

CONTROL TELEPHONY ELECTRICAL STANDARD

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1. Purpose

The purpose of this document is to define the **Control Telephony** requirements between **Users** of the **Transmission System** (such as **Generators**, **HVDC System Owners**, **Network Operators**, **Restoration Service Providers** (as applicable) and **Non-Embedded Customers**) and National Grid ESO who will implement these requirements in co-ordination with the **Relevant Transmission Licensees** where applicable.

In the case of **Restoration Service Providers**, the **Anchor Restoration Contract** or **Top Up Restoration Contract** will state whether **Control Telephony** is required. In general, **Control Telephony** would be required from any **Restoration Service Provider** who is party to a **Local Joint Restoration Plan**. In the case of **Restoration Service Providers** forming part of a **Distribution Restoration Zone Plan** the requirements for telephony will be specified by the **Network Operator**.

Control Telephony and **Automatic Logging Devices** such as EDL (Electronic Despatch Logging) or API (Application Protocol Interface) are the two principal tools used by National Grid ESO in instructing **Users** to control the **Total System**.

This document only covers the requirements for **Control Telephony**. The requirements for other communications standards are covered in National Grid ESO's Communications Standards which are available on the National Grid ESO Website under the Grid Code Electrical Standards documents page.

As defined in Grid Code CC.6.5.2.1 and ECC.6.5.2.1, **Control Telephony** is the principal method by which a **User's Responsible Engineer / Operator**, the **Relevant Transmission Licensee's Control Engineers** and National Grid ESO **Control Engineers** speak to one another for the purposes of controlling the **Total System** under both normal and emergency operating conditions. **Control Telephony** provides secure point to point telephony for routine **Control Calls** and emergency **Control Calls**.

This document covers the technical requirements for **Control Telephony** between National Grid ESO and **Users** of the **Transmission System**. Strictly the communication requirements between National Grid ESO and the **Relevant Transmission Licensees** fall under the **System Operator Transmission Owner Code** (STC) and in particular STCP 04-5 (Operational Telephony), but the communication system equipment provided by National Grid ESO (in co-ordination with the **Relevant Transmission Licensees**) conforms to the requirements of this document.

It should be noted that **Relevant Transmission Licensees** in coordination with National Grid ESO will need to liaise with **User's (and Restoration Service Providers where relevant)** in order to facilitate the installation and coordination of **Control Telephony**. The **Relevant Transmission Licensee** obligations are defined in the **STC** and any relevant **TO Construction Agreement**.

System Telephony is an alternative tool used by National Grid ESO and **Relevant Transmission Licensee's** in instructing **Users** to control the **Total System**.

2. Introduction

The Grid Code requirements and the high level functionality for **Control Telephony** across Great Britain are described in CC.6.5.2 to CC.6.5.5 and ECC.6.5.2 to ECC.6.5.5, in addition to the [applicable](#) requirements of CC.7.10.4 and ECC.7.10.4. This **Electrical Standard** describes in more detail the technical interfaces and support requirements for **Control Telephony** between **Users**, [relevant Restoration Service Providers](#), National Grid ESO and **Relevant Transmission Licensees**.

This **Electrical Standard** gives **Users** background and technical information regarding the **Control Telephony System** that National Grid ESO in co-ordination with **Relevant Transmission Licensees** provides at **Control Points** or **Control Centres**.

This **Electrical Standard** also allows **Users** [and relevant Restoration Service Providers](#) to understand the requirements of the **Control Telephony System** should a **User** [or relevant Restoration Service Provider](#) decide to integrate the provided **Control Telephony System** with its own telephony system.

This **Electrical Standard** only contains generic information for **Control Telephony**. There may be situations where additional obligations relating to **Control Telephony** or the **Control Telephony System** may be required on a site-specific basis, for example at **Grid Supply Points**. Such site-specific details for **Control Telephony** will be specified in the **Bilateral Agreement** [or in an Anchor Restoration Contract or Top Up Restoration Contract](#).

For the purposes of this document, any reference to National Grid ESO also includes any person, service provider or company nominated by National Grid ESO (which may include the co-ordinated role provided by a **Relevant Transmission Licensee** under the **STC**) to fulfil its obligations described in this document.

3. Scope

This **Electrical Standard** applies to National Grid ESO (in co-ordination with the **Relevant Transmission Licensees** as provided for in **System Operating Code Transmission Owner Code** Procedure STCP 04-5 and to **Users** [and relevant Restoration Service Providers](#) (in the **GB Synchronous Area** only), who are required to have **Control Telephony**. For the avoidance of doubt it also applies to **Users** [and relevant Restoration Service Providers](#) connected to **Offshore Transmission Systems** even if those **Offshore Transmission Systems** comprise **HVDC Systems**.

For the purposes of this **Electrical Standard**, **Users** include:

- (a) **Generators** (other than those which only own and operate either **Embedded Medium Power Stations** who do not have a **BEGA** agreement with National Grid ESO or **Embedded Small Power Stations** who do not have a **BEGA** agreement with National Grid ESO);
- (b) **Network Operators** (including **Transmission Owners** via the **STC**);
- (c) **Non-Embedded Customers**;
- (d) **DC Converter Stations** owners and **HVDC System Owners**; and
- (e) **BM Participants** and **Externally Interconnected System Operators**; and
- (f) **Relevant Restoration Service Providers** where specified in the **Anchor Restoration Contract** or **Top Up Restoration Contract**.

The provisions of this **Electrical Standard** will, in the case of **Network Operators**, apply to their **Control Centres**, and in the case of all other **Users** and **relevant Restoration Service Providers** listed above, apply at the relevant **Control Points** or control rooms.

The provisions of this **Electrical Standard** will, in the case of National Grid ESO apply to the **ENCC**.

4. Definitions

In this document, any emboldened words are defined below, some of which are Grid Code terms.

<u>Anchor Restoration Contract</u>	<u>As defined in the Glossary and Definitions of the Grid Code.</u>
<u>Automatic Logging Devices</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Bilateral Agreement</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Bilateral Embedded Generation Agreement or BEGA</u>	As defined in Section 11.3 (Definitions) of the Connection and Use of System Code (CUSC).
<u>Black Start</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Black Start Service Provider</u>	As defined in the Glossary and Definitions of the Grid Code.

<u>BM Participant</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Calls</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Centre</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Engineer</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Phone</u>	A conventional telephone handset which is connected to the Control Telephony System and which has a capability as defined in CC.6.5.5 or ECC.6.5.5 of the Grid Code.
<u>Control Point</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Telephony</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Control Telephony System</u>	The system provided by Relevant Transmission Licensees in co-ordination with National Grid ESO to carry Control Telephony communications.
<u>DC Converter Stations</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Defence Service Provider</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Demand</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Disaster Recovery or DR</u>	As defined in section 8 of this document.
<u>Distribution Restoration Zone Plan</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Electrical Standard</u>	As defined in the Glossary and Definitions of the Grid Code.

<u>Embedded Small Power Stations</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Emergency Control Call</u>	A Control Call initiated by dialling the emergency code. On encountering network congestion, an emergency call will automatically disconnect non-emergency calls. These calls are announced distinctively to the recipient.
<u>ENCC</u>	The National Grid ESO Electricity National Control Centre.
<u>Externally Interconnected System Operators</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>GB Synchronous Area</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Generator</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Grid Supply Point</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>HVDC System</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>HVDC System Owner</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Leased Line</u>	A telecommunications circuit provided by a public telecommunications operator for the sole use of Control Telephony .
<u>Local Joint Restoration Plan</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Mains Independence</u>	In the event of loss of external electrical energy supplies, the capability to ensure that there shall be no loss of, or disruption to Control Telephony for at least the duration specified in section 11 of this Electrical Standard . To comply with this requirement an alternative power source is required that is independent of external electrical energy supplies and is automatically switched into

	service without manual intervention. Beyond the specified duration, the alternative power source should be capable of providing power indefinitely with manual intervention (eg refuelling) unless automatic arrangements are in place.
<u>Network Operator</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>MPLS</u>	Multiprotocol Label Switching (a routing technique in telecommunications networks that directs data from one node to the next based on labels).
<u>Non-Embedded Customer</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Operational Telephony System</u>	A term used in the STC which has the same meaning as the Control Telephony System .
<u>Pilot Cable</u>	Privately owned telecommunications circuit provided on a dedicated cable within a site or between sites in close proximity to each other.
<u>Registered Capacity</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Relevant Transmission Licensee</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Responsible Engineer / Operator</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Restoration Service Provider</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Routine Control Call</u>	A Control Call with normal (i.e. non-emergency) status.
<u>SLA</u>	Service Level Agreement.
<u>System Operator Transmission Owner Code or STC</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>System Restoration</u>	As defined in the Glossary and Definitions of the Grid Code.

<u>System Telephony</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>TO Construction Agreement</u>	As defined in Section J of the System Operator Transmission Owner Code or STC .
<u>Top Up Restoration Contract</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Total System</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Transmission Network Control Centre or TNCC</u>	A Transmission Licensee's Transmission Network Control Centre.
<u>Transmission Licensee</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Transmission System</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>Trunk Line</u>	A telecommunications line to the Control Telephony System for the purpose of carrying telephone calls. A Trunk Line is provided over a Mains Independent communications bearer which may include a Leased Line or a Pilot Cable or other appropriate medium (eg private radio, microwave etc). For BM Participants , other than Restoration Service Providers , with a total aggregated Registered Capacity or Demand capacity of less than 100MW an MPLS communications service may be used for the Control Telephony System .
<u>User</u>	As defined in the Glossary and Definitions of the Grid Code.
<u>User Site</u>	As defined in the Glossary and Definitions of the Grid Code.

5. **Overview of Control Telephony Network**

The **Control Telephony System** is a highly resilient private telephony network used to carry **Control Calls** for both the day-to-day management of the **GB System**, and for emergency management. This extends to [System Restoration](#) requirements where National Grid ESO contact with ~~Black Start~~

~~Restoration Black Start~~ **Service Providers** directly where required by a **Local Joint Restoration Plan**.

The entire **Control Telephony System** is resilient to a complete loss of mains electricity and will continue to operate normally following a mains power loss as required by Section 11. The **Control Telephony System** has no reliance on the public communications network which may suffer congestion during power blackouts or other events affecting the general public.

National Grid ESO in coordination with the **Relevant Transmission Licensee** is responsible for the installation and maintenance of the **Control Telephony System** (and **Control Phones** where required) unless otherwise stated in the **Bilateral Agreement** with the User or relevant Restoration Service Provider in the Anchor Restoration Contract or Top Up Restoration Contract.

6. Provision of Services at Control Points and Control Centres

Where National Grid ESO specifies that **Control Telephony** is required at a **Control Point** or **Control Centre**, the **Relevant Transmission Licensee** in co-ordination with National Grid ESO will normally provide a **Trunk Line** to the **Control Point** or **Control Centre** for the User or relevant Restoration Service Provider to terminate the **Control Telephony System** on their own **Control Point** or **Control Centre** telephony system.

By agreement as an alternative to the above arrangement, the **Relevant Transmission Licensee** in co-ordination with National Grid ESO will provide one **Control Phone** which will be connected to form part of the **Control Telephony System** via a **Trunk Line**. In general, the **Trunk Line** equipment will be provided by the **Relevant Transmission Licensee** in co-ordination with National Grid ESO at the **Control Point** or **Control Centre**. The **Relevant Transmission Licensee** in coordination with National Grid ESO may also install a second **Control Phone** for System Restoration~~Black Start~~. This is described in further detail in section 10.

A combination of the above service provisions may also be employed.

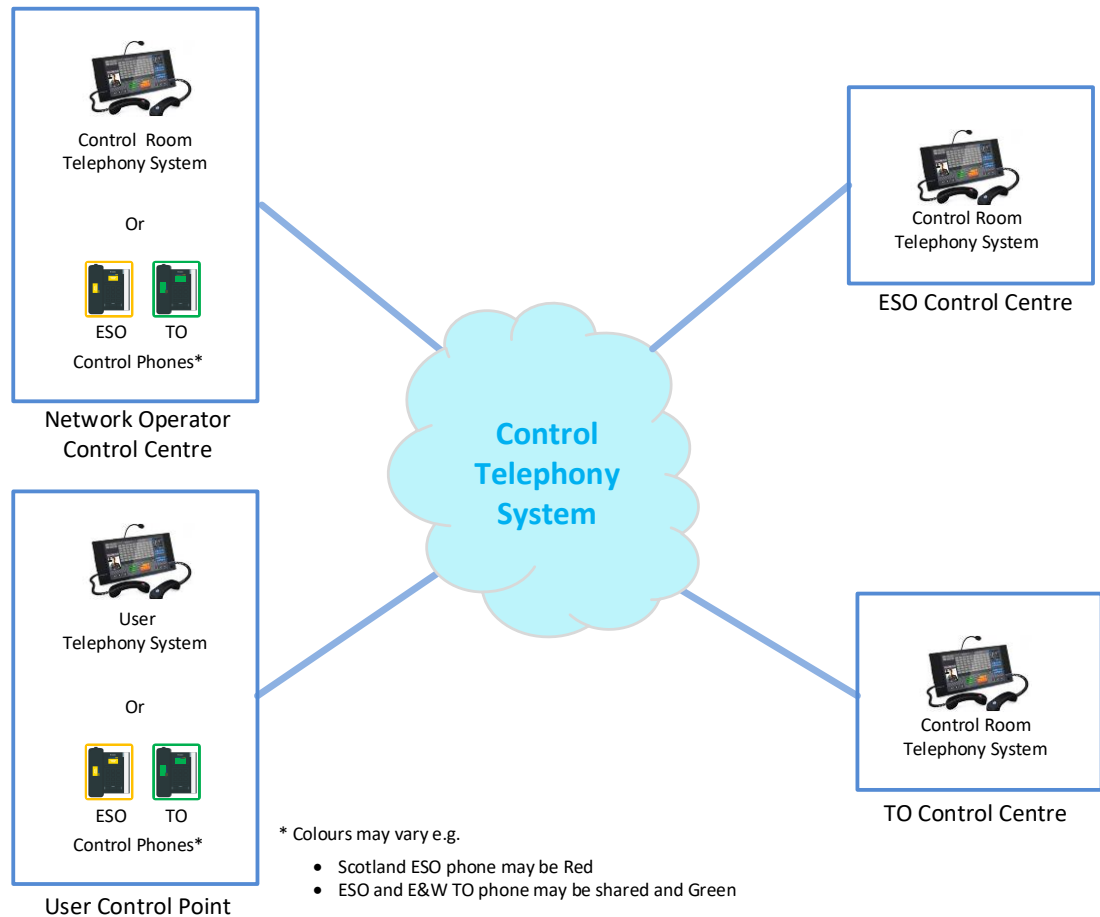


Figure 1 General Control Telephony Arrangements

The general arrangements are shown in Figure 1.

The **User** and relevant Restoration Service Provider will be responsible for **Mains Independence** for the **Control Telephony** equipment at their site.

National Grid ESO in coordination with the **Relevant Transmission Licensee** will be responsible for installing the **Control Telephony System** to the **User's** or relevant Restoration Service Providers **Control Point** or **Control Centre**. The **User** will be responsible for the internal site wiring from the **Control Telephony System** to the control room desk(s).

7. Presentation of Calls and making Routine and Emergency Control Calls at Control Points

At locations where the **Control Telephony System** is connected to a **Control Point** or **Control Centre** telephony system, that telephony system shall have pre-programmed facilities to allow rapid initiation of **Routine Control Calls** and

Emergency Control Calls and shall present incoming calls from the **ENCC** and from the **Relevant Transmission Licensee's Control Centre** in a way that distinguishes them from other calls received.

At locations where a **Control Phone(s)** is provided it shall be installed in a prominent position at the **Control Point** suitable for use by operational staff. The **Control Phone** has pre-programmed settings to allow rapid dialling. This feature is provided for making **Routine Control Calls** and **Emergency Control Calls**. An incoming **Routine Control Call** is indicated by a continuous ringing signal.

In both the above cases **Emergency Control Calls** automatically override network congestion by disconnecting routine calls and are presented with a distinctive ringing signal at the **ENCC**.

On receipt of an incoming **Control Call**, operational staff must be made aware that the **ENCC** or the **Relevant Transmission Licensee's Control Centre** is making either a **Routine Control Call** or **Emergency Control Call** to the **User or relevant Restoration Service Provider**. Incoming **Emergency Control Calls** from the **ENCC** or the **Relevant Transmission Licensee's Control Centre** shall be presented in a way that distinguishes them from **Routine Control Calls** and gives them the appropriate priority. Facilities must be provided to allow for the rapid initiation of **Routine** and **Emergency Control Calls** to the **ENCC** or the **Relevant Transmission Licensee's Control Centre**.

If incoming calls are queued by the **User's or relevant Restoration Service Provider's** system, **Control Calls** must be given priority over other calls at the **User's or relevant Restoration Service Provider's** site, as if they were presented on a separate **Control Phone**.

If calls from separate desks at the **User's or relevant Restoration Service Provider's Control Point** or **Control Centre** are required to be identified uniquely at the **ENCC** or the **Relevant Transmission Licensees Control Centre** e.g. if a **Network Operator** manages more than one electricity licence area, then separate numbers will be allocated by National Grid ESO for each area.

8. Control Telephony Disaster Recovery Arrangements for Network Operator Control Centres

Network Operators must have arrangements in place to transfer **Control Telephony** calls from their main **Control Centre** to their contingency **Control Centre** when the contingency site is operational. For each **Network Operator**, actual provision of services and changeover arrangements may require separate technical and operational agreement between National Grid ESO, the **Relevant Transmission Licensee** and the **Network Operator**.

9. Costs associated with the Control Telephony Service

Relevant Transmission Licensees in co-ordination with National Grid ESO shall be responsible for the service up-to the **Control System Telephone** interface on the **User's or relevant Restoration Service Provider's Control Point or Control Centre** telephony system.

Where National Grid ESO in co-ordination with the **Relevant Transmission Licensee** provides the **Control Phone(s)** the **Relevant Transmission Licensee** in co-ordination with National Grid ESO is responsible for providing and supporting the **Control Telephony** service at **Control Points** and **Control Centres**.

Where the **User or relevant Restoration Service Provider** requires existing **Control Telephony System** equipment to be moved to an alternative location (e.g. due to site relocation) the **User or relevant Restoration Service Provider** will be expected to pay all reasonable costs incurred by the **Relevant Transmission Licensee** and/or National Grid ESO to move the equipment.

10. System Restoration~~Black Start~~ Assured Service

Where a **Restoration Service Provider**~~User~~ is required to participate in a **Local Joint Restoration Plan**, the **Relevant Transmission Licensee** in co-ordination with National Grid ESO will provide sufficient capacity (and **Control Phones** if appropriate) to enable the **Local Joint Restoration Plan** to be implemented without encountering congestion. In the case of Distribution Restoration Zone Plans, the relevant Network Operator will be responsible for the telephony requirements with Restoration Service Providers.

In the case where National Grid ESO in coordination with the **Relevant Transmission Licensee** has provided a **Control Phone** and where a **Restoration Service Provider**~~Black Start Power Station~~ is required to communicate with a **Network Operator** and the **ENCC**, two separate **Control Phones** shall be installed at the Restoration Service Provider's site.~~Black Start Power Station.~~

National Grid ESO and **Restoration Service Providers**~~the User~~ will implement frequent testing of these facilities in accordance with the requirements of CC/ECC.6.5.4.4 of the Grid Code to ensure they are in good working order and the operational staff are familiar with its use.

11. Technical Standards and Service Levels

The following service levels apply to the **Control Telephony System** including those parts of the **Control Telephone System** located on **User's' and relevant Restoration Service Providers** sites and via **Users' and relevant Restoration Service Providers** telephony systems. The **User or relevant Restoration Service Provider** is responsible for providing site access for National Grid ESO and the **Relevant Transmission Licensee** so they can meet the **SLAs** quoted.

Description	Standard/SLA
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Control Telephony System	<p>Equipment:</p> <ul style="list-style-type: none"> • Control Telephony System equipment • Trunk Line <p>At Control Points at Black Start Restoration Service Providers' premises: 5hr fix, 24 hrs/day, 365/6 days/yr</p> <p>At Network Operators' Control Centres: 5hr fix, 24 hrs/day, 365/6 days/yr</p> <p>Parties which do not have -Anchor Restoration Contracts or Top Up Restoration Contracts Black Start contracts: 5hr fix 8am-6pm normal business days</p>
Mains Independence duration	<p>Network Operators' Control Points shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.</p> <p>Control Centres of relevant Restoration Service Providers Generators with Black Start Power Stations shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.</p> <p>Control Centres / Control Rooms of other User's Restoration Service Providers shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.</p> <p>For other Control Points at least 24 hours.</p>