

**CONTROL TELEPHONY**

**ELECTRICAL STANDARD**

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# 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 and Non-Embedded Customers) and National Grid ESO who will implement these requirements in co-ordination with the Relevant Transmission Licensees where applicable.

**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 Nation 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** 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**.

# 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 requirements of CC.7.10.1 and ECC.7.10.1. This **Electrical Standard** describes in more detail the technical interfaces and support requirements for **Control Telephony** between **Users**, National Grid ESO and **Relevant Transmission Licensees**.

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

This **Electrical Standard** also allows **Users** to understand the requirements of the **Control Telephony** **System** should a **User** 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**.

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.

# 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** (in the **GB Synchronous Area** only), who are required to have **Control Telephony**. For the avoidance of doubt it also applies to **Users** connected to **Offshore Transmission Systems** even if those **Offshore Transmission Systems** comprise **HVDC Systems**.

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

1. **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);
2. **Network Operators** (including **Transmission Owners** via the **STC**);
3. **Non-Embedded Customers**;
4. **DC Converter Stations** owners and **HVDC System Owners**; and
5. **BM Participants** and **Externally Interconnected System Operators**.

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** listed above, apply at the relevant **Control Points** or control rooms.

The provisions of this **Electrical Standard** will, in the case of National Grid ESOapply tothe **ENCC**.

# 4. Definitions

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

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| **Automatic Logging**  **Devices** | As defined in the Glossary and Definitions of the Grid Code. |
| **Bilateral Agreement** | As defined in the Glossary and Definitions of the Grid Code. |
| **Bilateral Embedded Generation Agreement** or **BEGA** | As defined in Section 11.3 (Definitions) of the Connection and Use of System Code (CUSC). |
| **Black Start** | As defined in the Glossary and Definitions of the Grid Code. |
| **Black Start Service Provider** | As defined in the Glossary and Definitions of the Grid Code. |
| **BM Participant** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Calls** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Centre** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Engineer** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Phone** | 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. |
| **Control Point** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Telephony** | As defined in the Glossary and Definitions of the Grid Code. |
| **Control Telephony System** | The system provided by **Relevant Transmission Licensees** in co-ordination with National Grid ESO to carry **Control Telephony** communications. |
| **DC Converter Stations** | As defined in the Glossary and Definitions of the Grid Code. |
| **Defence Service Provider** | As defined in the Glossary and Definitions of the Grid Code. |
| **Demand** | As defined in the Glossary and Definitions of the Grid Code. |
| **Disaster Recovery or DR** | As defined in section 8 of this document. |
| **Electrical Standard** | As defined in the Glossary and Definitions of the Grid Code. |
| **Embedded Small Power Stations** | As defined in the Glossary and Definitions of the Grid Code. |
| **Emergency Control Call** | 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. |
| **ENCC** | The National Grid ESO Electricity National Control Centre. |
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| **Externally Interconnected System Operators** | As defined in the Glossary and Definitions of the Grid Code. |
| **GB Synchronous Area** | As defined in the Glossary and Definitions of the Grid Code. |
| **Generator** | As defined in the Glossary and Definitions of the Grid Code. |
| **Grid Supply Point** | As defined in the Glossary and Definitions of the Grid Code. |
| **HVDC System** | As defined in the Glossary and Definitions of the Grid Code. |
| **HVDC System Owner** | As defined in the Glossary and Definitions of the Grid Code. |
| **Leased Line** | A telecommunications circuit provided by a public telecommunications operator for the sole use of **Control Telephony**. |
| **Local Joint Restoration Plan** | As defined in the Glossary and Definitions of the Grid Code. |
| **Mains Independence** | 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. |
| **Network Operator** | As defined in the Glossary and Definitions of the Grid Code. |
| **MPLS** | Multiprotocol Label Switching (a routing technique in telecommunications networks that directs data from one node to the next based on labels). |
| **Non-Embedded Customer** | As defined in the Glossary and Definitions of the Grid Code. |
| **Operational Telephony System** | A term used in the **STC** which has the same meaning as the **Control Telephony System**. |
| **Pilot Cable** | Privately owned telecommunications circuit provided on a dedicated cable within a site or between sites in close proximity to each other. |
| **Registered Capacity** | As defined in the Glossary and Definitions of the Grid Code. |
| **Relevant Transmission Licensee** | As defined in the Glossary and Definitions of the Grid Code. |
| **Responsible Engineer / Operator** | As defined in the Glossary and Definitions of the Grid Code. |
| **Restoration Service Provider** | As defined in the Glossary and Definitions of the Grid Code. |
| **Routine Control Call** | A **Control Call** with normal (i.e. non-emergency) status. |
| **SLA** | Service Level Agreement. |
| **System Operator Transmission Owner**  **Code** or **STC** | As defined in the Glossary and Definitions of the Grid Code. |
| **System Telephony** | As defined in the Glossary and Definitions of the Grid Code. |
| **TO Construction Agreement** | As defined in Section J of the **System Operator Transmission Owner Code** or **STC**. |
| **Total System** | As defined in the Glossary and Definitions of the Grid Code. |
| **Transmission Network Control Centre** or **TNCC** | A **Transmission Licensee’s** Transmission Network Control Centre. |
| **Transmission Licensee** | As defined in the Glossary and Definitions of the Grid Code. |
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| **Transmission System** | As defined in the Glossary and Definitions of the Grid Code. |
| **Trunk Line** | 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**. |
| **User** | As defined in the Glossary and Definitions of the Grid Code. |
| **User Site** | 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 **Black Start** requirements where National Grid ESO contact with **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** S**ystem** has no reliance on the public communications networkwhich 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**.

# 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** 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 **Black Start**.This is described in further detail in section 10.

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



The general arrangements are shown in Figure 1.

The **User** 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** **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 locationswhere 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 presentincoming 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**. 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** system, **Control Calls** must be given priority over other calls at the **User’s** site, as if they were presented on a separate **Control Phone**.

If calls from separate desks at the **User’s Control Point** or **Control Centre** are required to be identified uniquely at the **ENCC** or the **Relevant Transmission Licensee**s 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**.

# 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 Control Point or Control Centre** telephony system.

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

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

# 10. Black Start Assured Service

Where a **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 where National Grid ESO in coordination with the **Relevant** **Transmission Licensee** has provided a **Control Phone** and where a **Black Start Power Station** is required to communicate with a **Network Operator** and the **ENCC**, two separate **Control Phones** shall be installed at the **Black Start Power Station**.

National Grid ESO and 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** locate on **Users’** sites and via **Users’** telephony systems. The **User** is responsible for providing site access for National Grid ESOand the **Relevant Transmission Licensee** so they can meet the **SLAs** quoted.

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| **Description** | **Standard/SLA** |
| **Control Telephony** **System** | Equipment:   * **Control Telephony System** equipment * **Trunk Line**   At **Control Points at Black Start Service Providers’ premises**: 5hr fix, 24 hrs/day, 365/6 days/yr  At **Network Operators’ Control Centres**: 5hr fix, 24 hrs/day, 365/6 days/yr  Parties which do not have -**Black Start** contracts: 5hr fix 8am-6pm normal business days |
| **Mains Independence** duration | **Network Operators’ Control Points** shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.  **Control Centres** of **Generators** with **Black Start Power Stations** shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.  **Control Centres** / **Control Rooms** of other **Restoration Service Providers** shall comply with the endurance timescales of CC7.10 or ECC7.10 as appropriate.  For other **Control Points** at least 24 hours. |