

# ***STCP 04-3 Issue 006 Real Time Data Provision***

## ***STC Procedure Document Authorisation***

<b>Party</b>	<b>Name of Party Representative</b>	<b>Signature</b>	<b>Date</b>
National Grid Electricity System Operator Ltd			
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
Issue 006	01/04/2019	Issue 006 Incorporating National Grid Legal Separation Changes

## **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 system as agreed between the TO and NGESO.
- 1.1.2 This procedure applies to NGESO and TOs, for the provision of specified alarms, analogues and indications, in real time via the Datalink or other 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 NGESO 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 NGESO 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 NGESO, where available, operationally significant alarms associated with the Transmission System. These are outlined in the generic table in Appendix B1.

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

## **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, NGESO 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 NGESO and follow internal procedures for hand dressing actions on their SCADA system. These actions shall be reflected to NGESO, via the Datalink or other system agreed between the TO and NGESO and shall appear as telemetered indications on the NGESO SCADA system.
- 3.2.3 The TO shall inform NGESO 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 NGESO. Any such actions shall be removed, except otherwise agreed, prior to the equipment being returned to service.
- 3.2.4 NGESO shall procure that the User provides telemetered digital indications
- as required by NGESO pursuant to the Grid Code (see appendix B4.2);

- as reasonably required by NGESO; and
- as reasonably required by the TO.

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

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

### **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, NGESO and the TO shall agree an appropriate solution.
- 3.3.2 The TO shall inform NGESO 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 NGESO via the Datalink or other system agreed between the TO and NGESO and shall appear as telemetered indications on the NGESO SCADA. Any such actions shall be removed once the analogue is returned to normal.
- 3.3.3 The TO will inform NGESO 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 NGESO. Any such actions shall be removed, except otherwise agreed, prior to the Plant and Apparatus being returned to service.
- 3.3.4 NGESO shall procure that the User provides analogue data from the User's system
- as required by NGESO pursuant to the Grid Code (see appendix B4.1);
  - as reasonably required by NGESO; and
  - as reasonably required by the TO.

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

- 3.3.5 Where the User's site is not a TO Connection Site, agreement shall be reached between NGESO 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 NGESO.

### **3.4 TO Data Acquisition**

- 3.4.1 At TO 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.

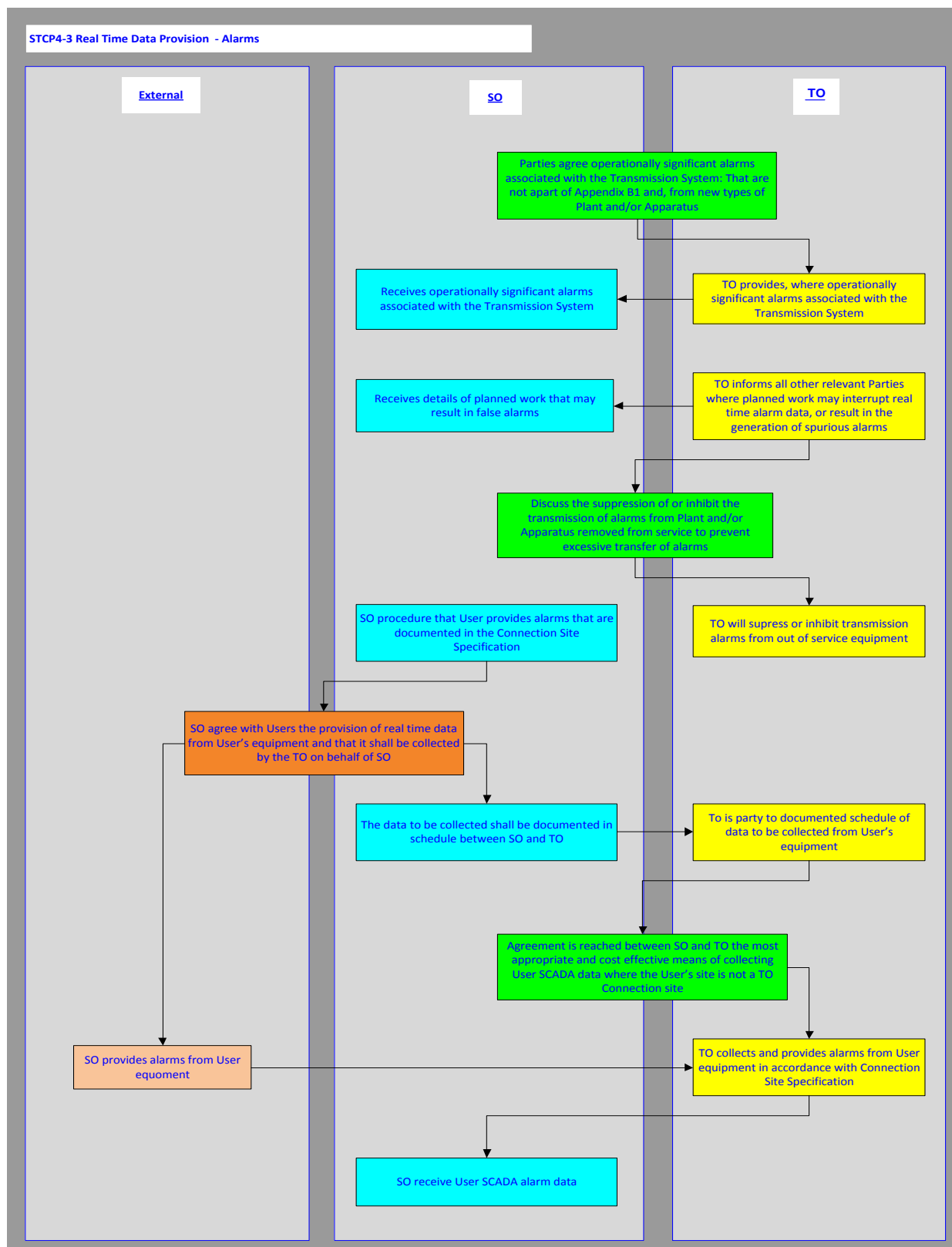
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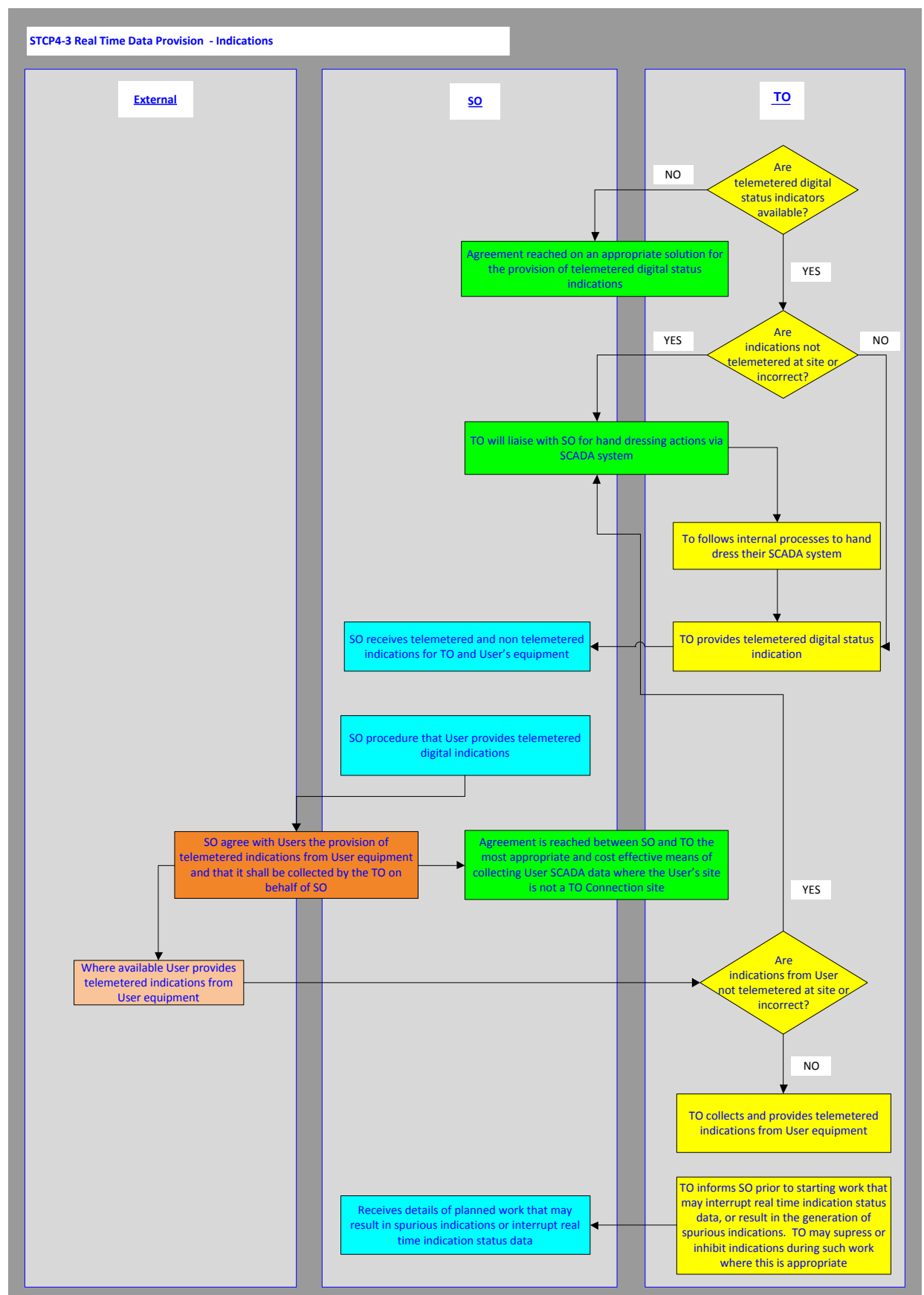
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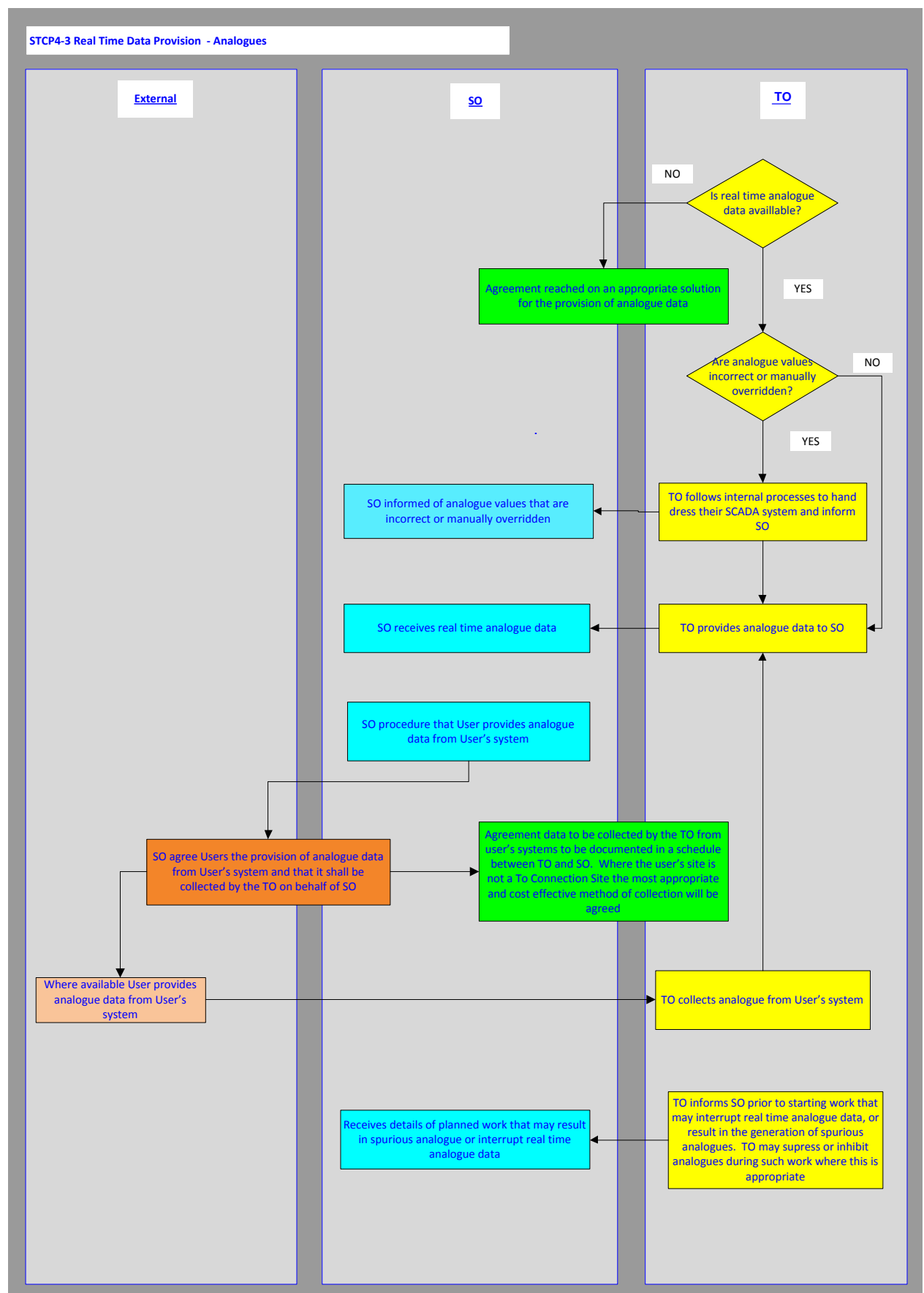
- 3.4.2 At TO sites that connect with another TO's site, access to the relevant TO data transmission equipment or related equipment described in 3.4.1 shall be granted by TO as appropriate between the relevant TO's. Any proposal to install or relocate such equipment shall be discussed and agreed by the two parties.
- 3.4.3 User SCADA data shall not be transmitted between TOs without the approval of the User and NGESO.
- 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 NGESO.
- 3.4.5 NGESO 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

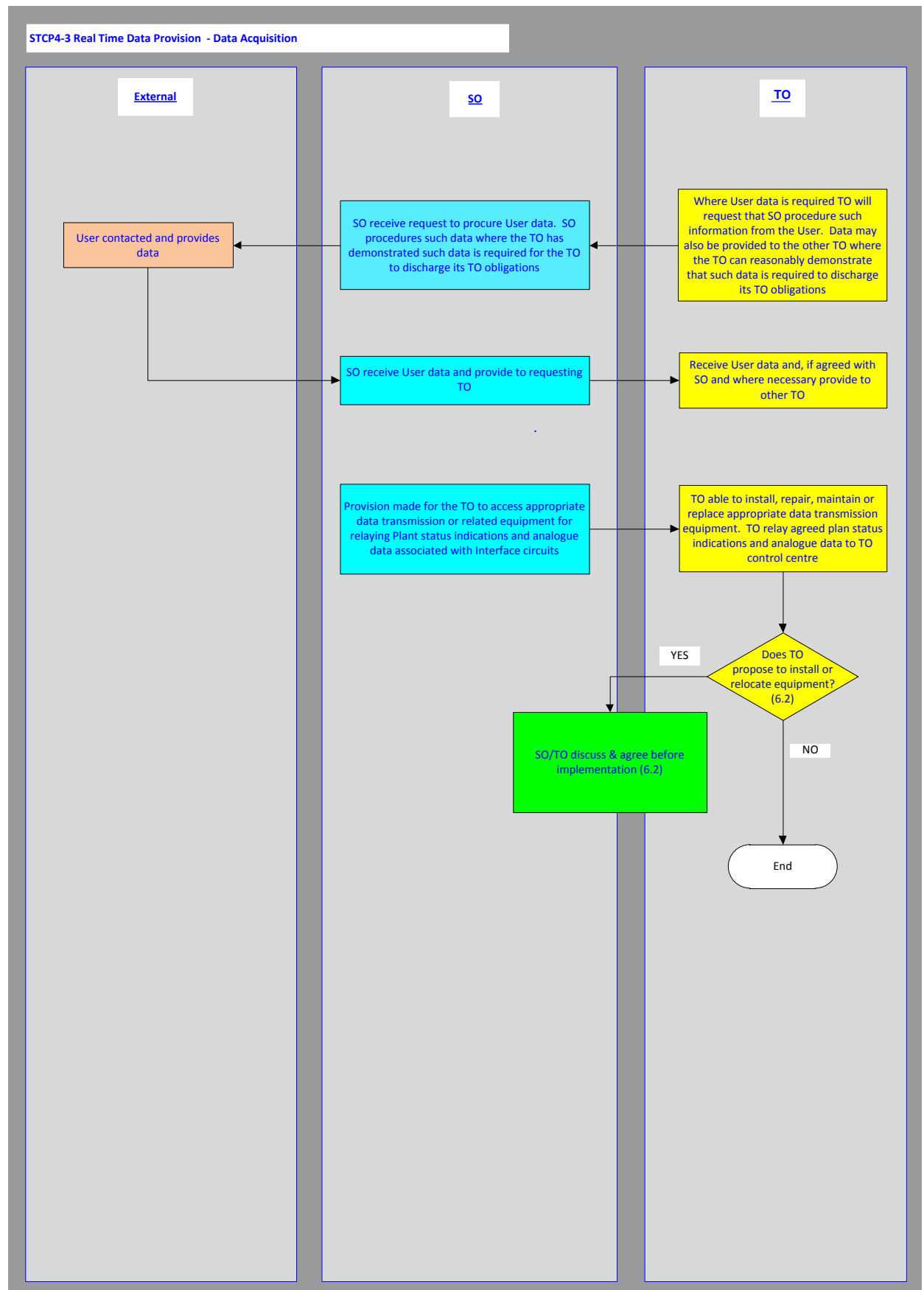
Note that the Process Diagrams shown in this Appendix A are for information only. In the event of any contradiction between the process represented in this Appendix and the process described elsewhere in this STCP, then the text elsewhere in this STCP shall prevail.











## Appendix B: Standard Forms/Certificates

### B1 Generic Alarm Requirement

<b>Protection and Sequence Alarms Class 1</b>	<b>Condition Alarms Class 2</b>
<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>

**B2 Digital Status Indications Requirement**

<b><i>Plant/ Apparatus /Equipment</i></b>	<b><i>Status Indication</i></b>
<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**

<b><i>Plant / Apparatus / Equipment</i></b>	<b><i>Analogue Data</i></b>
<i>Feeder</i>	<i>MW / MVA<sub>r</sub> / Volts / Amps* from each end</i>
<i>Transformer</i>	<i>Low Voltage MW / MVA<sub>r</sub> / Amps* Volts: Winding temp / Tap position / MVA<sub>r</sub> from tertiary winding where compensation is fitted On both LV windings where applicable</i>
<i>Quad Booster</i>	<i>MW / MVA<sub>r</sub> / Volts / Amps* Winding temp / Tap position</i>
<i>Bus Section / Coupler CB</i>	<i>Amps</i>
<i>Shunt / Series Reactor</i>	<i>Mw / MVA<sub>r</sub> / Winding Temp</i>
<i>Reactive compensation</i>	<i>MVA<sub>r</sub></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<sub>r</sub> 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 and ECC.6.5.6)****B4.1 Analogues / Metering**

Item	Analogue Data
<b>Power Stations</b>	–
Balancing Mechanism Unit	HV MW MVA <sub>r</sub> Frequency
Individual Alternator	HV MW MVA <sub>r</sub>
Interface with Transmission System	Voltage
Individual Unit Transformer	HV MW MVA <sub>r</sub>
Site TGO	HV MW MVA <sub>r</sub>
Power Available	MW
<b>Other Users</b>	
At Interface with Transmission System	MW MVAR Voltage

**B4.2 Digital Status Indications**

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

## ***Appendix C: Abbreviations & Definitions***

**Abbreviations** SHET Scottish Hydro Electric Transmission plc

SPT SP Transmission plc

TO Transmission Owner

### ***Definitions***

#### **STC definitions used:**

Apparatus

Connection Site

NGESO

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