



**GRID CODE  
CONSULTATION DOCUMENT**

**Category 5 Intertripping Scheme**

**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	B/09
Issue	1.0
Date of Issue	3 <sup>rd</sup> March 2009
<b>Responses required by</b>	<b>13<sup>th</sup> March 2009</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	

## 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 the changes to the Grid Code that have been identified as necessary to enable CUSC Amendment Proposal (CAP) 170 (Category 5 System to Generator Operational Intertripping Scheme)<sup>1</sup>.
3. The proposed changes to the Grid Code were circulated and reviewed by the Grid Code Review Panel (GCRP). The Panel were advised that CAP170 would require Grid Code changes to enable the CUSC Amendment Proposal. CAP170 was presented to the February 2009<sup>2</sup> CUSC Amendment Panel meeting at which 'urgent status' was requested to be assigned to the proposal. The Authority approved the request for 'urgent status' on 2<sup>nd</sup> March 2009<sup>3</sup>. It is the intention that both Code proposals will be submitted to the Authority for determination at the same time and as such the review period assigned to the Grid Code proposal will align with CAP170. The Panel noted that National Grid would issue a Consultation Paper regarding the proposed changes.
4. Comments upon the proposed changes within this consultation should be sent to National Grid by **13<sup>th</sup> March 2009** 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.

<sup>1</sup> <https://www.nationalgrid.com/NR/rdonlyres/CF13E86F-EBB4-477C-9122-5609A92713E5/32385/CAP170AmendmentProposal.pdf>

<sup>2</sup> [https://www.nationalgrid.com/uk/Electricity/Codes/systemcode/Panel/2009\\_current/11/](https://www.nationalgrid.com/uk/Electricity/Codes/systemcode/Panel/2009_current/11/)

<sup>3</sup> <https://www.nationalgrid.com/NR/rdonlyres/075D3EF7-0FE8-4CFF-8ECB-0A14CCE0B2E9/32386/CAP170UD.PDF>

## **B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS**

### **8. Background**

- 8.1 An Operational Intertrip is utilised by National Grid (in their role as GB System Operator (GBSO)) to operate and manage the GB Transmission System. The System to Generator Operational Intertrip is a specific type of Operational Intertrip.
- 8.2 The associated scheme, introduced by CAP076 (Treatment of System to Generator Intertripping Scheme), currently classifies four different categories of intertrips, formally defined in the Grid Code<sup>4</sup>, which are utilised by National Grid to manage specific risks on the GB Transmission System. Section 4 (Balancing Services) of the CUSC specifies the commercial arrangements for the arming and disarming of the System to Generator Operational Intertripping Scheme and describes the mechanism for the administration of the associated payments.
- 8.3 CAP170 (Category 5 System to Generator Operational Intertripping Scheme) seeks to introduce commercial arrangements for a newly defined category of intertrip within the System to Generator Operational Intertripping Scheme – ‘Category 5 Intertripping Scheme’. The industry consultation document for CAP170 was issued on 3<sup>rd</sup> March 2009<sup>5</sup>.
- 8.4 It has been identified that the introduction of a Category 5 Intertripping Scheme will require associated Grid Code changes such that there is consistency in technical and commercial provisions regarding this category of intertripping scheme.

### **9. Grid Code Review Panel Review**

- 9.1 Panel Members expressed concerns with the proposed Grid Code amendment, as initially outlined by National Grid, and the associated timeline for the progression of the amendment.
- 9.2 Several Panel Members indicated that the changes did not adequately describe what constituted a ‘Category 5 Intertripping Scheme’ and under what circumstances this new category of intertrip would be utilised, by National Grid (in their role as GBSO), to operate and manage the GB Transmission System.
- 9.3 The Panel were informed that the Category 5 Intertripping Scheme would be utilised to facilitate the operation of the GB Transmission System in an efficient and economical manner (in accordance with NGET’s Transmission Licence). The intertrips would enable increased pre-fault power flows at a ‘Derogated Non-Complaint Transmission Boundary’ than would otherwise be the case. Category 5 Intertripping Scheme would only be armed in respect of a ‘Derogated Non-Complaint Transmission Boundary’.
- 9.4 Panel Members noted that a ‘Derogated Non-Compliant Transmission Boundary’ would refer to a derogation granted to the relevant Transmission Licensee(s), by

<sup>4</sup> Grid Code Consultation A/05 (Grid Code Changes consequential to CAP076 - Treatment of System to Generator Intertripping Schemes) - <https://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/2005/>

<sup>5</sup> <https://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/currentamendmentproposals/>

the Authority, relieving the affected party(ies) from their obligations under the GB Security and Quality of Supply Standard. The Panel were informed that there was one such derogation which was currently applicable<sup>6</sup> although this did not preclude that similar derogations may be granted in the future (the proposed Grid Code wording was reflective of this fact). The Panel were informed that information regarding derogations is available via Ofgem's Electronic Public Register<sup>7</sup>.

- 9.5 Panel Members noted it was important that the Grid Code changes should articulate the circumstances in which the intertrip would be utilised and as such the proposed wording should be specific and descriptive in terms of when it could be applied. This was especially important, in the view of the Panel, given the retrospectivity of the proposal.
- 9.6 National Grid agreed that it was important that Users were informed of the circumstances in which a 'Category 5 Intertripping Scheme' would be applicable but noted that it would be more appropriate for detailed, site specific, information to be included in the Bilateral Agreement rather than it being codified within the Grid Code provisions as is the case for Category 1 to 4 Intertripping Schemes. The proposed 'Category 5 Intertripping Scheme' definition describes when the provision would be utilised.

### Timescales

- 9.7 Concerns were expressed regarding the proposed timeline for progression of the Grid Code amendment. As outlined previously, CAP170 was granted 'urgent status' by the Authority to which an associated timeline for the progression of the amendment through the CUSC governance framework was assigned. The Grid Code does not have a descriptive, codified, timeline for progressing changes, this is especially important given the nature and complexity of the Code changes; as such the associated timeline reflects the nature of the proposed amendment and the circumstances in which the modification has been raised.
- 9.8 Given the interaction between the Grid Code and CUSC regarding the proposed introduction of a newly defined category of intertripping scheme, it is important that the Grid Code facilitates, as far as reasonably practicable, the timely progression of the associated CUSC Amendment Proposal whilst following due process regarding the formal review of the Grid Code proposal. This would ensure, as far as reasonably practicable, that both sets of proposal would be presented to the Authority for determination at the same time (which would facilitate the decision making process).
- 9.9 National Grid accepts that the timeline for the progression of the proposed changes outlined in Grid Code Consultation B/09 has been truncated when compared to the normal working practices of the Grid Code (although this is permitted under Grid Code governance arrangements). This accelerated timeline does not in any way diminish National Grid's obligations in terms of consulting with 'Authorised Electricity Operators' and submitting a report to the

<sup>6</sup> Information on the derogation is available on Ofgem's website:  
[http://epr.ofgem.gov.uk/document\\_fetch.php?documentid=11759](http://epr.ofgem.gov.uk/document_fetch.php?documentid=11759)  
[http://epr.ofgem.gov.uk/document\\_fetch.php?documentid=11777](http://epr.ofgem.gov.uk/document_fetch.php?documentid=11777)

<sup>7</sup> <http://epr.ofgem.gov.uk/index.php?pk=folder97241>

Authority (inclusive of any written representations or objections from Authorised Electricity Operators).

- 9.10 In the event of the proposals being approved by the Authority, the CUSC provisions (8.21.1.9) do facilitate the review the obligations by a Working Group or Standing Group (if required). Given the close interaction between the Codes, it would be appropriate for the associated Grid Code provisions to be reviewed at the same time (if this review was instigated). Furthermore, all provisions of the Grid Code are kept under review and as such the industry may inform NGET and the GCRP of any areas which may benefit from a review.

## 10. Proposed Grid Code Changes

- 10.1 It is proposed to amend the Grid Code such that it is reflective of the CAP170 (Category 5 System to Generator Operational Intertripping Scheme) Amendment Proposal.
- 10.2 The proposal will introduce into the Grid Code a new category of intertripping scheme which will be utilised by National Grid (in their role as GBSO) to operate and manage the GB Transmission System.
- 10.3 The Category 5 Intertripping Scheme would enable increased pre-fault power flows at a 'Derogated Non-Complaint Transmission Boundary' than would otherwise be the case and would only be armed in respect of such 'Derogated Non-Complaint Transmission Boundary'.
- 10.4 A 'Derogated Non-Compliant Transmission Boundary' would refer to a derogation granted to the relevant Transmission Licensee(s), by the Authority, relieving the affected party(ies) from their obligations under the GB Security and Quality of Supply Standard.
- 10.5 It is proposed to include the following newly defined terms into the Glossary and Definition section of the Grid Code:
- Category 5 Intertripping Scheme
  - Derogated Non-Compliant Transmission Boundary
  - GB SQSS Derogation
- 10.6 The definition of 'System to Generator Operational Intertripping' and 'System to Generator Operational Intertripping Scheme' will also be amended such that it aligns with the new category of intertripping scheme.
- 10.7 The proposed legal changes to the Glossary and Definitions are shown in Appendix A (Part 1).

### **Interactivity with other Grid Code Amendments**

- 10.8 The proposals outlined in this report will interact with Grid Code Consultation F/08 (Grid Code Requirements for System to Generator Operational Intertripping Scheme).
- 10.9 Associated legal text which represents the interactivity will be provided in Appendix A (Part 2) of this report.

11. Impact on GB Transmission System

11.1 The proposed changes would not have any adverse impact on planning, maintenance and operation of the GB Transmission System.

11.2 It will facilitate the effective and economical management and operation of the GB Transmission System at a 'Derogated Non-Complaint Transmission Boundary'.

12. Impact on Grid Code Users

12.1 The proposals will provide Users with understanding regarding what comprises a Category 5 Intertripping Scheme. The provisions would apply to Users which have a Category 5 Intertripping Scheme specified in their Bilateral Agreement (in the event of the proposals being approved by the Authority).

13. Assessment Against Grid Code Objectives

13.1 The proposed changes outlined in Grid Code Consultation B/09 would better facilitate Grid Code Objectives:

i) to permit the development, maintenance and operational of an efficient, co-ordinated and economical system of the transmission of electricity

and

ii) to facilitate competition in the generation and supply of electricity

by ensuring that the Grid Code makes reference to the circumstances which would constitute an 'Category 5 Intertripping Scheme' and ensuring that there is consistency in technical and commercial provisions regarding this category of intertripping scheme.

14. Impact on Industry Documents

14.1 *Impact on Core Industry Documents*

14.1.1 The proposal has been necessitated by CAP170 (Category 5 System to Generator Operational Intertripping Scheme). The proposal is required such that the CUSC (and its associated documents e.g. Bilateral Agreement) and the Grid Code continue to refer to the relevant categories of System to Generator Operational Intertripping Scheme.

14.2 *Impact on other Industry Documents*

14.2.1 Grid Code Consultation B/09 (Category 5 Intertripping Scheme) has no impact upon other Industry Documents.

15. Environmental Impact Assessment

15.1 Grid Code Consultation B/09 (Category 5 Intertripping Scheme) will have no additional environment impact given that it is codification of existing operational actions required to manage and operate the GB Transmission System.

**C. RESPONSES**

16. This section will contain a summary of responses received during the Consultation and will be completed as part of the Report to the Authority.
17. Views are invited upon the proposals outlined in this report. Especially views on the following areas would be welcomed:
  - Impact of the proposals on Grid Code Users.
18. Your formal responses may be:-

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

Emailed to: [bec.thornton@uk.ngrid.com](mailto:bec.thornton@uk.ngrid.com)

## **Appendix A (Part 1): Proposed Grid Code Changes**

The proposed legal text is reflective of the current Grid Code baseline as specified in Issue 3 Revision 32.

*Changes to the Glossary and Definitions*

### **GLOSSARY AND DEFINITIONS**

Amend the existing definition of 'System to Generator Operational Intertripping' and 'System to Generator Operational Intertripping Scheme' as follows:

**System to Generator Operational Intertripping**

A **Balancing Service** involving the initiation by a **System to Generator Operational Intertripping Scheme** of automatic tripping of ~~the User's~~ circuit breaker(s) resulting in the tripping of **BM Unit(s)** or (where relevant) **Generating Unit(s)** comprised in a **BM Unit** to prevent abnormal system conditions occurring, such as over voltage, overload, **System** instability, etc, after the tripping of other circuit-breakers following power **System** fault(s).

**System to Generator Operational Intertripping Scheme**

A **System to Generating Unit** or **System to CCGT Module Intertripping Scheme** forming a condition of connection and specified in Appendix F3 of the relevant **Bilateral Agreement**, being either a **Category 1 Intertripping Scheme**, **Category 2 Intertripping Scheme**, **Category 3 Intertripping Scheme**, ~~or~~ **Category 4 Intertripping Scheme** or **Category 5 Intertripping Scheme**.

Insert the following new definitions:

**Category 5 Intertripping Scheme**

A **System to Generator Operational Intertripping Scheme** which :-

- (i) is required to alleviate thermal overloads, unacceptable voltage conditions or power system instability arising out of an event which results in the interruption of powerflow on a circuit or circuits that form part of a **Derogated Non-Compliant Transmission Boundary**; and
- (ii) may only be armed in respect of a **Derogated Non-Compliant Transmission Boundary**.

**Derogated Non-Compliant Transmission Boundary**

**Transmission** circuit(s) forming part of the **GB Transmission System** which is/are the subject of a **GB SQSS Derogation**.

**GB SQSS Derogation**

A direction issued to **NGET** and/or **Relevant Transmission Licensee** by the **Authority** relieving **NGET** and/or **Relevant Transmission Licensee** from obligations under the **Security and Quality of Supply Standard**.

**Appendix A (Part 2): Proposed Grid Code Changes (Interactive with Grid Code Consultation F/08 (Grid Code Requirements for System to Generation Operational Intertripping Scheme))**

In the event of Grid Code Consultation F/08 (Grid Code Requirements for System to Generation Operational Intertripping Scheme) being approved by the Authority and subsequently implemented (prior to Grid Code Consultation B/09), the baseline for the proposed changes will have been amended and the following proposed changes for Grid Consultation B/09 will also be required:

*Proposed Changes to Glossary & Definitions*

**GLOSSARY AND DEFINITIONS**

The baseline for the proposal will have been amended as such the proposed change to existing definition of ‘System to Generator Operational Intertripping Scheme’ will be as follows:

**System to Generator Operational Intertripping Scheme**

A **System to Generating Unit** or **System to CCGT Module** or **System to Power Park Module** intertripping scheme forming a condition of connection and specified in Appendix F3 of the relevant **Bilateral Agreement**, being either a **Category 1 Intertripping Scheme, Category 2 Intertripping Scheme, Category 3 Intertripping Scheme, or Category 4 Intertripping Scheme** or **Category 5 Intertripping Scheme**.

*Proposed Changes to Connection Conditions*

Additional changes to the Connection Conditions, currently not specified in Appendix A (Part 1) will be required.

**CONNECTION CONDITIONS**

Amend clause CC.6.3.17 as follows:

CC.6.3.17 **NGET** may require that a **System to Generator Operational Intertripping Scheme** be installed as part of a condition of the connection of the **Generator**. Scheme specific details shall be included in the relevant **Bilateral Agreement** and shall, in respect of **Bilateral Agreements** entered into on or after [date of implementation of change], include the following information:

1. the relevant category(ies) of the scheme (referred to as **Category 1 Intertripping Scheme, Category 2 Intertripping Scheme, Category 3 Intertripping Scheme, and Category 4 Intertripping Scheme** and **Category 5 Intertripping Scheme**);
2. the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** to be either permanently armed or that can be instructed to be armed in accordance with BC2.8;
3. the time within which the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** circuit breaker(s) are to be automatically tripped;

4. the location to which the trip signal will be provided by **NGET**. Such location will be provided by **NGET** prior to the commissioning of the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)**.

Where applicable, the **Bilateral Agreement** shall include the conditions on the **GB Transmission System** during which **NGET** may instruct the **System to Generator Operational Intertripping Scheme** to be armed and the conditions that would initiate a trip signal.

- CC.6.3.18 The time within which the ~~Generating Unit(s) or CCGT Module(s) or Power Park Module(s)~~ circuit breaker(s) need to be automatically tripped is determined by the specific conditions local to the **Generator**. This 'time to trip' (defined as time from provision of the trip signal by **NGET** to the specified location, to circuit breaker main contact opening) can typically range from 100ms to 10sec. A longer time to trip may allow the initiation of an automatic reduction in the **Generating Unit(s)** or **CCGT Module(s)** or **Power Park Module(s)** output prior to the automatic tripping of the ~~Generating Unit(s) or CCGT Module(s) or Power Park Module(s)~~ circuit breaker. Where applicable **NGET** may provide separate trip signals to allow for either a longer or shorter 'time to trip' to be initiated.