

STCP 04-3 Issue 00~~65~~ Real Time Data Provision

STC Procedure Document Authorisation

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

STC Procedure Change Control History

Issue 001	23/12/2004	BETTA Go-Live Version
Issue 002	20/04/2005	Issue 002 incorporating STCPAP002
Issue 003	25/10/2005	Issue 003 incorporating PA034 and PA037
Issue 004	24/06/2009	Issue 004 incorporating changes for Offshore Transmission
Issue 005	23/02/2016	Issue 005 incorporating PM085
<u>Issue 006</u>	<u>01/04/2017</u> <u>9</u>	<u>Issue 006 Incorporating National Grid Legal Separation Changes</u>

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 or other agreed system as agreed between the TO and NGESO.
- 1.1.2 This procedure applies to NGE~~SOT~~ and TOs, for the provision of specified alarms, analogues and indications, in real time via the Datalink or other agreed system as agreed between the TO and NGESO.-
- 1.1.3 For the purposes of this document, TOs are:
- NGET:
 - SPT;
 - SHET; 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
- 1.1.4 The obligations on NGE~~SOT~~ and TOs on the receipt of alarms are specified in STCP 2.1 (Alarm 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 NGE~~SOT~~ and TOs for the provision of real time data, including:
- generic alarms (specified in Appendix B1);
 - other specified alarms that are operationally significant;
 - alarms from new types of equipment that are operationally significant;
 - digital status indications (specified in Appendix B2);
 - analogue data (specified in Appendix B3); and
 - real time data related to Users' Systems (specified in Appendix B4).

2 Key Definitions

2.1 For the purposes of STCP04-3:

- 2.1.1 None

3 Procedure

3.1 Alarms

- 3.1.1 The TO shall provide to NGE~~SOT~~, where available, operationally significant alarms associated with the Transmission System. These are outlined in the generic table in Appendix B1.

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- 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 B1, but which are agreed with NGE~~SO~~ to be operationally significant. The schedules in Appendix B shall be updated to reflect the agreed TO/NGE~~SO~~ provision of new generic types of alarms, or reflect changes triggered by STCP 19-2.
- 3.1.3 The TO and NGE~~SO~~ 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 NGE~~SO~~, 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 NGE~~SO~~. Any such suppression or inhibition shall be removed prior to the equipment being returned to service, unless otherwise agreed with NGE~~SO~~.
- 3.1.5 NGE~~SO~~ shall procure that the User provides alarms from User equipment:
- as required by NGE~~SO~~ pursuant to the Grid Code;
 - as reasonably required by NGE~~SO~~; and
 - as reasonably required by the TO.
- These alarms shall be documented in the Connection Site Specification between NGE~~SO~~ and the TO. The TO shall then collect and forward these alarms to NGE~~SO~~.
- 3.1.6 NGE~~SO~~ 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 NGE~~SO~~. The data to be collected shall be (i) that required pursuant to the provisions of Grid Code, (ii) that reasonably required by NGE~~SO~~, and (iii) that reasonably required by the TO. All the data to be collected shall be documented in a schedule between NGE~~SO~~ 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 NGE~~SO~~ 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 NGE~~SO~~.

3.2 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 B2. Where this cannot be reasonably achieved, NGE~~SO~~ 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 NGE~~SO~~ and follow internal procedures for hand dressing actions on their SCADA system. These actions shall be reflected to NGE~~SO~~, via the Datalink or other system agreed between the TO and NGE~~SO~~ and shall appear as telemetered indications on the NGE~~SO~~ SCADA system or other agreed system.
- 3.2.3 The TO shall inform NGE~~SO~~ 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 NGE~~SO~~. Any such actions shall be removed, except otherwise agreed, prior to the equipment being returned to service.
- 3.2.4 NGE~~SO~~ shall procure that the User provides telemetered digital indications

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- as required by NGE~~SO~~~~F~~ pursuant to the Grid Code (see appendix B4.2);
- as reasonably required by NGE~~SO~~~~F~~; and
- as reasonably required by the TO.

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

- 3.2.5 Where telemetered indications from User equipment are not provided or are incorrect, the TO shall liaise with NGE~~SO~~~~F~~ and follow internal procedures for hand-dressing actions on their SCADA system. These actions shall be reflected to NGE~~SO~~~~F~~ via the Datalink or other system agreed between the TO and NGESO and shall appear as telemetered indications on the NGE~~SO~~~~F~~ SCADA ~~or other agreed system~~.
- 3.2.6 Where the User's site is not a TO Connection Site, agreement shall be reached between NGE~~SO~~~~F~~ 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 NGE~~SO~~~~F~~.

3.3 Analogues

- 3.3.1 The TO shall provide where available, real time analogue data, as defined in Appendix B3, from each transmission site. Where this cannot reasonably be achieved, NGE~~SO~~~~F~~ and the TO shall agree an appropriate solution.
- 3.3.2 The TO shall inform NGE~~SO~~~~F~~ 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 NGE~~SO~~~~F~~ via the Datalink or other system agreed between the TO and NGESO and shall appear as telemetered indications on the NGE~~SO~~~~F~~ SCADA. Any such actions shall be removed once the analogue is returned to normal.
- 3.3.3 The TO will inform NGE~~SO~~~~F~~ 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 conditions or excessive transmission of status information to NGE~~SO~~~~F~~. Any such actions shall be removed, except otherwise agreed, prior to the Plant and Apparatus being returned to service.
- 3.3.4 NGE~~SO~~~~F~~ shall procure that the User provides analogue data from the User's system
- as required by NGE~~SO~~~~F~~ pursuant to the Grid Code (see appendix B4.1);
 - as reasonably required by NGE~~SO~~~~F~~; and
 - as reasonably required by the TO.
- This analogue data shall be documented in a Connection Site Specification between NGE~~SO~~~~F~~ and the TO. The TO shall then collect and forward this analogue data to NGE~~SO~~~~F~~.
- 3.3.5 Where the User's site is not a TO Connection Site, agreement shall be reached between NGE~~SO~~~~F~~ 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 NGE~~SO~~~~F~~.

3.4 TO Data Acquisition

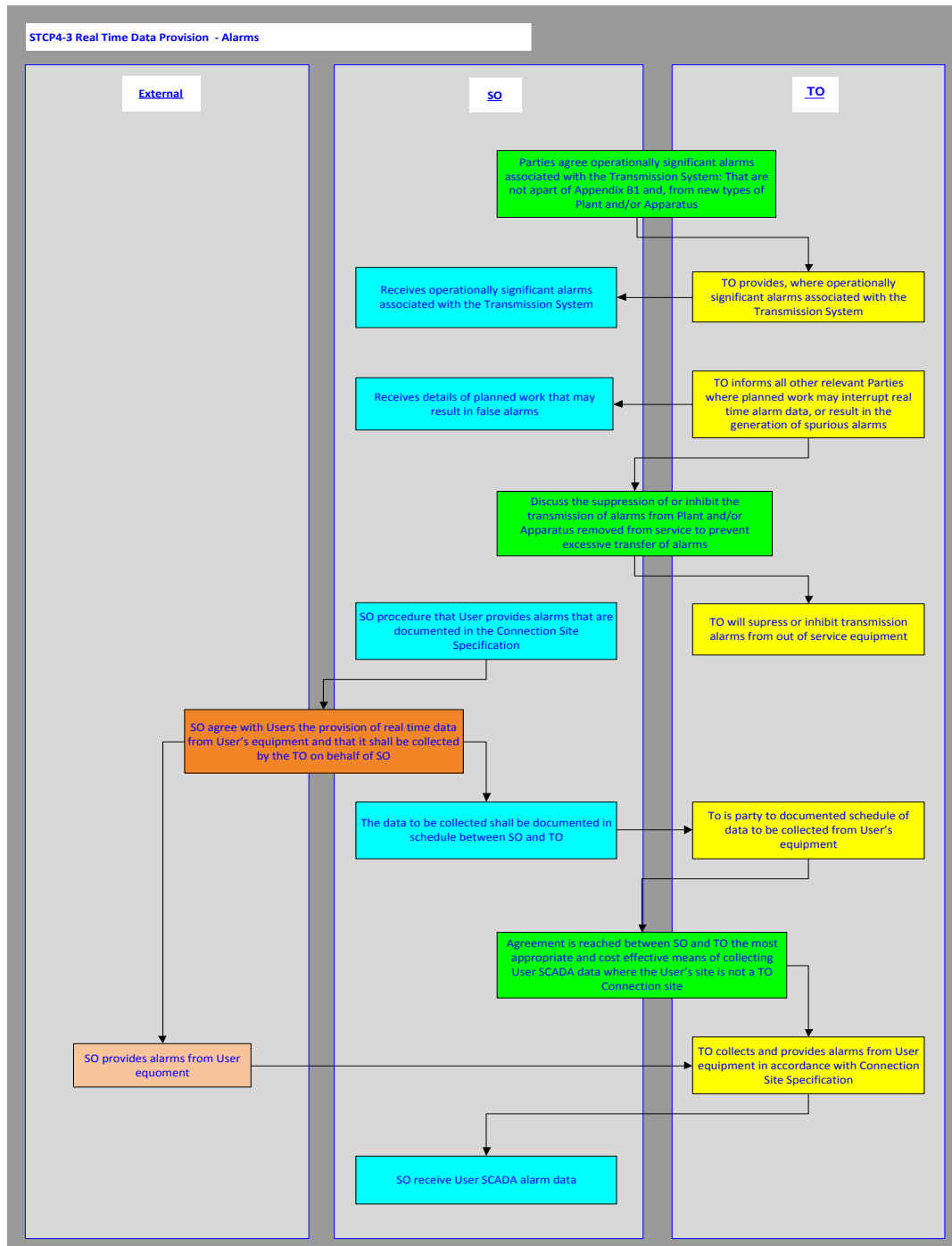
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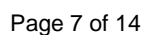
- 3.4.1 At ~~TO NGET~~ sites that connect with another TO's site, provision shall be made for the relevant TO to install, repair, maintain or replace appropriate data transmission equipment or related equipment, for the purpose of relaying agreed Plant status indications and analogue data associated with the connecting transmission circuits to the relevant TO.
- 3.4.2 At ~~NGET-TO~~ sites that connect with another TO's site, access to the relevant TO data transmission equipment or related equipment described in 3.4.1 shall be granted by ~~TO NGET~~ as appropriate between ~~NGET and~~ the relevant TO's. 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 NGE~~SOT~~.
- 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 NGE~~SOT~~.
- 3.4.5 NGE~~SOT~~ 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.

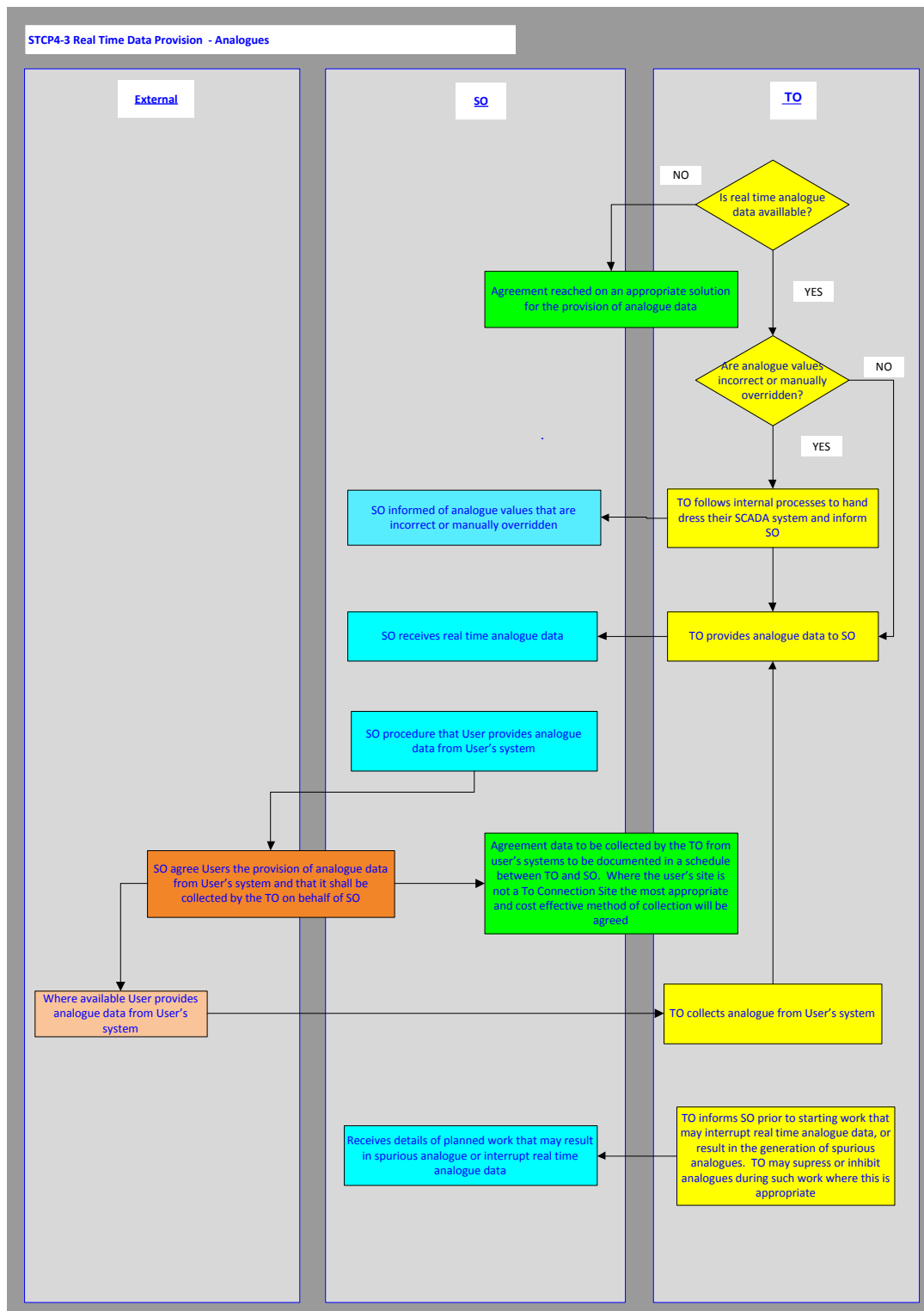
Appendix A - Flow Diagram

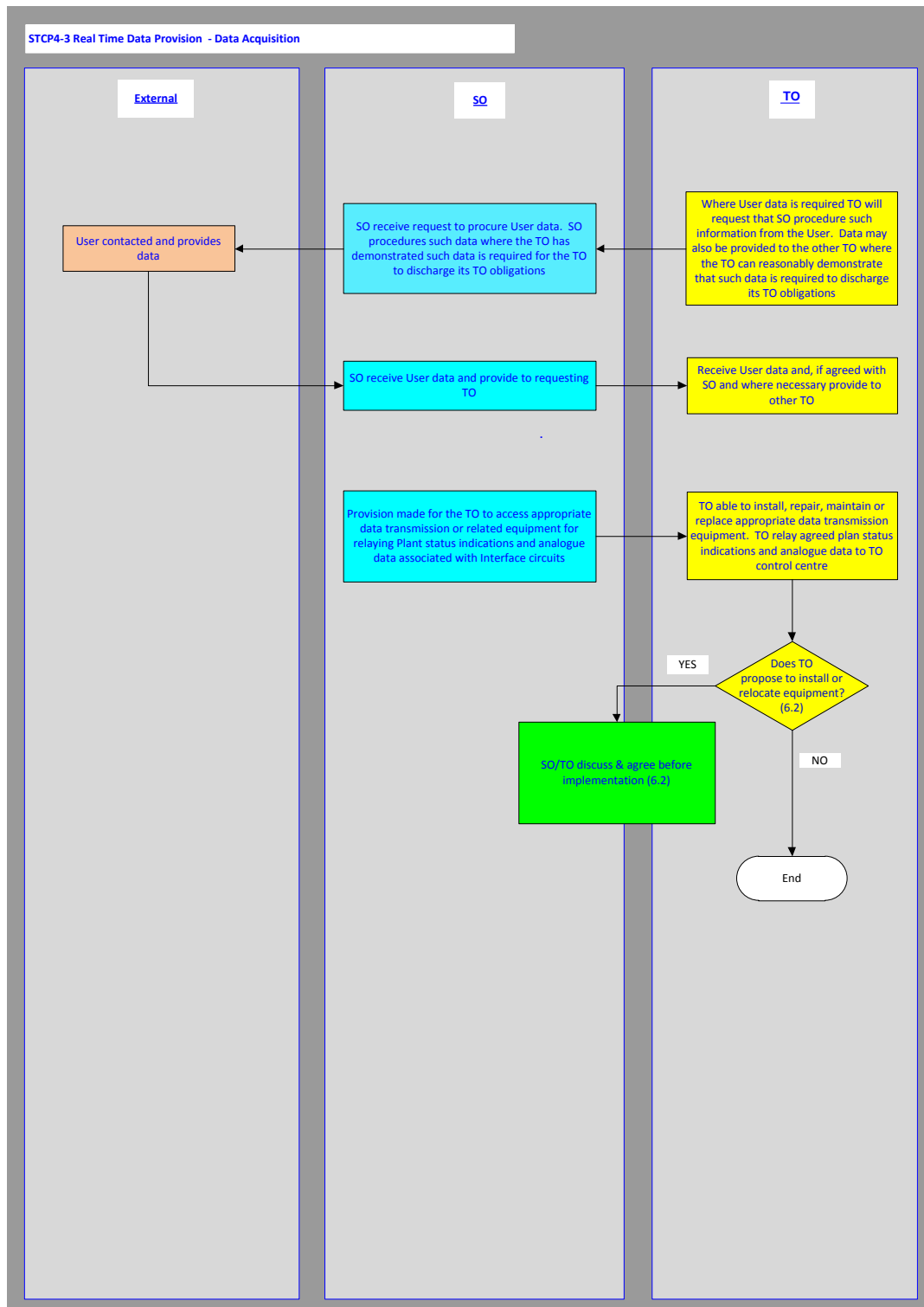
Note that the Process Diagrams shown in this Appendix A are for information only. In the event of any contradiction between the process represented in this Appendix and the process described elsewhere in this STCP, then the text elsewhere in this STCP shall prevail.



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Appendix B: Standard Forms/Certificates**B1 Generic Alarm Requirement**

Protection and Sequence Alarms <u>Class 1</u>	Condition Alarms <u>Class 2</u>
Transformer Protection Operated Alarms	Transformer Protection / Cooling Faulty Alarms
Quad Booster Protection Operated Alarms	Quad Booster Protection/ Cooling Faulty Alarms
Reactive Compensation Protection Operated Alarms	Reactor Protection/ Cooling Faulty Alarms
Trip Relay Operated Alarms	Trip circuit Faulty Alarms
Circuit Main Protection Operated	Circuit Main Protection Faulty Alarms
Circuit Back up Protection Operated	Circuit breaker Operating / Insulating medium pressure Alarms
Inter trip Receive Alarms	Inter trip Faulty Alarms
	Protection Signalling Faulty Alarms
DAR Sequence / In Progress/ Operated/ Reset/ Incomplete / Locked out Alarms	DAR Scheme Faulty Alarms
Mesh Corner Protection Operated Alarms	Mesh Corner Protection Faulty Alarms
Busbar Protection Operated Alarms	Busbar Protection Faulty Alarms Busbar Gas pressure Alarms
Cable Protection Operated Alarms	Cable Pressure Alarms
Ferroresonance protection operated/Active/initiated	
Circuit Breaker Fail / Interlocked Over current Operated Alarms	Circuit Breaker Fail / Interlocked Over current Faulty Alarms
	Circuit Breaker / Switch Disconnecter Trip and Close lockout Alarms

B2 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>

B3 Analogue Data Requirement

Plant / Apparatus / Equipment	Analogue Data
<i>Feeder</i>	<i>MW / MVA_r / Volts / Amps* from each end</i>
<i>Transformer</i>	<i>Low Voltage MW / MVA_r / Amps* Volts: Winding temp / Tap position / MVA_r from tertiary winding where compensation is fitted On both LV windings where applicable</i>
<i>Quad Booster</i>	<i>MW / MVA_r / Volts / Amps* Winding temp / Tap position</i>
<i>Bus Section / Coupler CB</i>	<i>Amps</i>
<i>Shunt / Series Reactor</i>	<i>Mw / MVA_r / Winding Temp</i>
<i>Reactive compensation</i>	<i>MVA_r</i>
<i>General Site</i>	<i>Frequency / Transmission Voltage / User Interface Voltage</i>
<i>Cables</i>	<i>Dynamic thermal rating in MVA</i>
<i>Interface Point (Embedded Transmission Only)</i>	<i>MW and MVA_r from High Accuracy Settlement Meters</i>

* AMPS required if no other analogue readings are available

B4 User's Data Requirements (Grid Code CC.6.5.6)

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B4.1 Analogues / Metering

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

B4.2 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

Appendix C: Abbreviations & Definitions

Abbreviations

~~NGET~~ ~~National Grid Electricity Transmission~~
SHET Scottish Hydro Electric Transmission plc
SPT SP Transmission plc
TO Transmission Owner

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Definitions

STC definitions used:

Apparatus
Connection Site
~~NGESO~~
~~NGET~~
~~NGET~~
Plant
Transmission System
User

Definition used from other STCPs:

Datalink: STCP04-2: Real Time Data Management
~~Class 1 Alarm: STCP02-1: Alarm and Event Management~~
~~Class 2 Alarm: STCP02-1: Alarm and event Management~~