



**GRID CODE
CONSULTATION DOCUMENT**

Control and System Telephony

The purpose of this document is to consult on the above Grid Code Modification Proposal with authorised electricity operators liable to be materially affected by the proposed changes and forms the basis of the subsequent Report to the Authority

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Prepared by	National Grid

DOCUMENT LOCATION

National Grid website:

<http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/>

DISTRIBUTION

Name	Organisation
AEO's	Various
GCRP Members/Alternates	Various
Interested Parties	Various
National Grid Website	

A. INTRODUCTION

1. Paragraph 2 of Condition C14 of the Transmission Licence granted to the National Grid Electricity Transmission plc ("National Grid") provides that National Grid shall, in consultation with authorised electricity operators liable to be materially affected thereby, periodically review the Grid Code and its implementation. That paragraph also requires National Grid, following such review, to send to the Authority:-
 - (a) a report on the outcome of such review;
 - (b) any proposed revisions to the Grid Code as National Grid (having regard to the outcome of such review) reasonably thinks fit for the achievement of the objectives set out in sub-paragraph (b) of Condition C14 of the Transmission Licence; and
 - (c) any written representations or objections from authorised electricity operators (including any proposals by such operators for revisions to the Grid Code not accepted by National Grid in the course of the review) arising during the consultation process and subsequently maintained.
2. This review examines changes to amend the Grid Code Connection Conditions relating to telephony (CC.6.5). The changes are designed to:
 - Introduce a new Telephony service of System Telephony
 - Introduce provisions relating to both Control Telephony and System Telephony in response to a recent review of the Black Start procedures.
3. The proposed changes to the Grid Code were discussed with the Grid Code Review Panel (GCRP) on 21st September 2006. Panel Members agreed that National Grid should issue a Consultation Paper regarding the proposed changes.
4. Comments upon the proposed changes within this consultation should be sent to National Grid by 17th January 2007 as detailed in section C. The comments will be reviewed and responded to.
5. Following this consultation, National Grid will prepare a Report to the Authority detailing National Grid's recommended changes to the Grid Code and all comments/responses received from authorised electricity operators through this consultation. Once sent to the Authority this report will be made available on National Grid's website.
6. Where authorised electricity operators' responses have been marked as confidential they will not be published within the version of the Report to the Authority placed on the National Grid website.
7. The revisions to the Grid Code proposed by National Grid and sent to the Authority, require approval by that body and will, if approved, come into force on such date (or dates) of which you will be notified by National Grid, in accordance with the Authority's approval.

B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS

8. Background

- 8.1 Currently the telephony provisions within the Grid Code refer to Control Telephony. Control Telephony provides for a highly resilient interface between the National Grid Control Centre and Users. It is designed to be robust in the event of a complete system shutdown and is designed to remain operational for at least 48 hours even where a complete system shutdown has occurred.
- 8.2 The requirement for a Control Telephony system to be installed at a particular location is identified by National Grid as part of the connection process. In England and Wales, where Control Telephony is required National Grid will fund and install the system, typically consisting of a National Grid owned telephone line maintained by National Grid.
- 8.3 In Scotland at directly connected Power Stations the Host TO will provide terms for a Control Telephony connection as part of its TO Construction Offer (TOCO) to National Grid. This will allow for the connection of the Power Station into the TO's own Control Telephony network which is linked into National Grid's Control Telephony network. At Large Embedded Power Stations the Host TO seeks to provide a connection to its Control Telephony Network on a reasonable endeavours basis. All Control Telephony connections in Scotland are provided in accordance with STCPs 04-5: System Telephony and 18-1: Connection and Modification Application.
- 8.4 Control Telephony is identified within the National Grid Control Centre separately to calls made over the public telephone network. In the event of an incident affecting the GB Transmission System calls made over the public telephony system maybe routed away from the Transmission Control Centre leaving Control Telephony as the only effective means of communication between the Control Centre and Users.

9. Overview of Proposed Grid Code Changes

- 9.1 Firstly it is proposed to introduce a new telephony service into the Grid Code to be known as System Telephony. Currently only the concept of Control Telephony exists within the Grid Code. Control Telephony offers a telephony system that is designed to be fully robust in the event of a complete system shutdown for at least 48 hours following such a shutdown.
- 9.2 However there are increasing numbers of Power Stations (predominantly Windfarms) where the Power Station is controlled remotely and from a number of differing locations. In such circumstances it is not always practicable to install Control Telephony at these sites.
- 9.3 In certain cases National Grid would be content to rely on public telephony networks as the primary means of voice communication despite such networks being less robust. However in order to ensure that certain operating procedures and protocols are followed it is proposed to classify such public network based systems as System Telephony networks. National Grid would only utilise such System Telephony networks where it was content that their use would not degrade security of supply.

9.4 Secondly it is proposed to amend the Grid Code telephony provisions in response to a recent review of the Black Start procedures. One element of these changes is to compel Users to use the Control Telephony or System Telephony networks where these are available. In recent years it has become more commonplace for certain Users to utilise other telephony networks. Given that all calls except those routed over the Control or System Telephony networks are to be routed away from the Control Centre in the event of a significant incident occurring on the GB Transmission System it is imperative that Users utilise the Control or System Telephony network as the norm. Other arrangements to clarify such emergency calling arrangements are also proposed.

9.5 Taken together the two proposals are designed to enhance security of supply, ensuring that the telephony procedures are clear and can be followed by NGET and Users both under normal and emergency operating conditions. The proposals also mean that on the rare occasions where public telephony networks are used to facilitate operational voice communications then again the procedures surrounding their use are clear.

10. Detailed Grid Code Changes

(a) System Telephony

10.1 It has become increasingly apparent that a full Control Telephony system is not practical at some sites. This is due to the Control arrangements utilised by Generators – for instance in the case of Windfarms these are usually controlled at a remote location from the Windfarm itself, with multiple Control Points being used for a single Windfarm with the exact Control Point being utilised varying depending on the time of day. It has been known for the Control Point to be located overseas. In such cases it is not practical for National Grid to route Control Telephony to each Control Point.

10.2 Although Control Telephony is not a viable option at all sites there is scope for an intermediate telephony service to bridge the gap between Control Telephony and public telephony systems. The idea behind this would be that the service (hereafter known as “System Telephony”) would be identified within the National Grid Control Centre in the same manner as Control Telephony, however it would utilise public telephony networks. In practise the System Telephony system would have the following characteristics:

- The system would consist of a single telephone number provided by the User which the User would undertake to keep routed to the relevant Control Point for the Power Station at all times.
- Such a dedicated phone line could be identified within the National Grid Control Centre in the same manner as Control Telephony and in the event of a system event that leads to the transfer of non-essential voice calls away from the National Grid Control Centre such lines would not be diverted.

10.3 System Telephony could also be installed at other key operational sites that are not Control Points but where operational communications are required e.g. Energy Management Centres (EMCs)

(b) Telephony under emergency operating conditions

10.4 In addition to the introduction of System Telephony it is proposed to clarify a number of procedures within the Grid Code relating to Control Telephony and now System Telephony and specifically its use under emergency operational conditions (e.g. at times of system stress, a Black Start etc). These include:

- Unless otherwise agreed by National Grid, where Control Telephony or System Telephony is provided then it should be used as the primary operational communications channel.
- A Control Telephony or System Telephony handset (or equivalent apparatus) at a User Site should be sited at a normally manned point where it can be answered without delay.
- Users should be aware that calls made over the Control or System Telephony networks to National Grid Control Centres may be recorded and subsequently replayed for operational purposes.
- Routine testing of facilities is required to ensure their ongoing capability. Where reasonably requested by NGET, Users shall assist with such testing.
- Control Telephony facilities are intended for bona-fide operational liaison purposes between Users and NGET. Users may not use NGET provided facilities for other purposes without the express permission of NGET.

10.5 Additionally and only at locations where Control Telephony has been installed National Grid is proposing the following additional obligations:

- Where Control Telephony is provided at a Users Site, Emergency calling facilities will be provided to National Grid Control Centre.
- All such Users should be aware of the procedures for making an emergency call to the National Grid Control Centre.
- Such Emergency calling facilities should not be used for any non-urgent operational communications.

11. Additional Queries regarding System Telephony

11.1 At the September 2006 Grid Code Review Panel where this amendment proposal was first discussed a number of questions were raised with regard to the proposals in this document. To aid User's understanding of these proposals these questions and National Grid's responses to them are detailed below.

Question 1: *Given that Control Telephony is an infrastructure cost, incurred and reclaimed by National Grid would the same be true of the cost associated with the installation and maintenance of the System Telephony service?*

National Grid initially gave its view at the November 2006 GCRP that National Grid would expect a User to fund the costs of installing the PSTN line over which System Telephony would be routed. However since that time National Grid has given further thought to the provision of such telephone lines. National Grid's position now is that National Grid will fund the installation and ongoing operation of a single dedicated PSTN line. National Grid will arrange for the technical configuration of this line such that it can only be used to contact National Grid Control Rooms. Should the User require additional functionality then National Grid then the User would normally be required to

incur the additional expenditure required to provide and maintain such additional functionality.

Question 2: *Can clarification be given that the physical location of a Control Point for a Power Station can move (on a regular and routine basis – for instance to transfer control of the Power Station to another Control Point overnight)?*

There are no existing provisions within the Grid Code that prohibits the physical location of a Control Point for a Power Station from moving in this manner. National Grid can confirm that provided there is no adverse impact upon the efficient, economic and secure operation of the GB Transmission System then the physical location at which a Control Point for a Power Station is located is permitted to move. However it should be noted that where Control Telephony has been installed at a User's Control Point then National Grid would not normally permit control of the User's Power Station to pass to an alternative Control Point at which Control Telephony is not available. Therefore the movement of Control Points on a regular and routine basis would only be permitted where System Telephony has been installed, or where all alternative Control Points have Control Telephony installed.

Question 3: *Do the new System Telephony provisions reflect the National Infrastructure Security Co-ordination Centre (NISCC) guidelines on telephone lines*

The final Technical Specifications of any future System Telephony Service are yet to be finalised. However should the System Telephony proposals contained within this consultation ultimately be approved by the Authority then National Grid would seek to ensure that the Technical Specification of the System Telephony service would meet the requirements of the NISCC guidelines.

Question 4: *Over how many Control Points would National Grid expect to install System Telephony?*

Ultimately National Grid would anticipate rolling out System Telephony to approximately 50 Control Points (~20% of the total number). These sites will usually be at newly connecting Windfarms where it is more common due to the generating technologies employed to find the Power Station being controlled remotely and from a number of different locations. It would be at this site where System Telephony may be deployed.

Question 5: *Over What timescales would National Grid envisage System telephony being introduced?*

National Grid would see System Telephony being rolled out as soon as practicable. In practice there are already parties that are in regular contact with the Electricity National Control Centre (though not necessarily at Power Stations) where systems akin to System Telephony are being utilised. However there is clearly no formal guidelines surrounding their use and it is the purpose of this consultation to put these in place.

C. RESPONSES

11. This section will contain a summary of responses received during the Consultation and will be completed as part of the Report to the Authority.

12. Your formal responses may be:-

Posted to: Lilian Macleod
 Electricity Codes
 Commercial Frameworks
 National Grid Electricity Transmission plc
 National Grid House
 Warwick Technology Park
 Gallows Hill
 Warwick
 CV34 6DA

Emailed to: lilian.macleod@uk.ngrid.com

Appendix A: Proposed Changes to the Connection Conditions

CC.6.5 COMMUNICATIONS PLANT

CC.6.5.1 In order to ensure control of the **GB Transmission System**, telecommunications between **Users** and **NGET** must, if required by **NGET**, be established in accordance with the requirements set down below.

CC.6.5.2 **Control Telephony and System Telephony**

CC.6.5.2.1 **Control Telephony** is the **principal** method by which a **User's Responsible Engineer/Operator** and **NGET Control Engineers** speak to one another for the purposes of control of the **Total System** in both normal and emergency operating conditions. **Control Telephony** provides secure point to point telephony for routine **Control Calls**, priority **Control Calls** and emergency **Control Calls**.

CC.6.5.2.2 **System Telephony** is an alternate method by which a **User's Responsible Engineer/Operator** and **NGET Control Engineers** speak to one another for the purposes of control of the **Total System** in both normal operating conditions and where practicable, emergency operating conditions. **System Telephony** provides dedicated point to point telephony for routine **Control Calls**, priority **Control Calls** and emergency **Control Calls**.

CC.6.5.2.3 Calls made and received over **Control Telephony** or **System Telephony** may be recorded and subsequently replayed for operational reasons.

CC.6.5.3 **Dialling Tones**

CC.6.5.3.1 ~~Supervisory~~ **Control Telephony** supervisory tones indicate to the calling and receiving parties dial, engaged, ringing, secondary engaged (signifying that priority may be exercised) and priority disconnect tones.

CC.6.5.3.2 **System Telephony** supervisory tones indicate to the calling and receiving parties dial, engaged and ringing tones.

CC.6.5.4 **Obligations in respect of Control Telephony and System Telephony**

CC.6.5.4.1 Where **NGET** requires **Control Telephony**, **Users** are required to use the **Control Telephony** with **NGET** in respect of all **Connection Points** with the **GB Transmission System** and in respect of all **Embedded Large Power Stations** and **Embedded DC Converter Stations**. **NGET** will install **Control Telephony** at the **User's** ~~location-manned~~ (subject to CC.7.9) **Control Point** where the **User's** telephony equipment is not capable of providing the required facilities or is otherwise incompatible with the **Transmission Control Telephony**. Details of and relating to the **Control Telephony** required are contained in the **Bilateral Agreement**.

- CC.6.5.4.2 Where in **NGET's** sole opinion the installation of **Control Telephony** is not practicable at a **User's Control Point(s)**, **NGET** shall specify in the **Bilateral Agreement** whether **System Telephony** is required. Where **System Telephony** is required by **NGET**, the **User** shall ensure that **System Telephony** is installed.
- CC.6.5.4.3 Where **System Telephony** is installed, **Users** are required to use the **System Telephony** with **NGET** in respect of those **Control Point(s)** for which it has been installed. **NGET** and the **User** shall jointly arrange for **System Telephony** to be provided at the **User's** manned (subject to CC.7.9) **Control Point** where the **User's** telephony equipment is not capable of providing the required facilities. Details of and relating to the **System Telephony** required are contained in the **Bilateral Agreement**.
- CC.6.5.4.4 Where **Control Telephony** or **System Telephony** is installed, routine testing of such facilities may be required by **NGET** (not normally more than once in any calendar year). **NGET** shall give the **User** not less than 48 hours notice of such a test with the proposed details of the test. The **User** and **NGET** shall use reasonable endeavours to agree a testing programme and where **NGET** requests the assistance of the **User** in performing the agreed testing programme the **User** shall provide such assistance.
- CC.6.5.4.5 **Control Telephony** and **System Telephony** shall only be used for the purposes of operational voice communication between **NGET** and the relevant **User**.
- CC.6.5.5 ~~Generic detailed information on **Control Telephony** facilities and suitable equipment requirements applicable in England and Wales is provided in the **Electrical Standard** for **Control Telephony** in the Annex to the **General Conditions**. Where additional information, or information in relation to **Control Telephony** applicable in Scotland, is requested by **Users**, this will, where possible, be provided by **NGET** upon any such request. [Technical Information](#)~~
- Control Telephony**
- CC.6.5.5.1 Generic detailed information on **Control Telephony** facilities and suitable equipment requirements applicable in England and Wales is provided in the **Electrical Standard** for **Control Telephony** in the Annex to the **General Conditions**. Where additional information, or information in relation to **Control Telephony** applicable in Scotland, is requested by **Users**, this will, where possible, be provided by **NGET** upon any such request.
- CC.6.5.5.2 **Control Telephony** contains emergency calling functionality. Such functionality enables **Users** to utilise a priority call in the event of an emergency. All **Users** shall ensure that their **Responsible Engineer(s)/Operator(s)** are aware of the correct procedures in order to enact an emergency priority call. **Users** shall not utilise such priority calling functionality for any non-urgent operational communications.

System Telephony

- CC.6.5.5.3 System Telephony shall consist of a dedicated PSTN telephone line that shall be installed and configured by the relevant **User** such that (subject to CC.7.9) it provides a continuous means by which the **NGET Control Engineer** can speak to the **User's Responsible Engineer/Operator**. For the avoidance of doubt where CC.7.9 does not require a permanently manned **Control Point** at a **Power Station System Telephony** need not be available outside of the hours that the **Control Point** is required to be manned.

Changes to the Glossary & Definitions

- System Telephony** Where at NGET's discretion the method by which a **User's Responsible Engineer/Operator** and **NGET Control Engineer(s)** speak to one another for the purposes of control of the **Total System** in both normal operating conditions and where practicable, emergency operating conditions.