GC0108: EU Code: Emergency & Restoration: Black start testing requirement

What stage is this document at?

01	Modification Proposal
02	First Code Administrator Consultation
03	Draft Final Modification Report
04	Second Code Administrator Consultation
05	Draft Final Modification Report
06	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 Final Modification Report has been prepared in accordance with the terms of the Grid Code. An electronic version of this document and all other GC0108 related documentation can be found on the National Grid website via the following link:

https://www.nationalgrideso.com/codes/grid-code/modifications/gc0108-eu-code-emergency-restoration-black-start-testing-requirement

The purpose of this document is to assist the Authority in making its decision on whether to implement GC0108.

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).*

Contents

Any Questions?

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Timetable

Modification Proposal submitted to Grid Code Panel	14 March 2018
Modification Proposal discussed at Grid Code Panel	22 March 2018
Code Administration Consultation issued/closes to Industry	18 April 2018
Code Administration Consultation Closes	10 May 2018
Draft Self-Governance Modification Report presented to Panel	28 June 2018
Grid Code Modification Panel Determination Vote	28 June 2018

Draft Final Modification Report presented to Panel following retraction of Self-Governance Statement	15 August 2018
Panel recommendation Vote (discussion around GR22.4)	15 August 2018
Second Code Administrator Consultation	21 August 2018
Closure of second Code Administrator Consultation	12 September 2018
Draft Final Modification Report issued to Panel and Recommendation Vote	19 September 2018
Panel Recommendation Vote	27 September 2018
Final modification submitted to Authority	11 October 2018
Decision expected from Authority (25 WDs)	15 November 2018
Implementation	Ahead of 18 December 2018

1 About this document

This document is the Final Grid Code Modification Report document that contains the responses to the initial Code Administrator Consultation and the Second Code Administrator Consultation which closed on 12 September 2018.

GC0108 was proposed by National Grid and was submitted to the Grid Code Review Panel for its consideration on 14 March 2018. The Panel decided that a Workgroup was not required for this modification and that it should be issued to Code Administrator Consultation for 15 working days.

Initial Code Administrator Consultation Responses

Four responses were received to the Code Administrator Consultation. A summary of the responses can be found in Section 14 of this document and the full responses in Annex 3. Overall all respondents agreed that the proposal better facilitates the Grid Code objectives.

June 2018 Grid Code Review Panel

GC0108 Draft Self-Governance Report was presented to the GCRP on the 28 June. The Panel reviewed the Code Administrator Consultation responses within the Report and decided to retract their Self-Governance Statement. This modification will now be sent to the Authority for their decision.

The Draft Final Modification Report will now be represented to the Grid Code Panel on 18 July 2018 where they will decide on next steps as per Governance Rule GR22.4.

The Proposer of this modification has suggested some amended legal text which can be found in Annex 4. The Panel will decide whether to re-consultation is required or to carry out their recommendation vote and send the modification to the Authority.

Panel discussion 15 August 2018

On the 15 August, the Panel were presented with the Draft Final Modification Report following the retraction of their Self-Governance Statement. The Panel made the decision to re-consult on the modification following the responses received during the initial Code Administrator Consultation phase under GR22.4 (ii) The legal text has been updated following the feedback received and can be found in Section 11

Second Code Administrator Consultation Responses

Three responses and one confidential response were received to the second Code Administrator Consultation that closed on 12 September 2018. A summary of the non-confidential responses can be found in Section 14 with the full responses in Annex 4.

Grid Code Panel View

At the Grid Code Panel meeting on 27 September 2018, the Panel carried out their Recommendation vote.

The Panel agreed by majority that the Original better facilitates the Applicable Grid Code Objectives and recommended that it should be implemented.

The Final Modification Report has been prepared in accordance with the terms of the Grid Code. An electronic copy can be found on the National Grid Website https://www.nationalgrideso.com/codes/grid-code/modifications/gc0108-eu-code-emergency-restoration-black-start-testing-requirement , along with the Grid Code Modification Proposal Form.

National Grid View

As this modification was raised by National Grid their view is the Original Proposal as submitted to the Authority.

2 Summary

What

Following a code mapping review of the Emergency and Restoration European Network Code undertaken by an industry review group on the 31st January 2017 an amendment to the Grid Code was identified as outlined in this paper to ensure alignment between these requirements and GB frameworks. The code mapping session was an open invitation sent to all parties on the Joint European Stakeholder Group (JESG) distribution list on the 13th January 2017.

The Emergency and Restoration code states that each black start service provider shall execute a black start unit test at least once every three years. Current GB legislation states that this should be tested no more than once every two years. Our position is that a change to align these requirements is necessary. Further

information on engagement carried out ahead of raising 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.

Currently the system defence and system restoration plans are under development within National Grid and it is not expected that these will raise any further Grid Code Modifications. Details of these plans will be published to stakeholders in due course.

Some clauses in the Emergency and Restoration network code relating to black start service testing frequency are different to current GB practices. Specifically, under EU Regulation Emergency and Restoration 2017/2196 Article 44 Compliance testing of power generating module capabilities is required such that "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" and following the methodology laid down in Article 45(5) of EU Regulation 2016/631 Requirements for Generators. This proposal is to make a change to the Grid Code to reflect these requirements.

How

This modification proposes to align the testing requirements set out in the Emergency and Restoration code with GB frameworks by changing the wording in OC5 of the Grid Code to require the testing of power generating modules delivering a black start service at least every three years.

3 Governance

Justification for Self-Governance Procedures ahead of Panel

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 service providers. In changing the interval only of testing the modification will align the Grid Code with European law.

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*

Panel decision on Governance route 22 March 2018

The Grid Code Panel decided that GC0108 met the Self-Governance criteria and should proceed under this route. They agreed to issue this modification to Code Administrator Consultation for 15 working days.

Panel retract Self-Governance Statement June 2018

The Grid Code Panel decided to retract their Self-Governance Statement on the 28 June 2018 following the completion of the Code Administrator Consultation. This modification will now go to the Authority for a decision.

4 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 (SOGL) - which entered into force 14 September 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.

5 Code Specific Matters

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

6 Solution

It is proposed that the interval specified in the GB Grid Code for "black start testing" is revised to align with the EU Emergency and Restoration Code. This specifies that power generating modules having black start capability within stations opting to provide black start services should be tested at least once every three years. Current Grid Code provisions are that testing of black start units within a station should occur no more than every year.

7 Impacts and Other Considerations

Who
This impacts black start service providers, NGET and External System Operators.

Which
The black start testing process in the GB Grid Code section OC5, which sets out the testing requirements for black start stations in GB.

Systems impacted
NGET Black Start testing
Black Start service 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 the EU Emergency and Restoration code which helps to facilitate a harmonised electricity system as part of the package of European Network Codes, and will help to 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 on the 12th February 2018. 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)

Members of the NGET Black Start team attended the Black Start Task Force on the 31st January 2018 to make relevant stakeholders aware of the changes that are being proposed in this Grid Code Modification Proposal. The item was raised under 'any other business' and no objections were made.

Prior to this National Grid Electricity Transmission also attended the Joint European Stakeholder Group on the 9th January 2018 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

Costs after second Code Administrator Consultation closed

Industry costs	
Resource costs	**£ 0** - 0 Workgroup meetings **£ 6,353**– 1 Consultation • 0 - Workgroup meetings • 0 - Workgroup members • 0 man days effort per meeting • 1.5 man days effort per consultation response • 7 consultation respondents (number received for two consultations)
Total Industry Costs	**£6,353**

8 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**

9 Implementation

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

10 Original Legal Text

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

OC 5.7.1 General

(a) **NGET** may require a **Generator** with a **Black Start Station** to carry out a test (a "**Black Start Test**") on a **Genset** or **Power Generating Module** 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 **Black Start Capability**.

(b) **NGET** shall require a **Generator** with a **Black Start Station** to carry out a **BS Unit Test** on each **Genset** or **Power Generating Module** which has **Black Start Capability** within such a **Black Start Station** to demonstrate this capability at least once every three years. **NGET** shall not require the **Black Start Test** to be carried out on more than one **Genset** or **Power Generating Module** at that **Black Start Station** at the same time, and would not, in the absence of exceptional circumstances, expect any of the other **Gensets or Power Generating Modules** at the **Black Start Station** to be directly affected by the **BS Unit Test.** This test will be deemed a success where starting from shutdown is achieved within a time frame specified by NGET and which may be agreed in any relevant contract
(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).

(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**.

11 Legal text for second Code Administrator Consultation

Following the Second Code Admin Consultation the legal text has been placed on the latest baseline of the Grid Code.

OC5.7.1 General

(a) **The Company** may require a **Generator** with a **Black Start Station** to carry out a test (a "**Black Start 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) ~~Where~~ **The Company** shall require~~s~~ a **Generator** with a **Black Start Station** to carry out a **BS Unit Test** on each **Genset** which has **Black Start Capability** within such a **Black Start Station** to demonstrate this capability at least once every three years.~~,~~ **The Company** shall not require the **Black Start Unit 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**. This test will be deemed a success where starting from shutdown is achieved within a time frame specified by **The Company** and which may be agreed in any relevant contact.

(c) **The Company** 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).~~

(d) Occasionally **The Company** may require a **Generator** with a **Black Start Station** to carry out a **BS Station Test** at any time (but 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). If successful this **BS Station Test** shall count as a successful **BS Unit Test** for the **Genset** used in the test.

(e~~d~~) When **The Company** 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**.

** **The Company changed under GR22.4 from NGET.**

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12 Recommendations

The Grid Code Panel agreed that GC0108 should follow the self-governance route and proceed directly to Code Administrator Consultation for 15 working days when the modification was originally raised.

Following the first consultation the Grid Code Panel retracted the Self Governance statement and agreed this modification should go to the Authority.

13 Grid Code Panel Views

At the Grid Code Panel meeting on 27 September 2018, the Panel carried out their Recommendation vote.

The Panel agreed by majority that the Original better facilitates the Applicable Grid Code Objectives and recommended that it should be implemented.

It was discussed at the meeting that one confidential response was received after the second Code Admin Consultation, the respondent did not want the Panel to see this response, and therefore the Panel voted without view of the response.

The panel considered the responses to the 2nd Code Administrator consultation.

NGET noted Drax Power's request for a further modification proposal to be brought forward in Q1 2019 but highlighted that the proposal in GC0108 simply achieves alignment between European Law as in the Emergency & Restoration code and the GB Grid Code and does not actually place any additional obligation upon GB users who are already bound by the E&R requirements. In this respect, the defect that GC0108 was formed to address being specific alignment with European Law will be fulfilled by changing the period of black start unit testing in the Grid Code from no more than every year to at least every three years. There was no flexibility allowed in the national implementation of this requirement. No further work is therefore intended under this defect although it was also noted that under Grid Code open governance any party is able to propose a modification and that NGET had offered to support this.

The panel also reflected upon Drax Power's wish to have progressed this modification through a workgroup. While the decision of the panel to not require a workgroup was on the basis that it was a very straightforward change and that considerable effort had been made in engaging with stakeholders – for example by presenting at the Grid Code Development Forum and the Black Start Task Group – this was felt to be a learning point for the future. It would not however have changed the final result.

Before the Panel undertook the recommendation vote, the panel instructed the Code Administrator to make a typographical change under GR22.4 to the legal

text to incorporate the change from NGET to The Company. This can be seen in the Legal text in Section 11. The Panel also agreed that the Code Administrator should reflect the proposed legal text changes on the latest Grid Code baseline.

For reference the Grid Code Objectives are:

Impact of the modification on the Relevant Objectives:
Relevant Objective
To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity
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)
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
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
To promote efficiency in the implementation and administration of the Grid Code arrangements

Vote 1: Does the Original facilitate the objectives better than the baseline?

Vote recording guidelines:
"Y" = Yes
"N" = No
"-" = Neutral

	Better facilitates GCO (i)	Better facilitates GCO (ii)?	Better facilitates GCO (iii)?	Better facilitates GCO (iv)?	Better facilitates AGCO (v)?	Overall (Y/N)
Guy Nicholson						
Original	N	N	N	N	N	N
Voting Statement	Discriminates unduely between generators and interconnecters .					
Damien Jackman						
Original	Y	-	Y	Y	Y	Y
Voting Statement	The revised proposal meets the obligations imposed on the licence holder from the Emergency and Restoration European Code. It would have been better if the proposer had chosen to hold a single workgroup rather than choose the self-governance route as this would have more than likely saved industry time by avoiding a second consultation (and potentially a new mod in Q1 2019).					
Alastair Frew						
Original	-	-	-	Y	-	Y
Voting Statement	Whilst this proposal will increase testing and testing costs it is a legal EU requirement as it has to be implemented by 18 December 2018					
Graeme Vincent						
Original	Y	-	Y	Y	-	Y
Voting Statement	Aligns the Grid Code with the requirements of Regulation (EU) 2017/2196 (Emergency & Restoration European Network Code) and aims to provide additional clarity to Users					
Alan Creighton						
Original	Y	-	Y	Y	-	Y
Voting Statement	Aligns the Grid Code with the requirements of Regulation (EU) 2017/2196 The change requires that plant with Black Start capability is tested at least once every three years which, in addition to meeting EU requirements should help to ensure the resilience of the system					
Kate Dooley						
Original	-	N	-	Y	-	N

Voting Statement	While I agree that this modification will better facilitate Grid Code Objective four, (specifically it will comply with the European Emergency and Restoration code) I believe that this modification will negatively impact on objective 2. Applying two sets of testing arrangements for different black start providers will distort the market. Therefore this modification should not be approved. In hindsight, this modification should have gone to workgroup and panel should have judged this to be material. One workgroup meeting to explore the options for how to best draft legal text for compliance and to ensure communication of the changes would have been sufficient.

Rob Wilson (Alternate to Kyla Berry)

Original	-	-	Y	Y	-	Y
Voting Statement	This modification directly reflects a requirement of European Law to test each black start unit at least every 3 years (the current Grid Code requirement is no more than every year). It is a minimum change and as such while one of the consultation responses highlights that a workgroup could have improved engagement it would not have changed the solution. There is though a learning point for all parties in making sure that engagement is sufficient when a proposal undergoes changes during development.					

Vote 2: Which option is best?

Guy Nicolson	Baseline
Damien Jackman	Original
Alastair Frew	Original
Graeme Vincent	Original
Alan Creighton	Original
Kate Dooley	Baseline
Rob Wilson (Alternate to Kyla Berry)	Original

The Grid Code Panel by majority recommended that GC0108 should be implemented.

14 First Code Administrator Consultation responses summary

The First Code Administrator Consultation closed on the 17 May and received four responses. These can be summarised below:

1. **Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning**

All respondents agreed that the Proposal would better facilitate the Grid Code objectives for the following reasons:

Drax Power Limited: There is a positive impact on Grid Code objective (iv) though it is not clear if the legal text is fully consistent with 2016/631 Art 45 and Art 46. It is clear that the intent of the Mod is to extend the testing period. As highlighted in the justification for self–governance National grid argue "In changing the interval only of testing the modification will align the Grid Code with European law." For all other Grid Code objectives, the proposal is neutral.

Northern PowerGrid: Yes. The intent of the change is to make sure that plant with Black Start capability is tested at least once every three years which, in addition to meeting EU requirements should help to ensure the resilience of the system.

ScottishPower Generation: Yes, as it sets the periodicity of testing at the rate required by EU legislation.

NGET: It is positive against objective (iv) in achieving alignment with EU law and objective (iii) in addressing system security through this alignment which is part of the implementation of the Emergency & Restoration European Network Code

2. **Do you support the proposed implementation approach? If not, please provide reasoning why.**

Drax Power Limited: No –We have been concerned that the legal text has changed to a large degree between the first draft which was widely briefed to industry participants ahead of seeking self-governance and the draft confirmed for CA consultation. We are not assured that the Grid Code legal text represents the minimum change necessary to ensure sufficient compliance with the EU codes. Additionally we would like to understand the cross-code references specifically to 2016/613 and any impact.

Northern PowerGrid: Yes

ScottishPower Generation: Yes

NGET: Yes

3. **Do you have any other comments?**

Drax Power Limited: As noted above the progression of this modification under self-governance has meant that any detailed discussions have only occurred at the Grid Code panel.

Northern Powergrid is aware of National Grids concerns related to ensuring that there is adequate plant with Black Start capability in GB, and believe that clarity of the requirements and obligations would help to encourage new participants who may be able to offer Black Start services. As described in the

attached document we believe that as proposed the text in OC5.7.1 does not fully align with the related definitions in the GCode. Alignment would improve clarity. Please see the attached comments on the proposed legal text.

ScottishPower Generation: There are problems with the general use of BS Unit Test and BS Station Test as the text does not appear to include for any BS Station Tests a suggested improvement is given in the full response in Annex 3.

NGET: This is a minor change to the period for repetition of black start unit testing to achieve alignment with the E&R code.

15 Second Code Administrator Consultation responses summary

The Second Code Administrator Consultation closed on the 12 September and we received three non-confidential responses, and one confidential response. The confidential response will be sent to Authority when the Final Modification Report is published.

The panel considered the responses to the 2nd Code Administrator consultation.

NGET noted Drax Power's request for a further modification proposal to be brought forward in Q1 2019 but highlighted that the proposal in GC0108 simply achieves alignment between European Law as in the Emergency & Restoration code and the GB Grid Code and does not actually place any additional obligation upon GB users who are already bound by the E&R requirements. In this respect, the defect that GC0108 was formed to address being specific alignment with European Law will be fulfilled by changing the period of black start unit testing in the Grid Code from no more than every year to at least every three years. There was no flexibility allowed in the national implementation of this requirement. No further work is therefore intended under this defect although it was also noted that under Grid Code open governance any party is able to propose a modification and that NGET had offered to support this.

The panel also reflected upon Drax Power's wish to have progressed this modification through a workgroup. While the decision of the panel to not require a workgroup was on the basis that it was a very straightforward change and that considerable effort had been made in engaging with stakeholders – for example by presenting at the Grid Code Development Forum and the Black Start Task Group – this was felt to be a learning point for the future. It would not however have changed the final result.

The three non-confidential responses are summarised below;

1. **Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning**

   Not all responses agreed GC0108 better facilitates the objectives.

   Scottish Power - Yes as it sets the periodicity of testing at the rate required by EU legislation.

   National Grid - This modification is positive against objective (iv) in achieving alignment with EU law and objective (iii) by addressing system security through this alignment which is part of the implementation of the Emergency and Restoration Network Code.

   Drax Power - No, overall we do not believe GC0108 better facilitates the Grid Code Objectives.

   <u>Applicable Grid Code Objective (i) – Negative</u>

In its current form, we do not believe that GC0108 facilitates the operation of an efficient and economical transmission system due to the onerous testing requirements which will increase the cost for consumers.

Applicable Grid Code Objective (ii) – Negative

Whilst we appreciate the aim of this modification is to ensure compliance with the Emergency & Restoration code, we do not see how the legal text is compatible or efficient.

Applicable Grid Code Objective (v) – Negative

The proposer has noted the concerns Drax have raised and has suggested that another modification could be raised in Q1 2019 to rectify any issues. However, our view is that the best allocation of resource and most efficient approach is to tackle any issues related to GC0108 now, as opposed to raising a subsequent change to the Grid Code as a result of the GC0108 approval and implementation.

2. Do you support the proposed implementation approach? If not, please provide reasoning why.

Scottish Power – Yes

National Grid - Yes

Drax Power - Should GC0108 be implemented, we support the approach.

3. Do you have any other comments?

Scottish Power - This revised version is now clearer on the two different types of Black Start test. There will have to be a minor amendment to the legal text to change “NGET” to “The Company” which presumably can be done under GR22.4 prior to the panel vote.

National Grid - This is a minor but necessary change to the period for repeating a black start unit test to achieve alignment with the European Network Code Emergency and Restoration.

Drax Power – Yes we believe this modification has a material impact on providers or potential providers of Black Start services and believe this modification would have been best progressed through a workgroup. This would have been a more transparent process and our concerns would have been addressed sooner. Alternatively, NG could have reached out to individual providers or potential providers of black start services and discussed the proposal with them prior to raising the modification.

We are thankful that the proposer has taken on board the concerns we have raised and although addressing these through GC0108 is our first preference, we welcome their written confirmation and commitment that a subsequent modification will be raised in Q1 2019, in the event that is modification is approved.

Annex 1 – Extracts from European Network Codes

Emergency & Restoration code, EU Reg 2017/2196:

Article 44 - Compliance testing of power generating module capabilities

1. 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) of Regulation (EU) 2016/631.
2. Each restoration service provider which is a power generating module delivering a quick re-synchronisation service shall execute tripping to houseload test after any changes of equipment having an impact on its houseload operation capability, or after two unsuccessful consecutive tripping in real operation, following the methodology laid down in Article 45(6) of Regulation (EU) 2016/631.

Requirements for Generators Code, EU Reg 2016/631:

Article 45 - Compliance tests for type C synchronous power-generating modules
(NB Note that this also applies to type D generating modules)

5. With regard to the black start capability test the following requirements shall apply:
(a) for power-generating modules with black start capability, this technical capability to start from shut down without any external electrical energy supply shall be demonstrated;
(b) the test shall be deemed successful if the start-up time is kept within the time frame set out in point (iii) of Article 15(5)(a).

6. With regard to the tripping to houseload test the following requirements shall apply:
(a) the power-generating modules' technical capability to trip to and stably operate on house load shall be demonstrated;
(b) the test shall be carried out at the maximum capacity and nominal reactive power of the power-generating module before load shedding;
(c) the relevant system operator shall have the right to set additional conditions, taking into account point (c) of Article 15(5);
(d) the test shall be deemed successful if tripping to house load is successful, stable houseload operation has been demonstrated in the time period set out in point (c) of Article 15(5) and re-synchronisation to the network has been performed successfully.

Article 15 - General requirements for type C power-generating modules
(NB As referenced in article 45.5(b) above; noting that this also applies to type D generating modules)

5. Type C power-generating modules shall fulfil the following requirements relating to system restoration:
(a) with regard to black start capability:

(iii) a power-generating module with black start capability shall be capable of starting from shutdown without any external electrical energy supply within a time frame specified by the relevant system operator in coordination with the relevant TSO;

Annex 2 – Self Governance Statement to Authority (retracted)

Gurpal Singh
Licensing and Industry Codes
Ofgem
3rd Floor
Cornerstone
107 West Regent Street
Glasgow
G2 2BA
(By Email)

Chrissie Brown
Grid Code Modifications Panel
Secretary
Christine.brown1@nationalgrid.com
Direct tel+44 (0)1926 653328

23 March 2018

www.nationalgrid.com

Reference: GC0108 Self-Governance Statement

Dear Gurpal

This is the Grid Code Review Panel's Self-governance Statement to the Authority for Grid Code Modification Proposal GC0108 - Emergency & Restoration: Black Start testing requirement. National Grid Code Administrator has prepared this Self-Governance Statement on behalf of the Grid Code Review Panel and submits it to you in accordance with the Grid Code.

On 22 March 2018 the Grid Code Review Panel considered GC0108 and confirmed unanimously that it meets the Self-Governance Criteria.

As such, GC0108 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

The proposed timetable for the progression of GC0108 is as follows:

14 March 2018	Grid Code Modification Proposal submitted
22 March 2018	Proposal presented to Grid Code Review Panel
w/c 23 April 2018	Code Administrator Consultation issued
w/c 14 May 2018	Code Administrator Consultation closes
20 June 2018	Draft Final Self-Governance Modification Report issued to Panel
28 June 2018	Draft Final Self-Governance Modification Report presented to Panel
28 June 2018	Panel Determination vote
9 July 2018	Final Self-Governance Modification Report published

9 July 2018	Appeal window opens
30 July 2018	Appeals window closes
13 August 2018	Implementation (10 Working days after appeal window closes)

The GC0108 form is available at;

https://www.nationalgrid.com/uk/electricity/codes/grid-code/modifications/eu-code-emergency-restoration-black-start-testing

If you require any further information please do not hesitate to contact me.

Yours Sincerely,

Chrissie Brown
Grid Code Review Panel Secretary

Annex 3 – First Code Administrator Consultation responses

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Self-Governance Report to the Grid Code Panel ahead of their Determination Vote.

Respondent:	*Paul Youngman* *paul.youngman@drax.com*
Company Name:	*Drax Power Limited*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*

1. Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning	There is a positive impact on Grid Code objective (iv) though it is not clear if the legal text is fully consistent with 2016/631 Art 45 and Art 46. It is clear that the intent of the Mod is to extend the testing period. As highlighted in the justification for self–governance National grid argue *"In changing the interval only of testing the modification will align the Grid Code with European law."* For all other Grid Code objectives the proposal is neutral.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	No –We have been concerned that the legal text has changed to a large degree between the first draft which was widely briefed to industry participants ahead of seeking self-governance and the draft confirmed for CA consultation. We are not assured that the Grid Code legal text represents the minimum change necessary to ensure sufficient compliance with the EU codes. Additionally we would like to understand the cross-code references specifically to 2016/613 and any impact.
3. Do you have any other comments?	**As** noted above the progression of this modification under self-governance has meant that any detailed discussions have only occurred at the Grid Code panel.

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Self-Governance Report to the Grid Code Panel ahead of their Determination Vote.

Respondent:	*Alan Creighton*
Company Name:	*Northern Powergrid*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*
1. Do you believe GC0108 better	Yes. The intent of the change is to make sure that

facilitates the Grid Code Objectives? Please include your reasoning	plant with Black Start capability is tested at least once every three years which, in addition to meeting EU requirements should help to ensure the resilience of the system
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	Northern Powergrid is aware of National Grids concerns related to ensuring that there is adequate plant with Black Start capability in GB, and believe that clarity of the requirements and obligations would help to encourage new participants who may be able to offer Black Start services. As described in the attached document we believe that as proposed the text in OC5.7.1 does not fully align with the related definitions in the GCode. Alignment would improve clarity. Please see the attached comments on the proposed legal text.

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

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 purpose of this document is to consult on GC0108 with Grid Code Parties and other interested industry members. Representations received in response to this consultation document will be included in the Code Administrator's Draft Grid Code Modification Self-Governance Report that will be furnished to the Grid Code Panel for their Determination.

Published on:	**18 April 2018**
Length of Consultation:	**15 Working Days**
Responses by:	**10 May 2018**

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*

What stage is this document at?

01	Modification Proposal
02	Code Admin Consultation
03	Draft Self-Governance modification Report
04	Final Self-Governance modification Report

Contents

Timetable

Modification Proposal submitted to Grid Code Panel	14 March 2018
Modification Proposal discussed at Grid Code Panel	22 March 2018
Code Administration Consultation issued/closes to Industry	18 April 2018/10 May 2018
Draft Self-Governance Modification Report presented to Panel	28 June 2018
Grid Code Modification Panel Recommendation Vote	28 June 2018
Final Self-Governance Modification Report published	09 July 2018
Appeal window opens and closed	09 July 2018/30 July 2018
Decision implemented in Grid Code	13 August 2018

Any Questions?

Contact:
Chrissie Brown
Code Administrator

christine.brown1@nationalgrid.com

01926 65 3328

Proposer:
Raveena Virk
National Grid

1 Summary

What

Following a code mapping review of the Emergency and Restoration European Network Code undertaken by an industry review group on the 31st January 2017 an amendment to the Grid Code was identified as outlined in this paper to ensure alignment between these requirements and GB frameworks. The code mapping session was an open invitation sent to all parties on the Joint European Stakeholder Group (JESG) distribution list on the 13th January 2017.

The Emergency and Restoration code states that each black start service provider shall execute a black start unit test at least once every three years. Current GB legislation states that this should be tested no more than once every two years. Our position is that a change to align these requirements is necessary. Further information on engagement carried out ahead of raising 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.

Currently the system defence and system restoration plans are under development within National Grid and it is not expected that these will raise any further Grid Code Modifications. Details of these plans will be published to stakeholders in due course.

Some clauses in the Emergency and Restoration network code relating to black start service testing frequency are different to current GB practices. Specifically, under EU Regulation Emergency and Restoration 2017/2196 Article 44 Compliance testing of power generating module capabilities is required such that "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" and following the methodology laid down in Article 45(5) of EU Regulation 2016/631 Requirements for Generators. This proposal is to make a change to the Grid Code to reflect these requirements.

How

This modification proposes to align the testing requirements set out in the Emergency and Restoration code with GB frameworks by changing the wording in OC5 of the Grid Code to require the testing of power generating modules delivering a black start service at least every three years.

2 Governance

Justification for Self-Governance Procedures ahead of Panel

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 service providers. In changing the interval only of testing the modification will align the Grid Code with European law.

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

Panel decision on Governance route 22 March 2018

The Grid Code Panel decided that GC0108 met the Self-Governance criteria and should proceed under this route. They agreed to issue this modification to Code Administrator Consultation for 15 working days.

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 (SOGL) - which entered into force 14 September 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

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 interval specified in the GB Grid Code for "black start testing" is revised to align with the EU Emergency and Restoration Code. This specifies that power generating modules having black start capability within stations opting to provide black start services should be tested at least once every three years. Current Grid Code provisions are that testing of black start units within a station should occur no more than every year.

6 Impacts and Other Considerations

Who
This impacts black start service providers, NGET and External System Operators.

Which
The black start testing process in the GB Grid Code section OC5, which sets out the testing requirements for black start stations in GB.

Systems impacted
NGET Black Start testing
Black Start service 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 the EU Emergency and Restoration code which helps to facilitate a harmonised electricity system as part of the package of European Network Codes, and will help to 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 on the 12th February 2018. 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)

Members of the NGET Black Start team attended the Black Start Task Force on the 31st January 2018 to make relevant stakeholders aware of the changes that are being proposed in this Grid Code Modification Proposal. The item was raised under 'any other business' and no objections were made.

Prior to this National Grid Electricity Transmission also attended the Joint European Stakeholder Group on the 9th January 2018 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**

8 Implementation

The implementation should be in line with the 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 require a **Generator** with a **Black Start Station** to carry out a test (a "**Black Start Test**") on a **Genset** or **Power Generating Module** 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 Capability**.

(b) ~~Where~~ **NGET** shall requires a **Generator** with a **Black Start Station** to carry out a **BS Unit Test** on each **Genset** or **Power Generating Module** which has **Black Start Capability** within such a **Black Start Station** to demonstrate this capability at least once every three years. ~~.~~ **NGET** shall not require the **Black Start Test** to be carried out on more than one **Genset** or **Power Generating Module** at that **Black Start Station** at the same time, and would not, in the absence of exceptional circumstances, expect any of the other **Gensets** **or Power Generating Modules** at the **Black Start Station** to be directly affected by the **BS Unit Test.** This test will be deemed a success where starting from shutdown is achieved within a time frame specified by NGET and which may be agreed in any relevant contract

(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).

(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**.

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10 Recommendations

The Panel agreed that GC0108 should follow the self-governance route and proceed directly to Code Administrator Consultation for 15 working days.

11 How to respond to this consultation

If you wish to respond to this Code Administrator Consultation, please use the response pro-forma which can be found under the 'Industry Consultation' tab via the following link;

https://www.nationalgrid.com/uk/electricity/codes/grid-code/modifications/eu-code-emergency-restoration-black-start-testing

Responses are invited to the following questions;

1. Do you believe that GC0108 better facilitates the Grid Code objectives? Please include your reasoning.

2. Do you support the proposed implementation approach? If not, please state why and provide an alternative suggestion where possible.

3. Do you have any other comments?

Views are invited on the proposals outlined in this consultation, which should be received by **5pm on 10 May 2018** Please email your formal response to:

Grid.code@nationalgrid.com

If you wish to submit a confidential response, please note the following;

Information provided in response to this consultation will be published on National Grid's website unless the response is clearly marked 'Private & Confidential', we will contact you to establish the extent of this confidentiality. A response marked 'Private & Confidential' will be disclosed to the Authority in full by, unless agreed otherwise, will not be shared with the CUSC Modifications Panel or the industry and may therefore not influence the debate to the same extent as a non-confidential response.

Please note an automatic confidentiality disclaimer generated by your IT System will not in itself, mean that your response is treated as if it had been marked 'Private & Confidential'

Annex 1 – Extracts from European Network Codes

Emergency & Restoration code, EU Reg 2017/2196:

Article 44 - Compliance testing of power generating module capabilities

1. 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) of Regulation (EU) 2016/631.
2. Each restoration service provider which is a power generating module delivering a quick re-synchronisation service shall execute tripping to houseload test after any changes of equipment having an impact on its houseload operation capability, or after two unsuccessful consecutive tripping in real operation, following the methodology laid down in Article 45(6) of Regulation (EU) 2016/631.

Requirements for Generators Code, EU Reg 2016/631:

Article 45 - Compliance tests for type C synchronous power-generating modules
(NB Note that this also applies to type D generating modules)

5. With regard to the black start capability test the following requirements shall apply:
(a) for power-generating modules with black start capability, this technical capability to start from shut down without any external electrical energy supply shall be demonstrated;
(b) the test shall be deemed successful if the start-up time is kept within the time frame set out in point (iii) of Article 15(5)(a).

6. With regard to the tripping to houseload test the following requirements shall apply:
(a) the power-generating modules' technical capability to trip to and stably operate on house load shall be demonstrated;
(b) the test shall be carried out at the maximum capacity and nominal reactive power of the power-generating module before load shedding;
(c) the relevant system operator shall have the right to set additional conditions, taking into account point (c) of Article 15(5);
(d) the test shall be deemed successful if tripping to house load is successful, stable houseload operation has been demonstrated in the time period set out in point (c) of Article 15(5) and re-synchronisation to the network has been performed successfully.

Article 15 - General requirements for type C power-generating modules
(NB As referenced in article 45.5(b) above; noting that this also applies to type D generating modules)

5. Type C power-generating modules shall fulfil the following requirements relating to system restoration:

(a) with regard to black start capability:
(iii) a power-generating module with black start capability shall be capable of starting from shutdown without any external electrical energy supply within a time frame specified by the relevant system operator in coordination with the relevant TSO;

Annex 2 – Self Governance Statement to Authority

Gurpal Singh
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(By Email)

Chrissie Brown
Grid Code Modifications Panel Secretary
Christine.brown1@nationalgrid.com
Direct tel+44 (0)1926 653328

23 March 2018

www.nationalgrid.com

Reference: GC0108 Self-Governance Statement

Dear Gurpal

This is the Grid Code Review Panel's Self-governance Statement to the Authority for Grid Code Modification Proposal GC0108 - Emergency & Restoration: Black Start testing requirement. National Grid Code Administrator has prepared this Self-Governance Statement on behalf of the Grid Code Review Panel and submits it to you in accordance with the Grid Code.

On 22 March 2018 the Grid Code Review Panel considered GC0108 and confirmed unanimously that it meets the Self-Governance Criteria.

As such, GC0108 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

The proposed timetable for the progression of GC0108 is as follows:

14 March 2018	Grid Code Modification Proposal submitted
22 March 2018	Proposal presented to Grid Code Review Panel
w/c 23 April 2018	Code Administrator Consultation issued

w/c 14 May 2018	Code Administrator Consultation closes
20 June 2018	Draft Final Self-Governance Modification Report issued to Panel
28 June 2018	Draft Final Self-Governance Modification Report presented to Panel
28 June 2018	Panel Determination vote
9 July 2018	Final Self-Governance Modification Report published
9 July 2018	Appeal window opens
30 July 2018	Appeals window closes
13 August 2018	Implementation (10 Working days after appeal window closes)

The GC0108 form is available at;

https://www.nationalgrid.com/uk/electricity/codes/grid-code/modifications/eu-code-emergency-restoration-black-start-testing

If you require any further information please do not hesitate to contact me.

Yours Sincerely,

Chrissie Brown
Grid Code Review Panel Secretary

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Self-Governance Report to the Grid Code Panel ahead of their Determination Vote.

Respondent:	Alastair Frew
Company Name:	ScottishPower Generation
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*
1. Do you believe GC0108 better	Yes as it sets the periodicity of testing at the rate

facilitates the Grid Code Objectives? Please include your reasoning	required by EU legislation.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	There are problems with the general use of BS Unit Test and BS Station Test as the text does not appear to include for any BS Station Tests a suggested improvement is given below. **OC 5.7.1 General** (a) **NGET** may require a **Generator** with a **Black Start Station** to carry out a test (a "**Black Start Test**") on a **Genset** or **Power Generating Module** 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 requires a **Generator** with a **Black Start Station** to carry out a **BS Unit Test** on each **Genset** or **Power Generating Module** which has **Black Start Capability** within such a **Black Start Station** to demonstrate this capability at least once every three years., **NGET** shall not require the **Black Start Test** to be carried out on more than one **Genset** or **Power Generating Module** at that **Black Start Station** at the same time, and would not, in the absence of exceptional circumstances, expect any of the other **Gensets or Power Generating Modules** at the **Black Start Station** to be directly affected by the **BS Unit Test.** This test will be deemed a success where starting from shutdown is achieved within a time frame specified by NGET and which may be agreed in any relevant contract (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).~~ (d) Occasionally **NGET** may require a **Generator** with a **Black Start Station** to carry out a **BS Station Test** at any time (but 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). If successful this **BS**

	Station Test shall count as a successful **BS Unit Test** for the **Genset** or **Power Generating Module** used in the test. (~~d~~e) 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**.

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Self-Governance Report to the Grid Code Panel ahead of their Determination Vote.

Respondent:	*Rob Wilson*
Company Name:	*NGET*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*
1. Do you believe GC0108 better	It is positive against objective (iv) in achieving

facilitates the Grid Code Objectives? Please include your reasoning	alignment with EU law and objective (iii) in addressing system security through this alignment which is part of the implementation of the Emergency & Restoration European Network Code.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	This is a minor change to the period for repetition of black start unit testing to achieve alignment with the E&R code.

Annex 4 – Second Code Administrator Consultation responses

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Modification Report to the Grid Code Panel ahead of their Recommendation Vote.

Respondent:	*Rob Selbie* Rob.Selbie@nationalgrid.com
Company Name:	*National Grid*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*

1. Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning	This modification is positive against objective (iv) in achieving alignment with EU law and objective (iii) by addressing system security through this alignment which is part of the implementation of the Emergency and Restoration Network Code.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	This is a minor but necessary change to the period for repeating a black start unit test to achieve alignment with the European Network Code Emergency and Restoration.

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Modification Report to the Grid Code Panel ahead of their Recommendation Vote.

Respondent:	Alastair Frew
Company Name:	ScottishPower Generation
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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* *(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.*

1. Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning	Yes as it sets the periodicity of testing at the rate required by EU legislation.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	This revised version is now clearer on the two different types of Black Start test. There with have to be a minor amendment to the legal text to change “NGET” to “The Company” which presumably can be done under GR22.4 prior to the panel vote.

Grid Code Administrator Consultation Response Proforma

GC0108: EU Code: Emergency & Restoration: Black start testing requirement

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **10 May 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Draft Final Modification Report to the Grid Code Panel ahead of their Recommendation Vote.

Respondent:	*Joshua Logan* *Joshua.logan@drax.com* *01757 612736*
Company Name:	*Drax Power Ltd*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(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);* *(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;* *(iv) 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*

	(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.
1. Do you believe GC0108 better facilitates the Grid Code Objectives? Please include your reasoning	No, overall we do not believe GC0108 better facilitates the Grid Code Objectives. **Applicable Grid Code Objective (i) - Negative** In its current form we do not believe that GC0108 facilitates the operation of an efficient and economical transmission system due to the onerous testing requirements which will increase the cost for consumers. **Applicable Grid Code Objective (iv) – Negative** Whilst we appreciate the aim of this modification is to ensure compliance with the Emergency & Restoration code, we do not see how the legal text is compatible or efficient. **Applicable Grid Code Objective (v) – Negative** The proposer has noted the concerns Drax have raised and has suggested that another modification could be raised in Q1 2019 to rectify any issues. However, our view is that the best allocation of resource and most efficient approach is to tackle any issues related to GC0108 now, as opposed to raising a subsequent change to the Grid Code as a result of the GC0108 approval and implementation.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Should GC0108 be implemented, we support the approach.
3. Do you have any other comments?	Yes, we believe this modification has a material impact on providers or potential providers of Black Start services and believe this modification would have been best progressed through a workgroup. This would have been a more transparent process and our concerns would have been addressed sooner. Alternatively, NG could have reached out to individual providers or potential providers of black start services and discussed this proposal with them prior to raising the modification. We are thankful that the proposer has taken on board the concerns we have raised and although

	addressing these through GC0108 is our first preference, we welcome their written confirmation and commitment that a subsequent modification will be raised in Q1 2019, in the event that this modification is approved.