nationalgrid

# Stage 01: Modification Proposal

Grid Code

# GC108: EU Code: Emergency & Restoration: Black start testing requirement

What stage is this document at?

| | |
|---|---|
| 01 | Modification Proposal |
| 02 | Code Admin Consultation |
| 03 | Draft Final Modification Report |
| 04 | Final Modification Report |

**Purpose of Modification:** This modification seeks to align the GB Grid Code with the European Emergency and Restoration code. The purpose of this proposal is to align and regulate the testing of black start stations across the two codes.

**The Proposer recommends that this modification should be:**

- subject to self-governance and proceed to Code Administrator Consultation

This modification was raised *14th February 2018* and will be presented by the Proposer to the Panel on *22nd February 2018.* The Panel will consider the Proposer's recommendation and determine the appropriate route.

***High Impact:*** *Transmission System Operators (TSOs) and black start providers. This modification is linked to TSO compliance with EU Regulation 2017/2196 (Emergency and Restoration).*

***Medium Impact:*** *None*

***Low Impact:*** *None*

## Contents



**Any Questions?**


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## Timetable

**The Code Administrator will update the timetable. This will be discussed at the Panel meeting being held on 22 February 2018 and updated following the Panel decision on the Governance route.**

| | |
|---|---|
| Workgroup Meeting 1 | dd month year |
| Workgroup Meeting 2 | dd month year |
| Workgroup Meeting 3 | dd month year |
| Workgroup Report presented to Panel | dd month year |
| Code Administration Consultation Report issued to the Industry | dd month year |
| Draft Final Modification Report presented to Panel | dd month year |
| Modification Panel decision | dd month year |
| Final Modification Report issued the Authority | dd month year |
| Decision implemented in Grid Code | dd month year |

# 1 Summary

***What***

Following a code review undertaken via an industry issue group (Joint European Stakeholder Group) it has been concluded that changes to the Grid Code are required to ensure that we are compliant in Great Britain. The Emergency and Restoration code states that each restoration service provider shall execute a black start capability test at least once every three years. Current GB legislation states this should be tested no more than once every two years. Our position is that this change is necessary. Further information on engagement carried out ahead of the raising of this modification can be located in the Consumer Impact section of this modification.

***Why***

The Emergency & Restoration code requires that a system operator produce a system defence plan, to be enacted in the event of significant issues affecting the system. It also requires a restoration plan, detailing the actions to be taken to restore supply in the event that the system enters the Blackout state as defined by SOGL. Finally, it details how the defence and restoration capabilities should be tested for compliance.

Some clauses in Emergency and Restoration relating to black start service testing frequency are different to current GB practice. Specifically under the new code Emergency and Restoration 2017/2196 Article 44 Compliance testing of power generating module capabilities "each restoration service provider which is a power generating module delivering black start service shall execute a black start capability test, at least every three years" following the methodology laid down in Article 45(5). It is our proposal to raise a modification to the Grid Code to reflect the requirements in Emergency and Restoration Article 45(5).

***How***

This modification proposes to align the testing requirements depicted in the Emergency and Restoration code by changing the wording in OC5 of the Grid Code allowing the frequency of testing black start stations to be every three years.

# 2 Governance

*Justification for **Self-Governance** Procedures*

We consider that this modification should be considered for self-governance procedures as although it will impact the operation of the National Electricity Transmission System, it will only affect a subset of parties who have already been engaged, and the modification describes arrangements which are already in place between NGET and black start providers.

***Self-Governance -** The modification is unlikely to discriminate between different classes of Grid Code Parties and is unlikely to have a material effect on:*

*i) Existing or future electricity customers;*

ii) *Competition in the generation, distribution, or supply of electricity or any commercial activities connected with the generation, distribution or supply of electricity,*

iii) *The operation of the National Electricity Transmission System*

iv) *Matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies*

v) *The Grid Code's governance procedures or the Grid Code's modification procedures*

***Requested Next Steps***

This modification should:

- be subject to self-governance

## 3 Why Change?

This Proposal is one of a number of Proposals which seek to implement relevant provisions of a number of new EU Network Codes/Guidelines which have been introduced in order to enable progress towards a competitive and efficient internal market in electricity. Some EU Network Guidelines are still in development and these may in due course require a review of solutions developed for Codes that come into force beforehand. The full set of EU network guidelines are;

- Regulation 2015/1222- Capacity Allocation and Congestion Management (CACM) which entered into force 14 August 2015
- Regulation 2016/1719 – Forward Capacity Allocation (FCA) which entered into force 17 October 2016
- Regulation 2016/631- Requirements for Generators (RfG) which entered into force 17 May 2016
- Regulation 2016/1388 – Demand Connection Code (DCC) which entered into force 7 September 2016
- Regulation 2016/1447 – High Voltage Direct Current (HVDC) which entered into force 28 September 2016
- Transmission System Operation Guideline (TSOG)- which entered into force July 2017.
- Regulation 2017/2196 - Emergency and Restoration (E&R) which entered into force 18 December 2018.

Emergency and Restoration is crucial to the interconnected internal energy market in the UK and specifically maintaining security of energy supply, increasing competitiveness and ensuring that all consumers within EU Member States can purchase energy at affordable prices. This code sets out harmonised rules on how to deal with emergency situations and to restore the system as efficiently and as quickly as possible. The European Network Code Emergency and Restoration will ensure the highest level of system security for Europe.

## 4 Code Specific Matters

***Technical Skillsets***

An understanding of the existing black start testing processes on the GB system as described in section OC5 of the GB Grid Code.

An Understanding of the proposed black start testing schedule as depicted in the European Network Code Emergency and Restoration Regulation.

***Reference Documents***

GB Grid Code
*https://www.nationalgrid.com/sites/default/files/documents/8589935310-Complete%20Grid%20Code.pdf*

Commission Regulation (EU) 2017/2196 of 24 November 2017 establishing a network code on electricity emergency and restoration:
http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R2196

## 5 Solution

It is proposed that the GB Grid Code requirement for "black start testing" is changed. New requirements under the EU code Emergency and Restoration have been introduced specifying that black start stations should be tested at least once every three years. Current Grid Code legislation states this should be tested no more than every two years.

This will be achieved through the following change to the Grid Code:

1. Changing the frequency of black start testing from at least every two years to every three years.

## 6 Impacts and Other Considerations

**Who**
This impacts black start providers, NGET and External System operators.

**Which**
The black start testing process in the GB Grid Code section 5, which determine the testing of black start stations across GB.

**Systems impacted**
NGET Black Start testing
Other Black Start providers

***Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?***

No

***Consumer Impacts***

This change will facilitate the implementation of both the EU Emergency and Restoration code facilitating a harmonised electricity system. This change is expected to both deliver and facilitate a significant benefit to the end consumer by ensuring security of supply across GB and Europe.

Prior to raising this modification engagement was carried out at the Joint European Stakeholder Forum. The presentation was given at the link below to advise stakeholders of the upcoming amendment to the Grid Code: (https://www.nationalgrid.com/uk/electricity/codes/european-network-codes/meetings/jesg-meeting-12022018)

As Proposer we also attended the Black Start Task Force to make our relevant stakeholders aware of the changes that are being proposed in this Grid Code Modification Proposal.

Prior to this National Grid Electricity Transmission also attended the Joint European Stakeholder Group to outline the Emergency & Restoration impacts. The slide pack containing this information can be located below:

https://www.nationalgrid.com/uk/electricity/codes/european-network-codes/meetings/jesg-meeting-09012018

## 7 Relevant Objectives

| Impact of the modification on the Relevant Objectives: | |
|---|---|
| **Relevant Objective** | **Identified impact** |
| **To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity** | **Positive** |
| **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)** | **Positive** |
| **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** | **Positive** |
| **To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and** | **Positive** |
| **To promote efficiency in the implementation and administration of the Grid Code arrangements** | **Neutral** |

The proposer believes that this modification will better support the relevant objective of maintaining and efficient and coordinated electricity system. The testing of black start stations seeks to ensure that the GB electricity system is fully capable of operating in a black out or situations where risks to security of supply are relevant in the GB electricity marked.

## 8 Implementation

The implementation should be in like with the depicted implementation date as described in the European Emergency and Restoration code of the 18th December 2018.

## 9 Legal Text

It is proposed that the following changes are made to OC5 of the Grid Code:

**OC 5.7.1 General**

(a) **NGET** ~~may~~ shall require a **Generator** with a **Black Start Station** to carry out a ~~test (a~~ "Black Start Station Test") on a **Genset** in a Black Start Station ~~either while the **Black Start Station** remains connected to an external alternating current electrical supply (a "**BS Unit Test**") or while the Black Start Station is disconnected from all external alternating current electrical supplies (a "**BS Station Test**"),~~ in order to demonstrate that a **Black Start Station** has a **Black Start Capability**.

b) NGET shall require a Generator with a Black Start Station to carry out a Black Start Station test at least once every three years.

(c)~~(b)~~ Where **NGET** requires a **Generator** with a **Black Start Station** to carry out a **BS Unit Test**(the Black Start Station remains connected to an external alternating current electricity supply), **NGET** shall not require the **Black Start Test** to be carried out on more than one **Genset** at that **Black Start Station** at the same time, and would not, in the absence of exceptional circumstances, expect any of the other **Genset** at the **Black Start Station** to be directly affected by the **BS Unit Test.** Issue 5 Revision 15 OC5 03 February 2016 10 of 42

(d)~~(c)~~ **NGET** may require a **Generator** with a **Black Start Station** to carry out a **BS Unit Test** at any time (but will not require a **BS Unit Test** to be carried out more than once in each calendar year in respect of any particular **Genset** unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test, and will not require a BS Station Test to be carried out more than once in every two calendar years in respect of any particular **Genset** unless it can justify on reasonable grounds the necessity for further tests or unless the further test is a re-test.

(e)~~(d)~~ When **NGET** wishes a **Generator** with a **Black Start Station** to carry out a **Black Start Test**, it shall notify the relevant **Generator** at least 7 days prior to the time of the **Black Start Test** with details of the proposed **Black Start Test**.

## 10 Recommendations

Panel is asked to:

- Agree that Self Governance procedures should apply
- Agree that the modification should proceed to Code Administrator Consultation