

STCP Amendment Proposal Form

STCPAP002

1. Title of Amendment Proposal

STCP 04-3 – 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:

C212.

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. The phrase “UNCONTROLLED WHEN PRINTED” has also been added to the Footer in each page.

The following text has also been inserted before each of the Flow Diagrams within the STCPs clarifying that the text of the STCP has precedence in the event there is any disparity between the text and the flow diagrams:

“Note that the Process Diagrams shown in this Appendix [B] 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.”

This statement was included in some but not all STCPs during drafting and its inclusion here allows a consistent approach to be taken across all STCPs.

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 04-3 Real Time Data Provision 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

<p>7. <u>Impact on Computer Systems and Processes used by STC Parties</u> (information should be given where possible)</p> <p>NONE</p>
<p>8. <u>Details of any Related Modifications to Other Industry Codes</u> (where known)</p> <p>NONE</p>
<p>9. <u>Justification for Proposed Amendment with Reference to Applicable STC Objectives</u> (mandatory field)</p> <p>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 04-3 this would better facilitate the following Applicable STC Objectives:</p> <ul style="list-style-type: none"> 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	Lilian Macleod National Grid Company plc 01926 656368 lilian.macleod@ngtuk.com
<p>Attachments (Yes/No): Yes If yes, title and number of pages of each attachment: Attachment 1 (xx Pages): Original Change Requests Attachment 2 (xx Pages): Revised legal text for STCP 02-1: Alarm and Event Management</p>	

Notes:

- 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.
- 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
C212	07-Mar-05	CRUG	Changes required to reflect the agreed comments as described in the CDA Consistency Form dated 18th January 2005 relating to STCP4-3, Issue 1.	STCP4-3 Real Time Data Provision, Issue 1	David Pritchard	Nadim Al-Hariri	Accepted	X	7-Mar-05	07Mar05: CR raised 07Mar05: CRUG accepted the CR

Change Request

(Yellow Shaded Boxes For CDA Use Only)

CDA CR ID	C212	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 18 th January 2005 relating to STCP4-3, Issue 1.			
Reasons for Change			
To reflect the comments agreed by CRUG that were raised within the CDA Consistency checks. The forms are attached.			
Affected Category 2 Document(s)²			DG's Informed
STCP4-3 Real Time Data Provision, Issue 1			CRUG
Originating Body³	CRUG		HLIA ID
Raised On	7 th March 2005		DLIA ID
Business Owner	David Pritchard		Time Impact⁴
CDA Owner	Nadim Al-Hariri		Effort Impact⁵
CRUG Action			
07Mar05: CR raised			
07Mar05: CRUG accepted the CR			
Change Request Source Document			
STCP4-3 Consistency Form.doc			
Document Version Included In			
To Be Included In	<input type="checkbox"/> Testing	<input 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		11.0
Document Name	STCP4-3 Real Time Data Provision			Version	Final Version 23/11/04
				Review Ref	1
Reviewer	Tony Mason			Date	18/01/05
Checked by	Nadim Al-Hariri			Date	18/01/05
Category 2 Documents – Detailed Level Processes and STCPs C: Indicates documents have been checked for consistency and no action required . A: Indicates documents have been checked for consistency and action may be required . N: Indicates documents are related but are unavailable to be checked for consistency.					
D G	Id	Issue	STCP/ DL	Name	Action
1	4-3	-	-	Internal Consistency	A
0	-	Designated	-	SO-TO Code	C
1	2-1	Issue 001	STCP	Alarm and Event Management	C
1	4-2	-	STCP	Real Time Datalink Management	C
1	4-1	-	STCP	Real Time Data Change Management	C
0	-	09/03/04	-	STC Procedure Drafting Guidelines	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

Category 2 Document		Internal Consistency			Version		N/A
Id	Sect	Comment	Cat	Type	Sevty	Effort	Proposed/Agreed Action
1	Typos	<p>1.1.4 - STCP2-1 Alarm and Event Management not STCP2.1 Alarm Fault and Event Management</p> <p>1.1.5 - Remove the colon</p> <p>1.2.1 - Remove the page break and make the final statement "real time data related to Users' Systems ..." the 6th bullet</p> <p>3.3.3 - System should be lower case to be consistent</p> <p>A2: Definitions - Inconsistent use of bullet points</p> <p>Terminology/Abbreviations – Include SCADA Supervisory Control and Data Acquisition</p> <p>A2: Definitions – Class 3 Alarms is not used in 4-3 so remove</p> <p>A2 CUSC definitions - Include Connection Site</p>	C	F	L	L	<p>Proposed Action:</p> <p>Not required for Go live. Change request required.</p> <p>Agreed Action:</p> <p>Agree to proposed actions.</p>
2	3.1.2	<p>The bullets set out below were agreed actions from the consistency form raised against the Level 2 process. These actions remain outstanding</p> <ul style="list-style-type: none"> The schedules in Appendices of STCP4-3 shall be able to be updated to reflect agreed TO/NGC provision of new generic types of alarms. Reference in STCP 4-3 to pick up schedule changes brought about by 19-2 	I	O	L	M	<p>Proposed Action:</p> <p>Include a process in 4-3 that allows the Appendices to be updated. Refer to 19-2 as the trigger for the addition of unique alarms to Appendix C1</p> <p>Agreed Action:</p> <p>Agree to the proposed action</p> <p>Suggest text</p> <p>'The schedules in Appendix C shall be updated to reflect the agreed TO/NGC provision of new generic types of alarms, or reflect changes triggered by STCP 19-2.</p>

Category 2 Document		Internal Consistency			Version		N/A
Id	Sect	Comment	Cat	Type	Sevty	Effort	Proposed/Agreed Action
3	3.4.5	<p>This sentence implies that NGC will provide User data to the non-Host TO. 3.4.4 states that User data will be transmitted between TOs.</p> <p>This was also raised in the Level 2 consistency check. The Agreed Action was:</p> <p>'make available' in the last sentence is intended as agreement not physical provision.</p> <p>Update in STCP drafting.</p>	I	O	L	L	<p>Proposed Action:</p> <p>Amend to make clear that this is NGC's procurement of the agreement to allow User data to be sent from TO to TO.</p> <p>Agreed Action:</p> <p>Agree proposed action.</p> <p>NGC shall procure for the purposes of 3.4.4 above any required data from a User or Users and shall agree the provision of such data.</p>
4	Swim lane	<p>The published swim lane was produced from an earlier version of the process and does not appear to have been updated. The attached swim lane has been designed to reflect the published STCP.</p>  <p>Swim Lane 4-3</p>	I	D	L	M	<p>Proposed Action:</p> <p>Possibly not required for Go live. Change request required.</p> <p>Agreed Action:</p> <p>Agree to the SWIM lane changes but it contains omissions when compared to the level 2 process SWIM lane.</p> <p>Changes enclosed</p>
	Other	<p>These comments are the outstanding issues noted against the STCP when sent for sign-off. They are repeated here to maintain the management of all issues that require agreement:</p> <ol style="list-style-type: none"> 1. Disputes procedure requires resolution 2. Decision on referencing Grid Code 3. Appendix C4.3 requires examination (what is C4.3? Is it the TO-TO Real Time Data Provision?) 					<p>Proposed Action:</p> <p>Agreed Action:</p> <p>None</p>

Attachment 2: Revised Legal Text for STCP 04-3: Real Time Data Provision

Document Ref: STCP 4-3 ~~Version~~Issue 001 002 Real Time Data Provision

Produced from DG Process:

STC Procedure Document Authorisation

Company	Name of Representative	Signed off (date)
NGT		
SP		
SSE		

STC Procedure Change Control History

Issue 001 –	23/12/04	<u>BETTA Go-Live Version</u>
<u>Issue 002</u>	<u>20/04/05</u>	<u>Issue 002 incorporating STCPAP002</u>

Outstanding issues to be resolved post company sign-off

1. Disputes procedure requires resolution
2. Decision on referencing of Grid Code
3. Appendix C4.3 requires examination

Outstanding issues to be resolved prior to company sign-off

Questions for DG1/UG:

Views requested on []

1 Introduction

1.1 Scope

1.1.1 The provision of operationally significant alarms, indications and analogue data is essential for the effective and secure operation of the Transmission System. This document details the real time data that shall be provided by the TO (including User real time data) via the Datalink.

1.1.2 This procedure applies to NGC and TOs, for the provision of specified alarms, analogues and indications, in real time via the Datalink.

1.1.3 For the purposes of this document, TOs are:

- SPT; and
- SHETL

1.1.4 The obligations on NGC and TOs on the receipt of alarms are specified in STCP 2.1 (Alarm ~~Fault~~ and Event Management), and are outside the scope of this document.

1.1.5 Management of the Datalink is detailed in STCP 4-2 (Real Time Datalink Management) and is outside the scope of this document.

1.1.6 STCP 4-1 (Real Time Data Change Management), sets out the change management process and is related to, but outside the scope of, this document.

1.2 Objectives

1.2.1 The process specifies the responsibilities of NGC and TOs for the provision of real time data, including:

- generic alarms (specified in Appendix C1);
- other specified alarms that are operationally significant;
- alarms from new types of equipment that are operationally significant;
- digital status indications (specified in Appendix C2);
- analogue data (specified in Appendix C3); and
- real time data related to Users' Systems (specified in Appendix C4).

2 Key Definitions and Interpretation

2.1 The following definitions apply for the purposes of this document:

2.1.1 None

3 Procedure

3.1 Alarms

3.1.1 The TO shall provide to NGC, where available, operationally significant alarms associated with the Transmission System. These are outlined in the generic table in Appendix C1.

3.1.2 The TO shall provide any unique alarms associated with the Transmission System, that do not fall within the generic tables in Appendix C1, but which are agreed with NGC to be operationally significant. The schedules in Appendix C shall be updated to reflect the agreed TO/NGC provision of new generic types of alarms, or reflect changes triggered by STCP 19-2.

3.1.3 The TO and NGC shall agree to the provision of operationally significant alarms from new types of Plant and/or Apparatus associated with the GB Transmission System.

3.1.4 The TO shall inform other relevant Parties where planned work may interrupt real time alarm data, or result in the generation of spurious alarms or indications. Where agreed with NGC, the TO shall, in accordance with local procedures, suppress or inhibit the transmission of alarms from Plant and/or Apparatus removed from operational service since this could lead to excessive alarm information being sent to NGC. Any such suppression or inhibition shall be removed prior to the equipment being returned to service, unless otherwise agreed with NGC.

3.1.5 NGC shall procure that the User provides alarms from User equipment:

- as required by NGC pursuant to the Grid Code;
- as reasonably required by NGC; and
- as reasonably required by the TO.

These alarms shall be documented in the Connection Site Specification between NGC and the TO. The TO shall then collect and forward these alarms to NGC.

~~4.1.63.1.6~~ NGC shall agree with Users, the provision of real time data from User's equipment and that it shall be collected by the TO on behalf of NGC. The data to be collected shall be (i) that required pursuant to the provisions of Grid Code, (ii) that reasonably required by NGC, and (iii) that reasonably required by the TO. All the data to be collected shall be documented in a schedule between NGC and the TO. The TO shall have access to the documented data.

3.1.7 Where the User's site is not a TO Connection Site, agreement shall be reached between NGC and the TO, as to the most appropriate and cost effective method of collecting the required User SCADA alarm data. At TO connection sites, the TO shall collect and forward required User SCADA alarm data to NGC.

4.23.2 Indications

3.2.1 The TO shall provide, where available, the telemetered digital status indications (including time tags where available), for equipment listed in Appendix C2. Where this cannot be reasonably achieved, NGC and the TO shall agree an appropriate solution.

3.2.2 Where status indications are not telemetered from site, or where the telemetered information is incorrect, the TO shall liaise with NGC and follow internal procedures for hand dressing actions on their SCADA system. These actions shall be reflected to NGC, via the Datalink and shall appear as telemetered indications on the NGC SCADA system.

3.2.3 The TO shall inform NGC before agreeing to any work that may interrupt real time indication status data, or result in the generation of spurious indications. Where appropriate, the TO shall, in accordance with local procedures, suppress or inhibit the transmission of indications from out of service transmission equipment, where this could lead to inaccurate representation of system conditions or excessive transmission of status information to NGC. Any such actions shall be removed, except otherwise agreed, prior to the equipment being returned to service.

3.2.4 NGC shall procure that the User provides telemetered digital indications

- as required by NGC pursuant to the Grid Code (see appendix C4.2);
- as reasonably required by NGC; and
- as reasonably required by the TO.

These telemetered digital indications shall be documented in a Connection Site Specification between NGC and the TO. The TO shall then collect and forward these indications to NGC.

4.1.53.2.5 Where telemetered indications from User equipment are not provided or are incorrect, the TO shall liaise with NGC and follow internal procedures for hand-dressing actions on their SCADA system. These actions shall be reflected to NGC via the Datalink and shall appear as telemetered indications on the NGC SCADA.

3.2.6 Where the User's site is not a TO Connection Site, agreement shall be reached between NGC and the TO, as to the most appropriate and cost effective method of collecting the required User SCADA indication data. At TO connection sites, the TO shall collect and forward required User SCADA indication data to NGC.

4.33.3 Analogues

3.3.1 The TO shall provide where available, real time analogue data, as defined in Appendix C3, from each transmission site. Where this cannot reasonably be achieved, NGC and the TO shall agree an appropriate solution.

3.3.2 The TO shall inform NGC when analogue values are incorrect or manually overridden for any reason, the TO shall adopt procedures for hand dressing actions on their SCADA system. These actions shall be reflected to NGC via the Datalink and shall appear as telemetered indications on the NGC SCADA. Any such actions shall be removed once the analogue is returned to normal.

3.3.3 The TO will inform NGC before agreeing to any work that may interrupt real time analogue data or result in the generation of spurious analogue data. Where appropriate the TO will, in accordance with local procedures, suppress or inhibit the transmission of analogue data from out of service Plant and Apparatus, where this could lead to inaccurate representation of System-system conditions or excessive transmission of status information to NGC. Any such actions shall be removed, except otherwise agreed, prior to the Plant and Apparatus being returned to service.

3.3.4 NGC shall procure that the User provides analogue data from the User's system

- as required by NGC pursuant to the Grid Code (see appendix C4.1);
- as reasonably required by NGC; and
- as reasonably required by the TO.

This analogue data shall be documented in a Connection Site Specification between NGC and the TO. The TO shall then collect and forward this analogue data to NGC.

4.1.53.3.5 Where the User's site is not a TO Connection Site, agreement shall be reached between NGC and the TO, as to the most appropriate and cost effective method of collecting the required User SCADA analogue data. At TO connection sites, the TO shall collect and forward required User SCADA analogue data to NGC.

4.43.4 TO Data Acquisition

3.4.1 At NGC sites that connect with a TO's site, provision shall be made for the relevant TO to install, repair, maintain or replace appropriate data transmission equipment or related equipment, for the purpose of relaying agreed Plant status indications and analogue data associated with the connecting transmission circuits to the relevant TO.

3.4.2 At NGC sites that connect a TO's site, access to the relevant TO data transmission equipment or related equipment described in 3.4.1 shall be granted by NGC as appropriate between NGC and the relevant TO. Any proposal to install or relocate such equipment shall be discussed and agreed by the two parties.

3.4.3 User SCADA data shall not be transmitted between TOs without the approval of the User and NGC.

3.4.4 Each TO shall provide to the other TO real time data, as specified in Schedule 3 of the STC, with respect to specific inter TO circuits and other circuits or equipment, where the TO can reasonably demonstrate that such data is required to discharge its TO obligations. Where User data is required this shall be requested from NGC.

3.4.5 NGC shall procure for the purposes of 3.4.4 above any required data from a User or Users, and shall ~~make such data available to the To~~agree the provision of such data.

4 Dispute Resolution

4.1.1 Dispute resolution procedure inline with STC XXXXXX

5 Appendices

Appendix A: General Terms/Conditions

A1: Terminology/Abbreviations

NGC National Grid Company

TO Transmission Owner

A2: Definitions

Other STCPs

~~STCP2-1:Class 3 Alarms~~

Datalink: As defined in STCP 4-2.

STC definitions used:

~~☐~~User

Transmission System

CUSC definitions used:

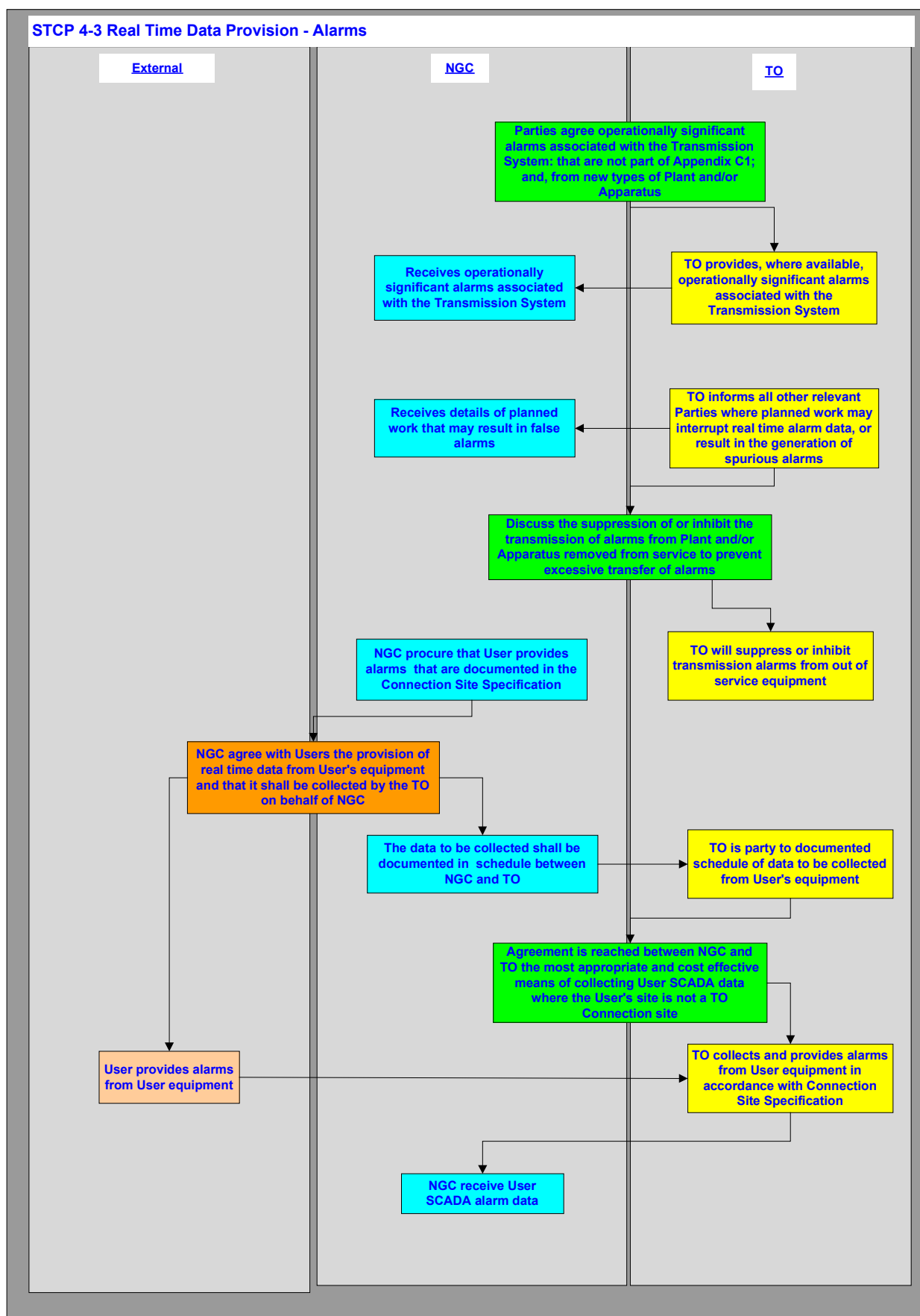
~~☐~~Plant

Apparatus

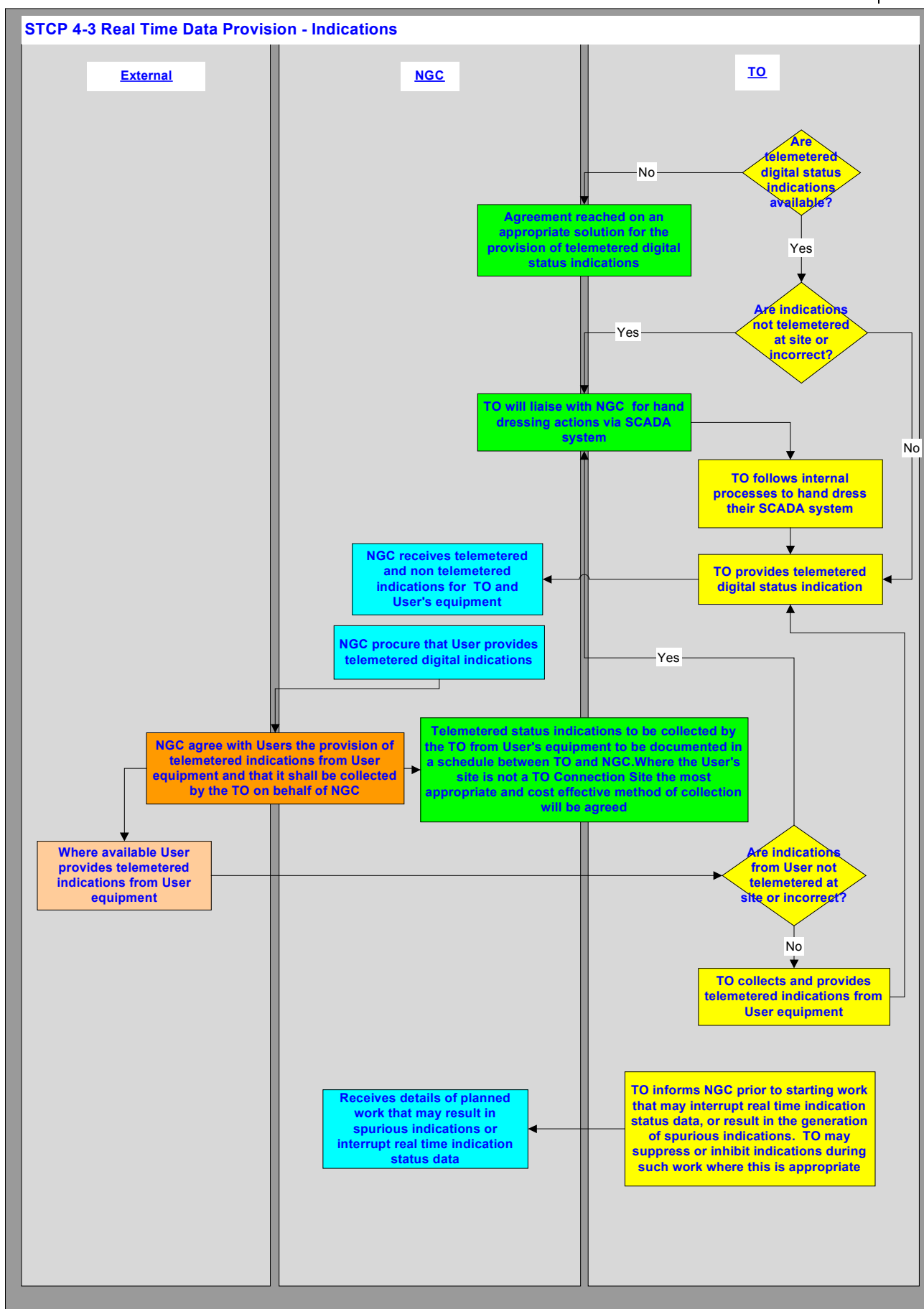
Connection Site

Appendix B - Flow Diagram

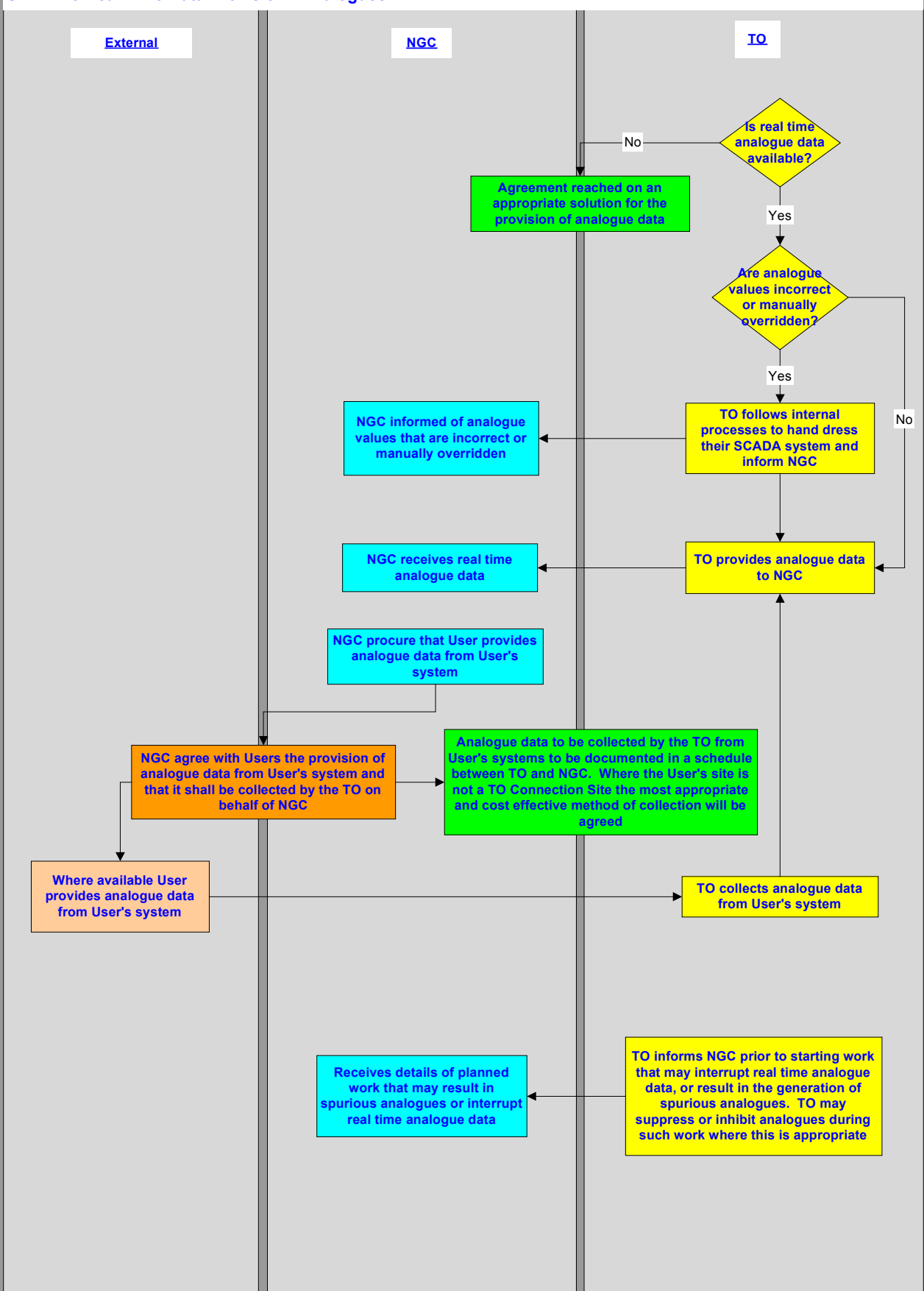
Note that the Process Diagrams shown in this Appendix B are for information only. In the event of any contradiction between the process represented in this Appendix and the process described elsewhere in this STCP, then the text elsewhere in this STCP shall prevail.

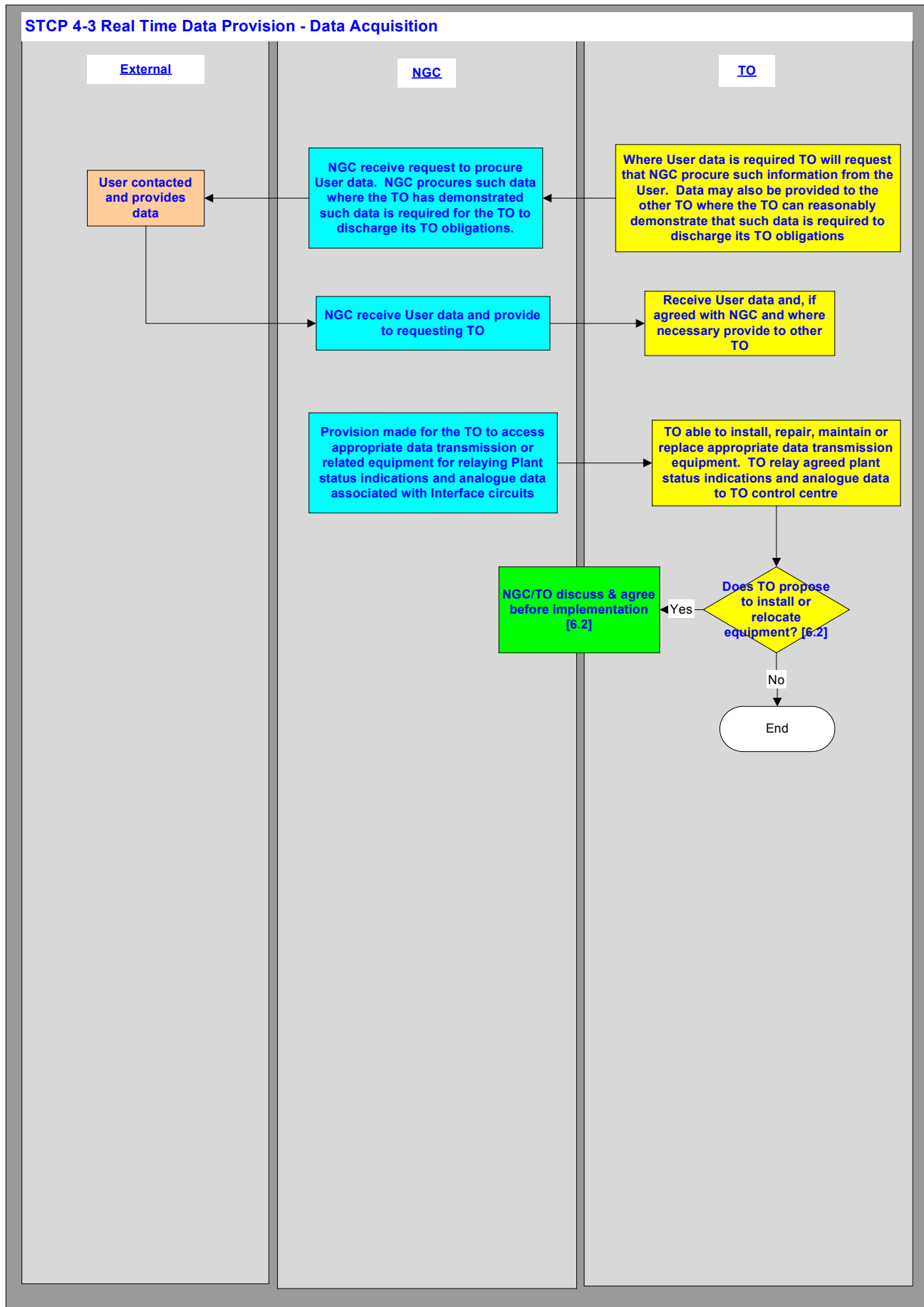


STCP 4-3 Real Time Data Provision - Indications



STCP 4-3 Real Time Data Provision - Analogues





Appendix C - Standard Forms/Certificates**C1 Generic Alarm Requirement**

Protection and Sequence Alarms	Condition Alarms
<i>Transformer Protection Operated Alarms</i>	<i>Transformer Protection / Cooling Faulty Alarms</i>
<i>Quad Booster Protection Operated Alarms</i>	<i>Quad Booster Protection/ Cooling Faulty Alarms</i>
<i>Reactive Compensation Protection Operated Alarms</i>	<i>Reactor Protection/ Cooling Faulty Alarms</i>
<i>Trip Relay Operated Alarms</i>	<i>Trip circuit Faulty Alarms</i>
<i>Circuit Main Protection Operated</i>	<i>Circuit Main Protection Faulty Alarms</i>
<i>Circuit Back up Protection Operated</i>	<i>Circuit breaker Operating / Insulating medium pressure Alarms</i>
<i>Inter trip Receive Alarms</i>	<i>Inter trip Faulty Alarms</i>
	<i>Protection Signalling Faulty Alarms</i>
<i>DAR Sequence / In Progress/ Operated/ Reset/ Incomplete / Locked out Alarms</i>	<i>DAR Scheme Faulty Alarms</i>
<i>Mesh Corner Protection Operated Alarms</i>	<i>Mesh Corner Protection Faulty Alarms</i>
<i>Busbar Protection Operated Alarms</i>	<i>Busbar Protection Faulty Alarms</i> <i>Busbar Gas pressure Alarms</i>
<i>Cable Protection Operated Alarms</i>	<i>Cable Pressure Alarms</i>
<i>Circuit Breaker Fail / Interlocked Over current Operated Alarms</i>	<i>Circuit Breaker Fail / Interlocked Over current Faulty Alarms</i>
	<i>Circuit Breaker / Switch Disconnecter Trip and Close lockout Alarms</i>

C2 Digital Status Indications Requirement

<i>Plant/ Apparatus /Equipment</i>	<i>Status Indication</i>
<i>Circuit Breaker</i>	<i>Open / Closed / DBI</i>
<i>Isolator</i>	<i>Open / Closed / DBI</i>
<i>Switch disconnecter / Isolator</i>	<i>Open / Closed / DBI</i>
<i>Protection Equipment</i>	<i>In / Out</i>
<i>DAR Equipment/ schemes</i>	<i>In / Out</i>
<i>Auto Switching Schemes</i>	<i>In/ Out and Selections</i>
<i>Demand/System/Ge nerator tripping schemes</i>	<i>In / Out and Selections</i>
<i>Fault thrower / ferro- resonance earth switch</i>	<i>Open / Closed (where available)</i>
<i>Blocking</i>	<i>In / Out</i>
<i>Ferro-resonance scheme</i>	<i>In/ Out</i>
<i>Zone 2 over ride</i>	<i>In / Out</i>
<i>Zone 1 extension</i>	<i>In / Out</i>
<i>Acceleration</i>	<i>In / Out</i>

C3 Analogue Data Requirement

<i>Plant / Apparatus / Equipment</i>	<i>Analogue Data</i>
<i>Feeder</i>	<i>MW / MVar / Volts / Amps* from each end</i>
<i>Transformer</i>	<i>Low Voltage MW / MVar / Amps* Volts: Winding temp / Tap position / MVar from tertiary winding where compensation is fitted</i>
<i>Quad Booster</i>	<i>MW / MVar / Volts / Amps* Winding temp / Tap position</i>
<i>Bus Section / Coupler CB</i>	<i>Amps</i>
<i>Shunt / Series Reactor</i>	<i>Mw / MVar / Winding Temp</i>
<i>Reactive compensation</i>	<i>MVar</i>
<i>General Site</i>	<i>Frequency / Transmission Voltage / User Interface Voltage</i>

** AMPS required if no other analogue readings are available*

C4 User's Data Requirements (Grid Code CC.6.5.6)**C4.1 Analogues / Metering**

Item	Analogue Data
Power Stations	–
Balancing Mechanism Unit	HV MW MVA _r Frequency
Individual Alternator	HV MW MVA _r
Interface with Transmission System	Voltage
Individual Unit Transformer	HV MW MVA _r
Site TGO	HV MW MVA _r
Other Users	
At Interface with Transmission System	MW MVAR Voltage

C4.2 Digital Status Indications

Item	Digital Status Indication
Power Stations	
All Generator circuits	LV and HV circuit breakers and disconnectors.
Unit Transformer	Circuit breaker
Each Generator Transformer	Tap Position Indicator
Other Users	
At Interface with Transmission System	Circuit Breakers and Disconnectors

