



**CONTROL TELEPHONY
ELECTRICAL STANDARD**
Applicable in England and Wales

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1. **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. This **Electrical Standard** describes in more detail the technical interfaces and support requirements for **Control Telephony** and is applicable in **NGET's Transmission Area** only.

The **Electrical Standard** has been designed to give **Users** background and technical information regarding the **Control Telephony** systems that **NGET** may choose to install at a **User's Site**.

The **Electrical Standard** also allows **Users** to understand the requirements of the **Control Telephony** system should a **User** decide to amalgamate its own telephony system with the **NGET** provided **Control Telephony** system.

The **Electrical Standard** will only contain generic information pertaining to **Control Telephony**. There still may be occasions where additional obligations relating to **Control Telephony** will be required on a site-specific basis. Such site-specific details pertaining to **Control Telephony** will be specified in the **Bilateral Agreement**.

For the purposes of this document, any reference to **NGET** also includes any person, service provider or company nominated by **NGET** to fulfil its obligations described in this document.

2. **Scope**

This **Electrical Standard** applies to **NGET** and to **Users** (in **NGET's Transmission Area** only), who are required to have **Control Telephony** pursuant to CC.6.5.

For the purposes of this **Electrical Standard**, **Users** will comprise of:

- (a) **Generators** (other than those which only have **Embedded Small Power Stations**);
- (b) **Network Operators**;
- (c) **Non-Embedded Customers**;
- (d) **DC Converter Stations** owners; and
- (e) **BM Participants** and **Externally Interconnected System Operators**.

The provisions of this **Electrical Standard** will, in the case of **Network Operators**, apply to **Network Operator Control Centres**, and in the case of all other **Users** listed above, apply at the relevant **Control Points**.

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

3. **Definitions**

In this document any emboldened words are defined Grid Code terms with the associated meaning as stated in the Glossary and Definitions. This is with the exception of the following words which for the purposes of this document have the following meanings:

<u>AC-15</u>	Signalling system used on Private Wires employing tones at a specific frequency.
<u>Analogue Trunk</u>	Analogue connection to the Control Telephony Network using AC-15 and DTMF signalling.
<u>CAS</u>	Channel Associated Signalling
<u>Control Telephony Network</u>	Network provided by NGET to carry Control Telephony used for managing the GB Transmission System .
<u>Digital Trunk</u>	Digital connection to the Control Telephony Network using CAS and DTMF signalling.
<u>DR</u>	Disaster Recovery
<u>DTMF</u>	Dual-tone multi-frequency signalling
<u>Emergency Control Call</u>	Control Call initiated by dialling the Emergency code. On encountering network congestion, non-emergency calls will be automatically disconnected. These calls are presented with a distinctive ringing signal at the ENCC .
<u>ENCC</u>	NGET Electricity National Control Centre
<u>Green Phone</u>	Common name given to the Control Telephone provided by NGET at Control Points or Network Operator Control Centres .
<u>Normal Control Call</u>	Control Call with normal (i.e. non-Emergency) status.
<u>PABX</u>	Private Automatic Branch Exchange – name given to a User's own telephone exchange.
<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>Private Wire</u>	Telecommunications circuit provided by a public telecommunications operator.
<u>PSTN</u>	Public Switched Telephone Network
<u>SLA</u>	Service Level Agreement
<u>Trunk Line</u>	Connection to the Control Telephony Network for carrying telephone calls.

4. Overview of Control Telephony Network

The **Control Telephony Network** is a highly resilient private telephony network used to carry **Control Calls** for both the day-to-day management of the **GB Transmission System**, and for contingency or emergency purposes including **Black Start**.

The entire network is resilient to a complete loss of mains electricity, and will continue to operate normally following a mains power loss. There is no reliance on the **PSTN** which may suffer congestion during power blackouts or other events affecting the general public.

To maximise availability, most locations provided with **Control Telephony** are served by at least two separately routed connections to the **Control Telephony Network**.

For the avoidance of doubt, **NGET** will be responsible for the installation, maintenance and cost of **Control Telephony** and **Green Phones** in England and Wales, except as provided for under the **Grid Code**, this **Electrical Standard** or otherwise stated in the **Bilateral Agreement**.

5. Provision of Services at Control Points and Network Operator Control Centres

If **NGET** and a **User** agree that **Control Telephony** is required at a **Control Point** or **Network Operator Control Centre**, **NGET** will provide one **Green Phone** which will be connected to the **Control Telephony Network** via a **Private Wire** or **Pilot Cable**. Where a **Private Wire** is utilised, signalling equipment will be provided at the **Control Point** or **Network Operator Control Centre**.

If **NGET** and a **User** agree that **Control Telephony** is required at a **Control Point** or **Network Operator Control Centre**, **NGET** will provide and install the infrastructure external to the **Control Point** or **Network Operator Control Centre**, with the **User** providing and installing the internal infrastructure.

At **Network Operator Control Centres** and some other **Control Points**, **NGET** may also install a second **Green Phone** for receipt of **Emergency Control Calls** or for **Black Start**, this is described in further detail in paragraphs 7 and 10.

In some circumstances, **NGET** may choose to install its own telephone exchange to deliver the **Control Telephony** service.

At sites where the **User** prefers to terminate the **Control Telephony** service on their own **PABX** or other telephony apparatus in place of a standalone **Green Phone** or **NGET** exchange, **NGET** will normally provide one or more **Trunk Lines** to the **Control Point** or **Network Operator Control Centre**.

In addition to the methods of provision described above, a hybrid solution may be employed using a combination of **NGET** installed exchange and **User PABX**.

6. Presentation of Calls at Control Points and making Normal and Emergency Control Calls

At **Control Points** (but not **Network Operator Control Centres**) where **NGET** provides the **Control Telephony** service, a **Green Phone** will be provided. The **Green Phone** must be installed in a prominent position at the **Control Point**, suitable for use by operational staff.

The **Green Phone** has pre-programmed memory keys. Keys are provided for making **Normal Control Calls** and **Emergency Control Calls**. **Emergency Control Calls** automatically override network congestion by disconnecting non-emergency calls, and are presented with a distinctive ringing signal at the **ENCC**.

An incoming **Normal Control Call** is indicated by a continuous ringing signal on the **Green Phone**. The **ENCC** will only make **Emergency Control Calls** to **Network Operator Control Centres**, not **Control Points** (see Paragraph 7).

If the **User** is required to participate in a **Local Joint Restoration Plan**, a second **Green Phone** may be provided for communication with the relevant **Network Operator Control Centre** (see Paragraph 10).

Where the **User** chooses to present the **Control Telephony** service on their own telephony system in place of the **Green Phone**, these arrangements must be agreed with **NGET** (see also Paragraph 7).

7. Presentation of Calls and making Normal and Emergency Control Calls at Network Operator Control Centres

At **Network Operator Control Centres**, where **NGET** provides the **Control Telephony** service, two **Green Phones** will normally be provided: one **Green Phone** will be provided for **Normal Control Calls** and the other **Green Phone** for **Emergency Control Calls**. Both **Green Phones** will also be used for **Black Start** (see Paragraph 10). The two phones will normally be connected by infrastructure which is physically separate e.g. separately routed **Private Wires** to separate **Control Telephony Network** core sites.

The **Green Phones** must be installed in a prominent position at the **Network Operator Control Centre**, suitable for use by operational staff.

Both phones have pre-programmed memory keys for making **Normal Control Calls** and **Emergency Control Calls** as appropriate. **Emergency Control Calls** automatically override network congestion by disconnecting non-emergency calls, and are presented with a distinctive ringing signal at the **ENCC**.

An incoming **Control Call** (both **Normal** and **Emergency**) is indicated by a continuous ringing signal on the respective **Green Phone**.

Where the **Network Operator** chooses to present the **Control Telephony** service on their own telephony system in place of the **Green Phones**, these arrangements must be agreed with **NGET**. The **Network Operator** must ensure that incoming calls from **NGET** are presented in a way that distinguishes these from other calls received by the **Network Operator**. On receipt of an incoming **Control Call**, Operational staff must be made aware that **NGET** are making either a **Normal Control Call** or **Emergency Control Call** to the **Network Operator Control Centre**. Incoming **Emergency Control Calls** from **NGET** should be presented in a way that distinguishes them from other non-emergency calls and gives them the appropriate priority. Facilities must be provided for initiating **Normal** and **Emergency Control Calls** to the **ENCC**.

If incoming calls are queued by the **Network Operator** system, calls from **NGET** must be given priority over other calls at the **Network Operator** site, as if they were presented on a separate **Green Phone**.

If calls from separate desks at the **Network Operator Control Centre** are required to be identified uniquely at the **ENCC** e.g. if the **Network Operator Control Centre** manages more than one electricity Distribution Area, then separate **Trunk Lines** will be provided by **NGET** for each area. This is because, at the **ENCC**, calling party identity for incoming calls from 3rd party sites is associated with a **Trunk Line** at the **Network Operator Control Centre** rather than an extension.

8. **Control Telephony DR Arrangements for Network Operator Control Centres**
For **Network Operators** that have both Main and Contingency **Control Centres**, when the contingency site is operational, arrangements must be invoked to transfer **Control Telephony** calls to the contingency site. For each **Network Operator**, actual provision of services and changeover arrangements will require separate technical and operational agreement between **NGET** and the **Network Operator**.

9. **Costs associated with the movement of an existing Control Telephony Service**

NGET are responsible for providing and supporting the **Control Telephony** service at **Control Points** or **Network Operator Control Centres**. An exception applies where the **User** has opted to connect the service via their own telephony system, in which case **NGET** will be responsible for the service up-to the **Trunk Line** delivery point on the **User's** equipment.

Where the **User** requires **NGET** to move an existing **Control Telephony** service to an alternative location or site (e.g. due to site closure) the **User** will be expected to pay all reasonable costs incurred by **NGET** to move the service.

10. **Black Start Assured Service**

Where a **Control Point** or **Network Operator Control Centre** is required to participate in a **Local Joint Restoration Plan**, **NGET** will provide sufficient **Green Phones** and **Trunk Lines** to enable the **Local Joint Restoration Plan** to be implemented without encountering congestion e.g. where a **Network Operator** is required to communicate with a **Black Start Power Station** and the **ENCC**, two separate **Green Phones** connected to the **Control Telephony Network** by separate **Trunk Lines** will be provided.

As a contingency against failure of the **Control Telephony Network**, **NGET** may also provide one satellite phone for use during the **LJRP**. This equipment is provided for the sole purpose of operational communication¹ between the **User** and **NGET** and any other parties that may be joint signatories to a **Local Joint Restoration Plan** pursuant to OC9.4. It shall not be used for any other purposes without the express agreement of **NGET**. All calls made on this equipment are itemised to **NGET**. **NGET** may seek to recover call charges where there is clear evidence of unauthorised use.

NGET and the **User** will implement frequent testing of these facilities to ensure they are in good working order and the operational staff are familiar with its use.

¹ Operational communication includes any bona-fide testing of such apparatus

11. Technical Standards and Service Levels

The following technical standards and service levels apply to the **Control Telephony** service. The **User** is responsible for providing access to **NGET** in order for it to meet the **SLAs** quoted.

Note that these standards may be amended with the introduction of next generation telephony networks by the Public Telecommunications Operators.

Description	Standard/SLA
Control Telephone Service (Green Phone)	Analogue Telephone, with memory keys 5hr fix, 24 hrs/day , 365/6 days/yr
Analogue Trunk	4 wire, AC-15 with DTMF signalling BT TotalCare 4hr response, 5hr fix
Digital Trunk	2Mbit/s G.703, CAS with DTMF signalling. Other interface standards and signalling systems on request. BT TotalCare 4hr response, 5hr fix

At hot sites where there is a possibility of rise of earth potential, to ensure safety of personnel and equipment, **private wires** and **pilot cables** must be isolated from earth in accordance with the following installation standard:

- ISIS Practice: Cabling and Wiring at Electricity Stations EPT/PPS/B013, British Telecommunications

It is the responsibility of the **User** to inform National Grid if services are to be delivered to a hot site.