

## Stage 02: Industry Consultation

Grid Code

# A/11 Black Start: Amendments to Grid Code resulting from BSC modification P231

What stage is this document at?

- |    |                         |
|----|-------------------------|
| 01 | Working Group Report    |
| 02 | Industry Consultation   |
| 03 | Report to the Authority |

This proposal seeks to modify Grid Code to align it with the Balancing and Settlement Code (BSC) following the changes introduced through BSC modification P231.

This document is open for Industry Consultation. Any interested party is able to make a response in line with the guidance set out in Section 5 of this document.

**Published on:** 1 April 2011  
**Length of Consultation:** Minimum 20 Working Days  
**Responses by:** 6 May 2011



### **High Impact:**

National Grid & BSCCo



### **Medium Impact:**

Generators, License Exemptible Generators, Licensed Distribution System Operators, Interconnector Administrators & Interconnector Users



### **Low Impact:**

A/11 Industry  
Consultation

1 April 2011

Version 1.0

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## About this document

This Industry Consultation outlines the information required for interested parties to form an understanding of a defect within the Grid Code and the proposed solutions.

To modify the Grid Code a Modification Proposal must be taken to the Grid Code Review Panel (GCRP). This Modification Proposal will outline the background to the issue, how to address it, any impacts it may have on the industry and a recommendation for the GCRP to proceed to a Working Group or to an Industry Consultation.

The GCRP, based on the Modification Proposal, will determine if any further work or debate is required. If the group feels that the issue could benefit from further examination it will be progressed to a Working Group. Terms of Reference will be created to outline the purpose and scope of the Working Group, as well as any timelines for reporting back to the GCRP. The Working Group will then meet to discuss the issue and produce a Working Group Report. This Working Group Report is then presented to the GCRP to determine if the Terms of Reference have been met and that a robust solution has been developed to meet the defect within the Grid Code.

If the GCRP feels that the issue has already been investigated thoroughly and a robust solution has been developed, the Modification Proposal will progress to an Industry Consultation. Grid Code Industry Consultations last approximately one month but timescales can alter based on the complexity of the issue.

Following the conclusion of the Industry Consultation, a Report to the Authority is produced which takes into account any responses to the Industry Consultation and puts forward recommendations to Ofgem on how to address the defect within the Grid Code. The Authority then considers the issue and the proposed solutions to make a determination.



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### Any Questions?

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## 1 Executive Summary

- 1.1 Following BSC modification P231 which aimed to improve transparency of arrangements and obligations associated with a Black Start or Fuel Security Code (FSC) event within the BSC, several recommendations were made to review OC9.4 of Grid Code and make the necessary changes to align it with the BSC.
- 1.2 Following discussions held at the GCRP on the 17<sup>th</sup> February 2011, we recommend that the following changes are made to Grid Code to bring it in line with those changes already made to the BSC under Modification P231:
  - Firstly, to include in section OC9.4.6 that National Grid Electricity Transmission will determine the time and date from which the Total Shutdown or Partial Shutdown commenced in regards to a Black Start event. The BSCCo will then be notified of this and will use it to determine the Settlement Period from which the Balancing Mechanism is suspended.
  - Secondly, an additional paragraph is required at the end of OC9.4.7.9 to ensure Users of Grid Code provide Physical Notifications ten hours prior to the market returning to normal operation. This is to ensure that the System Operator, National Grid, is then able to despatch parties to their intended position. Parties that don't provide PNs run the risk of being exposed to Imbalance Charges.
  - Finally, some minor housekeeping changes are required to amend an incorrect reference to the BSCCo in the first paragraph of section OC9.4.7.9, which should read BSCCo. There is also an 'and' at the end of point (c) also within section OC9.4.7.9, this should actually be at the end of point (d).
- 1.3 These recommendations are included in Section 3 of this document, with the proposed Grid Code legal text changes shown in Annex 1.

## 2 Purpose & Introduction

- 2.1 This consultation presents the changes required to OC9.4 to bring Grid Code in line with the Balancing and Settlement Code (BSC) as a result of BSC modification P231.
- 2.2 The aim of BSC Modification P231 was to improve the transparency of the arrangements and obligations associated with a Black Start or Fuel Security Code (FSC) event within the BSC. P231 was raised by National Grid in December 2008 with the solution being based on the discussions from BSC Issues 32 'Black Start' and 33 'Fuel Security Code'. The final proposal was approved in June 2009 and implemented in November 2009. As a result of introducing P231, the BSC now provides clearer processes for the industry to follow in the event of a Black Start or FSC direction. The changes recommended in this consultation are in regards to a Black Start event only and are designed to align Grid Code with the BSC.
- 2.3 A 'Black Start' is a recovery process for restoring electricity on the Transmission System (and Distribution System) following a Total or Partial shutdown. Power stations connected to the de-energised part of the system are generally not capable of re-starting and rely on an 'external' source of electricity from the Transmission System (or Distribution System) to start up their generating units.
- 2.4 Certain power stations have contracts with the System Operator (National Grid) where they will be able to initiate a Black Start following a Total or Partial shutdown. These power stations do not require an external source of energy to produce electricity. In most instances, such power stations use open cycle gas turbines to start their main units. This station would then energise parts of the Transmission system and provide an 'external' source of electricity to start those power stations that don't have Black Start capability. These 'power islands' can gradually be developed further such that the Transmission System (and Distribution System) can be fully re-energised and then demand can be gradually re-connected.
- 2.5 As a result of the changes made to the BSC when P231 was approved by Ofgem, subsequent changes were recommended to OC9.4 of Grid Code to align both codes. Appendix 4 of P231 Assessment Report<sup>1</sup> flagged up these specific changes that were identified by the working group for further development. These changes were as follows:
- (a) Remove reference to BSCCo determining the start of a Black Start – Replace with the Transmission Company
  - (b) Possible requirement on National Grid to inform BSCCo when the Transmission System is energised following a Black Start
  - (c) Possible requirement on National Grid to notify BSCCo that the events which gave rise to the Black Start no longer exist and the market is capable of operating normally
  - (d) Requirement on Parties to use reasonable endeavours to submit Physical Notifications ten hours prior to the end of the Black Start

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<sup>1</sup> <http://www.elexon.co.uk/Pages/P231.aspx>

### 3 Description of Proposed Modification and its Effects

- 3.1 Following discussions held at the Grid Code Review Panel meeting on the 17<sup>th</sup> February 2011 and discussion held ahead of this meeting between National Grid and Elexon, we recommend that the proposed changes are carried out as outlined below.
- 3.2 In regards to the following recommendation:
- (a) Remove reference to BSCCo determining the start of a Black Start – Replace with the Transmission Company

We propose that a change to Grid Code is required. The change reflects that it is the responsibility of National Grid Electricity Transmission to determine the time and date of the Total or Partial shutdown and inform the BSCCo of that. Subsequently, BSCCo will use this information to determine the Settlement Period with effect from which the Balancing Mechanism is suspended. We recommend a paragraph is inserted into section OC9.4.6 to incorporate the proposed change. The proposed Grid Code drafting for the above change can be found in Annex 1.

- 3.3 In regards to the following recommendation:
- (a) Possible requirement on National Grid to inform BSCCo when the Transmission System is energised following a Black Start.

It was agreed that the existing wording within OC9.4.7.9 point (a) already covers in sufficient detail the notification to the BSCCo of the energisation status of the GB Transmission System. The current Grid Code text is shown below:

#### OC9.4.7.9

***NGET shall, as soon as reasonably practical, inform Users and the BSCCo when the Total System could return to normal operation. Any such determination by NGET does not mean that the provisions of Section G paragraph 3 (Black Start) of the BSC shall cease to apply.***

*In making the determination that the Total System could return to normal operation, NGET, would consider, amongst other things, the following areas:*

*(a) the extent to which the National Electricity Transmission System is contiguous and energised;*

It was agreed that this is already one of the considerations that National Grid makes in determining whether the Total System can return to normal operation. Therefore no Grid Code changes are proposed.

- 3.4 In regards to the following recommendation:
- (a) Possible requirement on National Grid to notify BSCCo that the events which gave rise to the Black Start no longer exist and the market is capable of operating normally

It was agreed that there was no requirement to alter the existing wording within Grid Code. It was agreed that this is sufficiently covered within OC9.4.7.9, which stipulates the physical considerations taken into account by National Grid when determining the Total system could return to normal operation. It was also agreed that in some cases (e.g. human error) the events which gave rise to a Black Start event may in fact still exist but the

system could return to normal operation. It was also noted that it is the BSC Panel's decision when the market is capable of operating normally and was not something National Grid would be able to determine.

3.5 In regards to the following recommendation:

- (a) Requirement on Parties to use reasonable endeavours to submit Physical Notifications ten hours prior to the end of the Black Start

P231 introduced a clear structure for Parties to follow in the event of a Black Start event. This involved establishing a point at which all Parties should use reasonable endeavours to submit Physical Notifications (PNs); this was agreed to be 10 hours prior to the market returning to normal operation and would be notified to Grid Code users by National Grid. This is to ensure that the System Operator, National Grid, is then able to despatch parties to their intended position. Parties that do not provide PNs run the risk of being exposed to Imbalance Charges. To ensure this is clear, we recommend that a paragraph is introduced into Grid Code at the end of section OC9.4.7.9 to incorporate the proposed change. The proposed Grid Code drafting for the above change can be found in Annex 1.

## 4 Impacts & Assessment

### 4.1 Impact on National Electricity Transmission System (NETS)

The proposed changes will impact National Grid.

### 4.2 Impact on Grid Code Users

The proposed modification will impact Generators, Suppliers, License Exemptible Generators, Licensed Distribution System Operators, Interconnector Administrators, Interconnector Users and the BSCCo.

### 4.3 Impact on Greenhouse Gas emissions

The proposed modification will not have a material impact on Greenhouse Gas emission.

### 4.4 Assessment against Grid Code Objectives

National Grid considers that A/11 would better facilitate the Grid Code objectives:

- (i) to permit the development, maintenance and operation of an efficient, co-ordinated and economical system for the transmission of electricity;

Improved transparency of Users requirements resulting in better co-ordination of the Transmission System.

- (ii) to facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity) ; and

No additional benefit identified

- (iii) subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole.

Improves security of electricity generation on the Transmission System

### 4.5 Impact on Industry Documents

#### 4.5.1 Impact on core industry documents

The proposed modification does not impact on any core industry documents, but brings the Grid Code closer aligned to the BSC

#### 4.5.2 Impact on other industry documents

The proposed modification does not impact on any other industry documents.

## 5 Responses

- 5.1 Views are invited upon the proposals outlined in this report, which should be received by 6 May 2011.
- 5.2 Your formal responses may be:-

Posted to: Ben Smith  
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### OPERATIONAL CODE

#### OC9.4.6 **Black Start Situation**

In the event of a **Total Shutdown** or **Partial Shutdown**, **NGET** will, as soon as reasonably practical, inform **Users** (or, in the case of a **Partial Shutdown**, **Users** which in **NGET's** opinion need to be informed) and the **BSCCo** that a **Total Shutdown**, or, as the case may be, a **Partial Shutdown**, exists and that **NGET** intends to implement a **Black Start**. **NGET shall (as soon as is practicable) determine, in its reasonable opinion, the time and date with effect from which the Total Shutdown or Partial Shutdown commenced and inform BSCCo of that time and date.** Following such notification, in accordance with the provisions of the **BSC**, the **BSCCo may will** determine the **Settlement Period** time with effect from which the **Balancing Mechanism** is suspended.

#### OC9.4.7.9 **NGET shall, as soon as reasonably practical, inform Users and the BSCCo when the Total System could return to normal operation. Any such determination by NGET does not mean that the provisions of Section G paragraph 3 (Black Start) of the BSC shall cease to apply.**

In making the determination that the **Total System** could return to normal operation, **NGET**, would consider, amongst other things, the following areas:

- (a) the extent to which the **National Electricity Transmission System** is contiguous and energised;
- (b) the integrity and stability of the **National Electricity Transmission System** and its ability to operate in accordance with the **Licence Standards**;
- (c) the impact that returning to normal may have on transmission constraints and the corresponding ability to maximise the **Demand** connected; ~~and~~
- (d) the volume of generation or **Demand** not connected to the **National Electricity Transmission System**; ~~and~~
- (e) the functionality of normal communication systems (i.e. EDT, **Control Telephony**, etc).

For the avoidance of doubt, until the Conclusion of the **Black Start** the **Balancing Mechanism** is unlikely to be operational and **NGET** is likely to continue to issue **Emergency Instructions** in accordance with BC2.9.

**Users shall use reasonable endeavours to submit Physical notifications ten hours prior to the start of the Settlement Period determined by the BSC Panel in accordance with paragraph G3.1.2(d) of the BSC, in preparation for a return to normal operations and as notified by NGET to Users.**