NGC.

Signed Date Time
(SPT/SHETL)

Signed Date Time
(NGC)

Appendix D: Attachment B

ACCEPTANCE CERTIFICATE - PART 1

LOCATION: _____ **Certificate N°:** _____

PART 1: STAGE 1 COMPLETION

The Plant and Apparatus scheduled below has satisfactorily completed the Stage 1 Commissioning Programme, in accordance with the conditions of contract. The Plant and Apparatus may now be energised and tested in accordance with the Stage 2 Commissioning Programme. Exceptions / Limitations are specified below.

DESCRIPTION OF PLANT and APPARATUS

(include drawing references as appropriate)

EXCEPTIONS / LIMITATIONS

Issued by: _____ Date: _____ Time: _____
(SPT/SHETL)

Acknowledged: _____ Date: _____ Time: _____
(NGC)

Appendix D: Attachment B (contd.) - Acceptance Certificate - Part 2

LOCATION: _____ **Certificate N°:** _____

PART 2: STAGE 2 COMPLETION

The Plant and Apparatus specified in PART 1 of this certificate has satisfactorily completed the Stage 2 Commissioning Programme and is made available for operational service and configuration to NGC with the following Exceptions / Limitations. All drawings and requirements necessary for operational service and configuration of the Plant and Apparatus have been provided to NGC.

Date: _____ Time: _____

EXCEPTIONS / LIMITATIONS

Issued by: _____ Date: _____ Time: _____
(SPT/SHETL)

Confirmed: _____ Date: _____ Time: _____
(NGC)

Appendix D - Attachment C

DECOMMISSIONING REPORT

LOCATION **Report No.**.....

I HEREBY GIVE NOTICE that the Plant and Apparatus scheduled below was decommissioned and is no longer available for operational service or configuration by NGC

*A The Plant and Apparatus is no longer available for operational service but the TO considers there to be safety implications and as such remains in the SCS identified as non-operational.

*B The Plant and Apparatus is no longer part of the **GB Transmission System**. (Complete parts (a) and (c) of Section 2 below). A completed HV System Change Certificate for the HV Equipment is also attached.

(*Delete as appropriate.)

PART 1 - DESCRIPTION AND LOCATION OF _PLANT AND APPARATUS

(include drawing references as appropriate)

PART 2

(a) **REASON FOR DECOMMISSIONING**

(b) **DISCONNECTION DETAILS**

Signed Date Time
(SPT/SHETL)

PART 3 - ACKNOWLEDGEMENT

I acknowledge receipt of the above notice

Signed Date Time
(NGC)

Appendix E : Suggested Commissioning Switching Programme Model

(Front Sheet)

Programme No.....

SCHEME NUMBER AND TITLE :

OUTAGE NO :

TRANSMISSION OWNER :

LOCATION :

PLANT AND APPARATUS :

COMMISSIONING ENGINEER :

DATE OF TESTS :

PREPARED BY :

APPROVED BY SPT / SHETL

Signature Date

APPROVED BY NGC

Signature Date

APPROVED BY USER (where applicable)

Signature Date

Company

PERSONNEL NOMINATED TO AGREE POST- APPROVAL CHANGES

Transmission Owner	NGC	User (where applicable)

Commissioning switching programmes should adhere to the suggested categories and format where practical

(NB: Some switching programmes may not require the full detail specified in each category).

E1 Purpose of the Switching Programme

- (a) Briefly describe the purpose of the project.
- (b) List the Plant and Apparatus to be commissioned.
- (c) Briefly list the key stages of the Commissioning Switching Programme.

Complex Commissioning Switching Programmes should contain break points where commissioning can be safely halted to be continued later.

E2 Diagrams

List of the Operation Diagram or equivalent for reference whilst executing the Commissioning Switching Programme. (A copy should of each be available to each person involved in the commissioning).

E3 Unproven Protection Equipment

List of the protection equipment to be commissioned and which may be required to operate whilst executing the Commissioning Switching Programme, but as a result of being unproven, cannot be relied upon to perform in the intended manner. Briefly state the corresponding zone that each respective item of equipment protects.

E4 Temporary Protection & Automatic Switching Arrangements

- (a) List the temporary protection, and any automatic switching arrangements in force during the equipment energisation and On-load test period.
- (b) State the temporary protection range of cover and fault clearance time(s). (To be obtained from the Commissioning Officer).
- (c) Identify points in the programme where there is unavoidable depletion of protection. Identify the back-up protection which may operate and the estimated fault clearance time.
- (d) Confirm that all parties involved in commissioning are in possession of any temporary protection setting sheets (including rating and protection schedules if, exceptionally, they are required). Confirm that settings have been applied, to the temporary protection: this may alternatively be carried out in Section H9 of the Switching programme.

E5 Personnel

List the names of personnel participating in the tests with a brief statement of their respective roles and responsibilities including Users and Customers where applicable.

NB: These may be entered on the day.

E6 Communications

- (a) List pertinent telephone numbers.

NB: These may be entered on the day.

E7 Documentation

Confirm with NGC that all commissioning certificates have been provided and that testing documentation is complete to the TO's requirements.

E8 Initial Conditions

- (a) Confirm the Transmission Status Certificate (TSC) on the Plant and Apparatus to be commissioned has been cancelled.
- (b) Confirm the status of disconnectors with NGC.

- (c) Confirm the status of all circuit breakers with NGC.
- (d) Confirm the status of all alarms with NGC
- (e) Confirm the transformer tap position, and the position of any other Plant and Apparatus which has a range selector with NGC.
- (f) Confirm the state of protection equipment with NGC. (A circuit is usually energised with all protection normal and in service).
- (g) Confirm to NGC that auto switching / reclose and Automatic Voltage Control (AVC) equipment is switched out of service. (A circuit is usually energised with these items out of service).

E9 Equipment Energisation and On-load Testing

The following should be stated in the Contents Sheet:

- (a) The stated switching sequence.
- (b) Clearly state when an item of Plant and Apparatus is being energised for the first time.
- (c) Clearly state the locations at which phasing tests will take place.
- (d) Clearly state the locations at which check or System synchronisation close of circuit breakers will take place.
- (e) Indicate any checks to be carried out on high voltage equipment.
- (f) Indicate On-load testing to be carried out*.
- (g) State sequence of events required to disable any temporary protection.

- NB:
- (1) *The minimum levels of primary current to enable On-load testing to be carried out should be stated.
 - (2) At the end of each On-load test it shall be confirmed that CT test links and relay settings are returned to normal.

E10 Restoration

- (a) Reconfigure the Power System to NGC circuit selection requirements.
- (b) Confirm the status of all Plant and Apparatus at the end of the tests.
 - (i) All protection switched into service;
 - (ii) Temporary Protection systems disabled;
 - (iii) All relay settings normal.

E11 On-load Auto Switching / Reclose Tests

- (a) These should be carried out in accordance with a schedule of such tests. The form should closely accord with that of the DAR schedule.
- (b) The schedule should specify:
 - (i) The starting conditions;
 - (ii) The type of test to be simulated;
 - (iii) The protection to be operated;
 - (iv) The circuit breakers which trip and re-close; any disconnectors that open;
 - (v) Point at which trip relays reset;

(vi) Time in seconds corresponding to the above.

E12 AVC or Other Automatic Equipment Tests

(a) These should be carried out in accordance with a schedule of such tests.

NB: If, to facilitate the On-load testing, the Plant and Apparatus is required to be temporarily altered or changed in any way whatsoever, both the change and associated restoration shall be recorded.

Appendix F: Definitions

Abbreviations

All defined in STC:

- HVSCC HV System Change Certificate
- SCS Service Capability Specification
- SHETL Scottish Hydro-Electric Transmission Ltd
- SPT SP Transmission Ltd
- SRS Site Responsibility Schedules
- TO Transmission Owner

~~□NGC – National Grid Company plc~~

Definitions (other than those defined in Key Definitions)

Licence definitions used:

STC definitions used:

- ~~Outages~~Apparatus
- Connection
- GB Transmission System
- Grid Code
- NGC
- Normal Capability Limits
- Operational Effect
- Outages
- Parties
- Plant
- Protection
- Safety Rules
- Service Capability Specification
- Services Reduction
- Site Responsibility Schedule
- TO Construction Offer
 - ~~□Normal Capability Limits~~
 - ~~□Parties~~

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- ~~Services Reduction~~ Transmission Owner
- Transmission System
- ~~Service Capability Specification~~ User

STCP definitions used:

- ☐ ~~STCP 1-1:~~
- ☐ ~~Switching Method~~
- ☐ ~~STCP 19-3:~~
- ☐ ~~Commissioning Panel~~

CUSC definitions used:

- ☐ ~~User~~
- ~~Operational Notification~~ NGC Outage Database (STCP 11-1)
- ~~Operational Capability Limit Record (STCP 4-4)~~
- Switching Method (STCP 1-1)

Grid Code definitions used:

- Control Phase
- Operation Diagram
- ☐ ~~Safety Rules~~
- ☐ ~~Site Responsibility Schedules~~
- ☐ ~~Control Phase~~
- ~~Protection~~ Operational Intertipping
- Operational Switching
- Protection
- SCADA