



**GRID CODE  
CONSULTATION DOCUMENT**

**Management of 'No System Connection'**

**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**

Consultation Ref	A/07
Issue	1.0
Date of Issue	1 <sup>st</sup> March 2007
<b>Responses required by</b>	<b>29<sup>th</sup> March 2007</b>
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	

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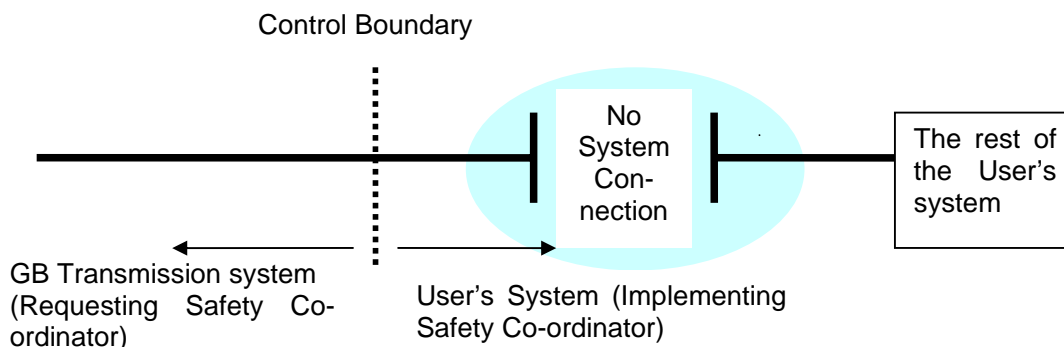
**A. INTRODUCTION**

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 1(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 Operating Code 8 (Safety Co-ordination). The changes, developed jointly between National Grid and the Scottish Transmission Owners, will introduce a new term of 'No System Connection' applicable only in OC8.
3. The proposed changes to the Grid Code were discussed with the Grid Code Review Panel (GCRP) on 15<sup>th</sup> February 2007. Panel Members agreed that National Grid should issue a Consultation Paper regarding the proposed changes subject to clarifying, incorporating comments received from members.
4. Comments upon the proposed changes within this consultation should be sent to National Grid by 29<sup>th</sup> March 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.

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**B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS****8. 'No System Connection'****8.1 Background**

- 8.1.1 Grid Code OC8 (Safety Co-ordination) specifies the procedures to be used to provide Safety Precautions between Transmission Licensees on the GB Transmission System and between the GB Transmission System and a User's System. The Record of Inter-System Safety Precautions (RISSP) process is defined within OC8 and is used to manage Safety Precautions i.e. Isolation and/or Earthing.
- 8.1.2 OC8B obligations allow for Relevant Transmission Licensees in Scotland to use other site specific Operational Procedures that are agreed with individual Users, to manage Safety Precautions across such an interface.
- 8.1.3 The Electricity at Work Regulations specify that when systems are readily connectable, they shall be considered to be a physically connected system. There may be circumstances during the construction of new assets on either the GB Transmission System or User's System which result in no physical connection between the individual networks due to the necessary building works involved in the construction of the associated works.
- 8.1.4 OC8 specifies the procedure to be used when Safety Precautions are required on or near the GB Transmission System or a User System. The provisions in OC8 envisage that both systems are "intact" such that each User can provide Safety Precautions by way of isolation through locking and applying a Caution Notice or by adequate physical separation. The current OC8 provisions do not sufficiently cover the scenario where there is no system connection to the existing User's System or GB Transmission System.
- 8.1.5 During the construction of new assets either on User's Systems or the GB Transmission System scenarios have arisen where adequate Safety Precautions can be applied which are not currently envisaged by OC8. In particular an additional method of providing adequate precautions can be used, as illustrated in Figure 1.
- 8.1.6 Figure 1 describes a scenario where there is a HV equipment boundary between National Grid and a User. National Grid will request Safety Precautions from the User. The equipment on the User side of the boundary has no provision to apply a Caution Notice and/or Earthing because such equipment is not fully constructed. With the advent of gas insulated connections to Users this circumstance is not uncommon.



*With reference to the shaded area under construction there is no physical location to apply a caution notice.*

**Figure 1**

8.1.7 The Requesting Safety Co-ordinator (RSC) rightly requires confirmation that the Implementing Safety Co-ordinator (ISC) will ensure that the HV Apparatus will not be connected to any source of electrical energy for the duration of the Safety Precautions.

## 8.2 Problem Overview

8.2.1 Under the current governance arrangements Safety Precautions, as defined within the Grid Code, can only be quoted on a RISSP. In the example outlined in paragraph 8.1.6, it is not practicable for the ISC to quote Safety Precautions on their side of the boundary. In order to alleviate this problem, Safety Co-ordinators currently use the section of the RISSP reserved for Safety Precautions to quote that there is no connection, even though there is no permanently established physical location to attach a Caution Notice which is required to achieve Isolation.

8.2.2 There is currently no Grid Code guidance on how Safety Co-ordinators shall record how to give or receive instructions from Users where it is not possible to apply Caution Notices.

8.2.3 A 'No System Connection' is where two parts of a system are completely disconnected from each other and can be regarded from the management of Safety Precautions as independent from each other. The term 'No System Connection' is not currently defined within the Grid Code.

8.2.4 As the ISC apparatus is not substantially built there is no means of providing any Isolation/Earthing across the control boundary. As there is currently no method in OC 8 to deal with this, the current RISSP process has been used to record a 'No System Connection' when another party has equipment which has not been substantially built.

8.2.5 To provide sufficient confidence to the RSC, where a 'No System Connection' is being used, by the ISC, it is proposed that the ISC should confirm on the RISSP the location of the 'No System Connection'.

## 9. Proposed Grid Code Changes

9.1 It is proposed to introduce a new term - 'No System Connection', applicable only in OC8 of the Grid Code. The new term will be included in the Glossary

and Definitions section of the Grid Code and will direct Users to the relevant paragraphs within OC8.

- 9.2 In addition the definition of Isolation in OC8 will be amended such that it makes reference to No System Connection being a method of achieving Isolation. This will provide clarity to Users that the change in the definition of Isolation only applies to its use in OC8.
- 9.3 The intention is that the term 'No System Connection' is only to be used as a further method of Isolation such that the RISSP process can be utilised in the situation where the two relevant systems are not connected but because the assets which would effect the connection are still being constructed could become so. As such the definition of Isolation to include reference to 'No System Connection' has only been amended in OC8 and the definition for Isolation as it applies to the rest of the Grid Code remains unchanged.
- 9.4 The proposed amendments to relevant clauses of OC8A and OC8B, are shown in Appendix A.

**C. RESPONSES**

10. This section will contain a summary of responses received during the Consultation and will be completed as part of the Report to the Authority.
11. Your formal responses may be:-

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

Emailed to:       [lilian.macleod@uk.ngrid.com](mailto:lilian.macleod@uk.ngrid.com)

## Appendix A: Proposed Grid Code Changes

### Definitions and Glossary Changes

Insertion of new defined term:

**No System Connection** as defined in OC8A.1.6.2 and OC8B.1.7.2

### Proposed OC8A Changes

#### OC8A.1.6 Defined terms

OC8A.1.6.1 **Users** should bear in mind that in **OC8** only, in order that **OC8** reads more easily with the terminology used in certain **Safety Rules**, the term "**HV Apparatus**" is defined more restrictively and is used accordingly in **OC8A**. **Users** should, therefore, exercise caution in relation to this term when reading and using **OC8A**.

OC8A.1.6.2 In **OC8A** only the following terms shall have the following meanings:

- (1) "**HV Apparatus**" means **High Voltage** electrical circuits forming part of a **System**, on which **Safety From The System** may be required or on which **Safety Precautions** may be applied to allow work to be carried out on a **System**.
- (2) "**Isolation**" means the disconnection of **Apparatus** from the remainder of the **System** in which that **Apparatus** is situated by either of the following:
  - (a) an **Isolating Device** maintained in an isolating position. The isolating position must either be:
    - (i) maintained by immobilising and **Locking** the **Isolating Device** in the isolating position and affixing a **Caution Notice** to it. Where the **Isolating Device** is **Locked** with a **Safety Key**, the **Safety Key** must be secured in a **Key Safe** and the **Key Safe Key** must be, where reasonably practicable, given to the authorised site representative of the **Requesting Safety Co-Ordinator** and is to be retained in safe custody. Where not reasonably practicable the **Key Safe Key** must be retained by the authorised site representative of the **Implementing Safety Co-Ordinator** in safe custody; or
    - (ii) maintained and/or secured by such other method which must be in accordance with the **Local Safety Instructions** of **NGET** or that **User**, as the case may be; or
  - (b) an adequate physical separation which must be in accordance with, and maintained by, the method set out in the **Local Safety Instructions** of **NGET** or that **User**, as the case may be, and, if it is a part of that method, a

**Caution Notice** must be placed at the point of separation;  
or

(c) in the case where the relevant **HV Apparatus** of the **Implementing Safety Co-ordinator** is being either constructed or modified, an adequate physical separation as a result of a **No Safety Connection**.

(3) “**No System Connection**” means an adequate physical separation (which must be in accordance with, and maintained by, the method set out in the **Local Safety Instructions** of the **Implementing Safety Co-ordinator**) of the **Implementing Safety Co-ordinator’s HV Apparatus** from the rest of the **Implementing Safety Co-ordinator’s System** where such **HV Apparatus** has no installed means of being connected to, and will not for the duration of the **Safety Precaution** be connected to, a source of electrical energy or to any other part of the **Implementing Safety Co-ordinators System**.

(4) **"Earthing"** means a way of providing a connection between conductors and earth by an **Earthing Device** which is either:

(i) immobilised and **Locked** in the earthing position. Where the **Earthing Device** is **Locked** with a **Safety Key**, the **Safety Key** must be secured in a **Key Safe** and the **Key Safe Key** must be, where reasonably practicable, given to the authorised site representative of the **Requesting Safety Co-Ordinator** and is to be retained in safe custody. Where not reasonably practicable the **Key Safe Key** must be retained by the authorised site representative of the **Implementing Safety Co-Ordinator** in safe custody; or

(ii) maintained and/or secured in position by such other method which must be in accordance with the **Local Safety Instructions** of **NGET** or that **User** as the case may be.

OC8A.1.6.3 For the purpose of the co-ordination of safety relating to **HV Apparatus** the term “**Safety Precautions**” means **Isolation** and/or **Earthing**.

OC8A.5.2.2 The **Implementing Safety Co-ordinator** shall confirm to the **Requesting Safety Co-ordinator** that the agreed **Isolation** has been established, and identify the **Requesting Safety Co-ordinator's HV Apparatus** up to the **Connection Point**, for which the **Isolation** has been provided. The confirmation shall specify:

(a) for each **Location**, the identity (by means of **HV Apparatus** name, nomenclature and numbering or position, as applicable) of each point of **Isolation**;

(b) whether **Isolation** has been achieved by an **Isolating Device** in the isolating position, or by an adequate physical separation or as a result of a **No System Connection**;

- (c) where an **Isolating Device** has been used whether the isolating position is either:
- (i) maintained by immobilising and **Locking** the **Isolating Device** in the isolating position and affixing a **Caution Notice** to it. Where the **Isolating Device** has been **Locked** with a **Safety Key**, the confirmation shall specify that the **Safety Key** has been secured in a **Key Safe** and the **Key Safe Key** has been given to the authorised site representative of the **Requesting Safety Co-ordinator** where reasonably practicable and is to be retained in safe custody. Where not reasonably practicable (including where **Earthing** has been requested in OC8A.5.1), the confirmation shall specify that the **Key Safe Key** will be retained by the authorised site representative of the **Implementing Safety Co-ordinator** in safe custody; or
  - (ii) maintained and/or secured by such other method which must be in accordance with the **Local Safety Instructions** of **NGET** or that **User**, as the case may be; and
- (d) where an adequate physical separation has been used that it will be in accordance with, and maintained by, the method set out in the **Local Safety Instructions** of **NGET** or that **User**, as the case may be, and, if it is a part of that method, that a **Caution Notice** has been placed at the point of separation;

(e) where a **No System Connection** has been used the physical position of the **No System Connection** shall be defined and shall not be varied for the duration of **Safety Precaution** and the **Implementing Safety Co-ordinator's** relevant **HV Apparatus** will not, for the duration of the **Safety Precaution** be connected to a source of electrical energy or to any other part of the **Implementing Safety Co-ordinator's System**.

The confirmation of **Isolation** shall be recorded in the respective **Safety Logs**.

*Proposed OC8B Changes*

OC8B.1.7 Defined terms

OC8B.1.7.1 **Users** should bear in mind that in **OC8** only, in order that **OC8** reads more easily with the terminology used in certain **Safety Rules**, the term "**HV Apparatus**" is defined more restrictively and is used accordingly in **OC8B**. **Users** should, therefore, exercise caution in relation to this term when reading and using **OC8B**.

OC8B.1.7.2 In **OC8** only the following terms shall have the following meanings:

- (1) "**HV Apparatus**" means **High Voltage** electrical circuits forming part of a **System**, on which **Safety From The System** may be required or on which **Safety Precautions** may be applied to allow work to be carried out on a **System**.

- (2) "**Isolation**" means the disconnection of **Apparatus** from the remainder of the **System** in which that **Apparatus** is situated by either of the following:
- (a) an **Isolating Device** maintained in an isolating position. The isolating position must either be:
    - (i) maintained by immobilising and **Locking** the **Isolating Device** in the isolating position and affixing a **Caution Notice** to it. Where the **Isolating Device** is **Locked** with a **Safety Key**, the **Safety Key** must be secured in a **Key Safe** and the **Key Safe Key** must be given to the authorised site representative of the **Requesting Safety Co-ordinator** where reasonably practicable and is to be retained in safe custody. Where not reasonably practicable the **Key Safe Key** must be retained by the authorised site representative of the **Implementing Safety Co-ordinator** in safe custody; or
    - (ii) maintained and/or secured by such other method which must be in accordance with the **Safety Rules** of the **Relevant Transmission Licensee** or that **User**, as the case may be; or
  - (b) an adequate physical separation which must be in accordance with, and maintained by, the method set out in the **Safety Rules** of the **Relevant Transmission Licensee** or that **User**, as the case may be, and, if it is a part of that method, a **Caution Notice** must be placed at the point of separation; or
  - (c) in the case where the relevant **HV Apparatus** of the **Implementing Safety Co-ordinator** is being either constructed or modified, an adequate physical separation as a result of a **No System Connection**.
- (3) "**No System Connection**" means an adequate physical separation (which must be in accordance with, and maintained by, the method set out in the **Safety Rules** of the **Implementing Safety Co-ordinator**) of the **Implementing Safety Co-ordinator's HV Apparatus** from the rest of the **Implementing Safety Co-ordinator's System** where such **HV Apparatus** has no installed means of being connected to, and will not for the duration of the **Safety Precaution** be connected to, a source of electrical energy or to any other part of the **Implementing Safety Co-ordinator's System**.
- (4) "**Earthing**" means a way of providing a connection between conductors and earth by an **Earthing Device** which is either:
- (i) immobilised and **Locked** in the earthing position. Where the **Earthing Device** is **Locked** with a **Safety Key**, the **Safety Key** must be secured in a **Key Safe** and the **Key Safe Key** must be given to the authorised site

representative of the **Requesting Safety Co-ordinator** where reasonably practicable and is to be retained in safe custody. Where not reasonably practicable the **Key Safe Key** must be retained by the authorised site representative of the **Implementing Safety Co-ordinator** in safe custody; or

- (ii) maintained and/or secured in position by such other method which must be in accordance with the **Safety Rules** of the **Relevant Transmission Licensee** or that **User** as the case may be.

OC8B.1.7.3 For the purpose of the co-ordination of safety relating to **HV Apparatus** the term “**Safety Precautions**” means **Isolation** and/or **Earthing**.

OC8B.5.2.2 The **Implementing Safety Co-ordinator** shall confirm to the **Requesting Safety Co-ordinator** that the agreed **Isolation** has been established, and identify the **Requesting Safety Co-ordinator's HV Apparatus** up to the **Connection Point**, for which the **Isolation** has been provided. The confirmation shall specify:

- (a) for each **Location**, the identity (by means of **HV Apparatus** name, nomenclature and numbering or position, as applicable) of each point of **Isolation**;
- (b) whether **Isolation** has been achieved by an **Isolating Device** in the isolating position, ~~or~~ by an adequate physical separation or as a result of a No System Connection;
- (c) where an **Isolating Device** has been used whether the isolating position is either:
  - (i) maintained by immobilising and **Locking** the **Isolating Device** in the isolating position and affixing a **Caution Notice** to it. Where the **Isolating Device** has been **Locked** with a **Safety Key**, the confirmation shall specify that the **Safety Key** has been secured in a **Key Safe** and the **Key Safe Key** has been given to the authorised site representative of the **Requesting Safety Co-ordinator** where reasonably practicable and is to be retained in safe custody. Where not reasonably practicable (including where **Earthing** has been requested in OC8B.5.1), the confirmation shall specify that the **Key Safe Key** will be retained by the authorised site representative of the **Implementing Safety Co-ordinator** in safe custody; or
  - (ii) maintained and/or secured by such other method which must be in accordance with the **Safety Rules** of the **Relevant Transmission Licensee** or that **User**, as the case may be; ~~and~~
- (d) where an adequate physical separation has been used that it will be in accordance with, and maintained by, the method set out in the **Safety Rules** of the **Relevant Transmission Licensee** or

that **User**, as the case may be, and, if it is a part of that method, that a **Caution Notice** has been placed at the point of separation:-

- (e) where a **No System Connection** has been used the physical position of the **No System Connection** shall be defined and shall not be varied for the duration of the **Safety Precaution** and the **Implementing Safety Co-ordinator's** relevant **HV Apparatus** will not, for the duration of the **Safety Precaution** be connected to a source of electrical energy or to any other part of the **Implementing Safety Co-ordinator's System**.

The confirmation of **Isolation** shall be recorded in the respective **Safety Logs**.