

## Final Modification Report

# GC0138: Compliance process technical improvements (EU and GB User)

**Overview:** This Modification seeks to update the existing compliance processes to:

- Allow for more efficient delivery of a successful and quick turnaround of final site compliance testing;
- Facilitate developments in generation and HVDC technology while maintaining effectiveness of compliance process; and
- Strengthen effectiveness of simulations

## Modification process &amp; timetable



**Have 5 minutes?** Read our [Executive summary](#)

**Have 20 minutes?** Read the full [Final Modification Report](#)

**Have 30 minutes?** Read the full Final Modification Report and Annexes.

**Status summary:** This report has been submitted to the Authority for them to decide whether this change should be implemented.

**Panel recommendation:** The Panel has recommended unanimously that the Proposer's solution should be implemented.

**This modification is expected to have a: **High impact**** - On owners of generation plant, offshore transmission systems and HVDC Interconnectors Owners (and manufacturers supplying plant).

**Modification drivers:** Transparency of *EU Compliance*

**Governance route** This modification has been assessed by a Workgroup and Ofgem will make the decision on whether it should be implemented.

**Who can I talk to about the change?**

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## Executive summary

This Proposal enables Users to undertake final testing with a high probability of success and quick turnaround of assessment without the additional burden of having everybody attending site where agreed. To achieve this, it is necessary to set out some additions to test procedures which are currently prepared based on on-site witnessing and to provide standards for the format of any test data sent to the ESO for review. Additionally, changes to technology and scale of technology being employed need to be reflected in the way requirements are fulfilled.

### What is the issue?

The Compliance Processes (GB User) were added to the Grid Code in August 2012 to provide a framework for Users to demonstrate compliance with the Grid Code and Bilateral Connection Agreement. The Compliance Processes (EU User) were introduced into the Grid Code in 2018 following the introduction of the EU Connection Network Codes (Requirements for Generators (RfG), HVDC Network Code (HVDC) and Demand Connection Code (DCC)). Prior to this, the process existed solely in Guidance Notes being updated periodically by National Grid based upon experience.

### What is the solution and when will it come into effect?

#### Proposers' solution:

This modification is to update the Compliance Processes and European Compliance Processes sections of the Grid Code (CP & ECP) and Grid Code OC5 detailing Fault Ride Through testing, submission of test data, detailed test requirements and simulations.

#### Implementation date:

The earliest implementation date sought is Q2 2022 with careful consideration given to the timing of the fourth Contract for Differences (CfD) Allocation Round sealed bid window.

#### Workgroup conclusions:

The Workgroup concluded unanimously that the Original better facilitated the Applicable Grid Code Objectives than the Baseline.

The Workgroup met on 9 September 2021 to carry out their Workgroup vote. The full Workgroup vote can be found in Annex 5 which is the output of an online voting form used by the Code Administrator. The Workgroup concluded unanimously that the Original better facilitated the Applicable Objectives than the Baseline.

**Panel recommendation:** The Panel has recommended unanimously that the Proposer's solution should be implemented.

### What is the impact if this change is made?

GC0138 will enhance efficiency for delivery of final site testing results, reducing the requirement for on-site attendance by the ESO and facilitating quicker response times. This adds flexibility and provides logistical benefits to all parties.

This modification will facilitate new technologies (e.g. HVDC-based advances) connecting to the GB transmission system and will deliver a more robust approach to testing simulations including assurances that required simulations are more appropriately reflective of real-world operational scenarios which may occur.

It will provide a greater degree of confidence for affected parties that their technologies and solutions are compliant with the Grid Code and will enhance the visibility of the associated processes for both the ESO and Users.

### Interactions

The Compliance Processes and European Compliance Processes include offshore wind farms within their scope. Where offshore wind farm transmission networks are transitioned to Offshore Transmission Owner (OFTO) ownership before a Final Operational Notification has been issued, STC Procedure STCP19-5 applies rather than those in the Grid Code. Therefore, to give consistency regardless of ownership changes some changes to STCP19-5 with regard to voltage control testing procedures and test data submission format would be desirable. The STCP cross code change will be raised by the ESO for this in March 2022 and presented at the STC Panel.

These changes are being proposed in conjunction with those of [GC0141](#) – which contains proposed changes to how data and models are exchanged. GC0138 and GC0141 remain separate to each other; the progression of each is not contingent on that of the other.

## What is the issue?

### Overview

The Compliance Processes (GB User) were added to the Grid Code in August 2012 to provide a framework for Users to demonstrate compliance with the Grid Code and Bilateral Connection Agreement. The European Compliance Processes (EU User) were introduced into the Grid Code in 2018 following the introduction of the EU Connection Network Codes (Requirements for Generators (RfG), HVDC Network Code (HVDC) and Demand Connection Code (DCC)). Prior to this, the process existed solely in Guidance Notes which were updated periodically by National Grid based upon experience.

With changes in the industry and developing technologies, the ESO is looking to allow Users more flexibility in scheduling final site testing, ensuring that tests to sufficiently demonstrate compliance are completed first time and that the recorded results, when submitted, facilitate a quick turnaround of assessment. Technological developments mean that Factory Acceptance Testing (FATs) to facilitate larger Power Park Modules or Power Generating Units and HVDC Systems / Plant should also be added to the Grid Code along with adjustments to the simulation studies specified.

### On-Site Attendance Requirements

Currently the specifications of testing included in the Grid Code do not include all the tests which the ESO have found necessary through the experience of attendance at site. In order to enable Users to demonstrate compliance without on-site attendance by the ESO, these tests (currently custom and practice and included in the Guidance Notes) should be included in the Grid Code.

### Methods of Demonstrating Compliance

The growth in size of Power Park Modules (particularly for use offshore) means that traditional methods of field testing for fault ride through are becoming impractical. Therefore, it is desirable for the Grid Code to include the option of factory testing for these larger Power Park Modules. This will become a bigger problem soon, as manufacturers are currently developing the next generation of 10MW+ wind turbine generating units for use in offshore wind farms. These units will require fault ride through type testing to comply with the Grid Code. National Grid ESO has been approached by suppliers concerned that the Grid Code does not allow this method of demonstrating compliance for newer technologies which therefore jeopardises market development. Currently HDVC systems are commonly assembled and subjected to factory acceptance testing prior to shipment to the final site. The practice is for these factory acceptance tests to form part of the demonstration of compliance which may facilitate a reduction in on-site testing. This practice of factory acceptance testing should therefore be included in the Grid Code.

### Appropriateness of Required Simulations

Concerns have been raised that fault ride through type testing simulations specified in the Grid Code are not representative of operational scenarios which may occur, particularly in large wind farms. As this was an issue identified by Ofgem in relation to the 9 August 2019 power disruption incident, this has been considered separately under the GC0141 workgroup.

## **Why change?**

Due to changes in the industry and developing technologies, the ESO is looking to allow Users more flexibility in scheduling final site testing, ensuring that tests to sufficiently demonstrate compliance are completed first time and that the recorded results, when submitted, facilitate a quick turnaround of assessment. Technological developments mean that Factory Acceptance Testing (FATs) to facilitate larger Power Park Units and HVDC Systems / Plant should also be added to the Grid Code along with adjustments to the simulation studies specified.

## **What is the solution?**

### **Proposer's solution**

The proposal suggests a number of separate changes to the Grid Code for the industry to consider against the BEIS/Ofgem actions to make the compliance and modelling processes for generation more robust. It seeks to update the Compliance Processes and European Compliance Processes sections of the Grid Code (CP & ECP) and Grid Code OC5 detailing fault ride through testing, submission of test data, and detailed test requirements and simulations.

If approved, the changes proposed will facilitate demonstration of compliance for final testing without on-site attendance required the ESO. The changes are intended to be pragmatic enough such that a high probability of success and quick turnaround of confirmation may be achieved, while providing the necessary reassurance of compliance for all affected parties.

The core changes will be achieved by making some additions to test procedures which are currently prepared based on on-site witnessing and setting some agreed standards for the format of test data to be sent to the ESO for review purposes.

The manner in which test requirements are to be fulfilled is intended to be reflective of the type and scale of technology being utilised to do so compared with earlier iterations of such requirements within the Grid Code.

The draft legal text can be found in Annex 3.

## **Workgroup considerations**

The Workgroup convened 6 times to discuss the perceived issues, detail the scope of the proposed defect, devise potential solutions and assess the proposal in terms of the Applicable Code Objectives.

The first meeting related only to GC0138, with the following four being combined with GC0141 due to:

- Unidentical defects
- Largely the same workgroup attendees
- Overlapping areas of discussion which the workgroup agreed would be better served by combined workgroup meetings

## **Approach taken to assessing workgroup feedback on the Original Proposal**

In order to drive initial conversation in the workgroup, the proposer shared their initial legal text and thinking around the modification and invited comment from workgroup members on the proposed changes and wording.

The workgroup spent time scrutinising the initial proposal and legal text and the workgroup had several opportunities to provide comments on the text produced by the proposer. This feedback was taken onboard with responses issued to the workgroup and discussed at subsequent meetings; amended legal text was issued incorporating as much of the workgroup's feedback as possible.

The Code Administrator chairing the sessions addressed workgroup concerns regarding the comments and feedback provided being adequately addressed in the development of the original solution. The workgroup attributed a RAG (red/amber/green) status to comments made and the ESO took an action to address these comments and develop a draft version of the original solution.

The workgroup was advised on the process of raising alternative solutions which could potentially become Workgroup Alternative Grid Code Modifications. The workgroup was asked to consider if there were any discrepancies between their understanding of the modification's objectives and the changes proposed in the original solution; if so, they should consider whether alternative solutions should be raised - however none have been raised for GC0138.

## **Key Areas for Discussion**

There are five key subject areas being considered within the legal text changes, which have been the focus for discussion within the workgroup.

### **1 Compliance Process Technical Changes**

Workgroup members identified some issues with the technical changes and additions to the testing required. These centred around the differences between the EU Code and Grid Code requirements. Reactive power testing was a particular issue. Workgroup members expressed a preference towards the GB Grid Code requirements, but as the EU Code requirements are enshrined in GB legislation, they take precedence.

Workgroup members suggested that the testing requirements were unclear in relation to HVDC importing and exporting power. The proposer acknowledged the concerns and amended the drafting to improve this.

The proposer also corrected the terminology where workgroup members identified mistakes particularly regarding EU / GB Code terms.

### **2 Detailed changes on Test Procedures**

#### **On-Site Presence**

While some concerns were raised by multiple workgroup members regarding the ESO not being present at on-site tests, the proposer noted that the reduction in ESO attendance at on-site testing is to promote efficiency and logistical practicality. For example, such tests may typically require assembling ESO representatives, generation owners, manufacturers, and consultants. In the case of a wind farm, this may all fall on a day of low wind which could render the testing non-viable or inadequate, requiring the test day be rescheduled. As such, the changes facilitate the option of not requiring on-site attendance for all tests and provide an easier process for Users to complete key tests themselves where appropriate. The proposer reiterated that while it may still be useful for the ESO to attend



in certain circumstances, for example to witness factory acceptance tests of HVDC converters or to see a specific test on a wind turbine or for particularly significant/sensitive sites, it is not necessary to insist on this in all circumstances.

The workgroup also discussed whether it would be advantageous to have an independent engineer involved in site testing where the ESO would not attend. The workgroup concluded that this would not be essential because it would add to the turnaround time of results and the decision on acceptance remains with the ESO.

Multiple workgroup members noted that while the flexibility is appreciated, if results are queried or require further testing, Users may have to remobilise meaning additional costs and delays. It was felt that having an ESO representative on site is highly valuable given their experience with the required tests and the ability to get immediate feedback on the success or otherwise of the testing. Members of the workgroup also noted that there had been experience with the ESO reviewing a scheduled test remotely - allowing virtual witnessing to occur and valued this as an alternative to site witnessing in some cases.

Some workgroup members suggested that if tests are to be reviewed offline, the Grid Code should set a reply period following receipt of test data. The ESO explained that this could be done if Users carried out the tests and submitted the data on a pre-agreed date. However, as the workgroup agreed, this does not give the User the flexibility to do the test at a time just convenient for them. The proposer updated the drafting to suggest Users ask the ESO for estimated turnaround time when submitting test results so there is more certainty but flexibility for all parties remains.

### **3 Factory Testing**

During workgroup discussions, the proposer stated that turbine suppliers have advised the ESO that fault ride-through testing of “next generation” large wind turbines using portable on-site testing methods is impractical. The workgroup was generally in agreement with this view.

HVDC interconnectors manufacturers have demonstrated some aspects of compliance in a factory environment before shipping plant to a site (which allows for some reduction of testing on-site). The workgroup was generally in agreement with this approach and suggested some changes to legal text which were incorporated in the final version.

Discussions also considered that facilitating the alignment of models with FAT tests would enable more accurate offline simulation studies to be conducted. It was suggested that more extensive FAT tests to pre-empt on-site tests would be beneficial. When combined with the enhanced data and model exchange proposals within GC0141, this would enable better demonstration of compliance ahead of commissioning.

### **4 Detailed changes on Simulations**

Enhanced fault ride through simulation proposals were originally included in GC0138 and duplicated in GC0141 as the main driver for the addition was to address concerns raised by Ofgem following 9<sup>th</sup> August 2020 power disruption incident. For clarity these enhancements to fault ride through simulations are now being considered solely under GC0141.

### **5 Format for data submission**

The workgroup discussed the use of standard templates for submission of test results where the ESO has not attended site to witness tests. Some concern was expressed on the columns where data not relevant to the test appeared to be requested. The proposer explained that many columns were marked as not required and could be left blank but that



it was important for efficiency of assessment that data always came in in a similar format if Users want a faster response from the ESO when assessing the test results. In addition, queries were raised by a workgroup member regarding the sampling frequency required by different columns in the template (e.g. the wind speed and wind direction are recorded at much lower sampling rates vs the electrical quantities recorded at higher sampling rates).

### **Consideration of other options**

No alternative solutions have been raised at this time.

### **Workgroup consultation summary**

Seven Workgroup consultation responses were received, which echoed the key points outlined in the Proposal. No alternatives were raised as part of the Workgroup Consultation. Workgroup Consultation responses can be found in Annex 4.

- The respondents all agreed that the Original solution better facilitates the Grid Code Objectives. It has positive impacts on objectives a) (permitting development, maintenance, and operation of an efficient, coordinated, and economical system), b) (facilitating competition in generation and supply of electricity), and c) (promoting security and efficiency of the electricity systems). These positive impacts are achieved by providing additional obligations and methods to demonstrate test results and compliance, and by facilitating the entry of larger wind turbines to enter the offshore market.
- One respondent felt that tests should not be carried out on larger generators and also felt that there should be some reference/alignment with the Low Voltage Ride Through (LVRT) tests in IEC 61400-21.
- Another respondent commented that the changes should not alter the existing ability of the host Transmission Owner to attend tests or participate in the compliance process.
- A respondent commented that even though the number of scenarios to simulate could be large, the specifics of the FRT simulations contingencies could be agreed per project in the BCA but a baseline should be defined in the GB Grid Code.
- A respondent highlighted that currently there is a government CfD auction and implementing the changes prior to the CfD deadline will affect the cost of the projects. They believe that a grace period should be included in the implementation of these new changes to the Grid Code and that none of the new proposed changes to the Grid Code in GC0138 should be applied retrospectively.

### **Post-Workgroup Consultation**

After the Workgroup Consultation, the workgroup discussed the legal text for the proposed original solution for GC0138. The workgroup was given time to feed in further thoughts on this.

### **Legal text**

The Legal Text for this change can be found in Annex 3.

### **What is the impact of this change?**

- Enhanced robustness of testing processes
- Quicker turnaround/success of testing due to no on-site attendance required
- More reflective of current technology for testing
- Cost/resource savings for affected parties

- Facilitation of larger wind turbines entering the market

## Interactions

The Compliance Processes and European Compliance Processes include offshore wind farms within their scope. Where offshore wind farm transmission networks are transitioned to OFTO ownership before a Final Operational Notification has been issued, STC Procedure STCP19-5 applies rather than Grid Code. Therefore, to give consistency regardless of ownership changes, modifications to STCP19-5 with regards to voltage control and reactive capability testing procedures and test data submission format may be desirable. The STCP cross code change will be raised by the ESO for this in March 2022 and presented at the STC Panel.

## Workgroup vote

The Workgroup met on 9 September 2021 to carry out the Workgroup vote. The full Workgroup vote can be found in Annex 5 which is the output of an online voting form used by the Code Administrator. The Workgroup concluded unanimously that the proposed Original Proposal was the best option.

The Applicable Grid Code Objectives are:

### Grid Code

- To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity
- Facilitating effective 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

The Workgroup concluded unanimously that the Original better facilitated the Applicable Objectives than the Baseline.

## Code Administrator consultation summary

The Code Administrator Consultation was initially issued on the 03 November 2021 and closed on 03 December 2021. It received 2 responses, one from the ESO and the other from Scottish Power Renewables (SPR).

The Code Administrator re-issued the consultation due to an omission of typographical legal text changes suggested by some Panel Members to ECP and OC5 documents in the previous consultation. This allowed industry to view the full approved legal text to be implemented and provide a further opportunity for additional responses. The second Code Administrator Consultation was issued on 10 January 2022 and closed 10 February 2022. The ESO submitted a duplicate of their first response again in the second consultation.

A summary of the responses is provided below, and the full responses can be found in Annex 6.

#### Whether the GC0138 Original Proposal better facilitates the Applicable Objectives

One respondent partially believes that the Original Proposal better facilitates the applicable Grid Code objectives. This is because in their opinion although the number of scenarios to simulate could be large, they believe that the specifics of the FRT simulation scenarios could be agreed on a per project basis in the Bilateral Connection Agreement (BCA), and there is merit in having a baseline and guidance defined in the GB Grid Code.

The other respondent believes that the Original Proposal better supports applicable Grid Code objectives a, b and c. In their opinion the Original Proposal will achieve these objectives by ensuring the Compliance Processes, the European Compliance Processes and OC5 of the Grid Code are updated to detail test requirements including Fault Ride Through and Factory Acceptance testing, harmonise submission of test data, and will clarify simulations.

#### Support for the implementation approach

One respondent supports the implementation approach. They also believe that this proposal will codify the changes required to deliver a robust approach to testing simulations, ensure testing requirements are visible and unambiguous, and give affected parties a high level of confidence that their technologies are compliant.

However, the other respondent suggested that the agreed implementation date should be decided in a similar way to the changes made under RfG to the GB Grid Code such that the agreed date would not affect on-going projects with the introduction of new grid code requirements. This respondent also highlighted that currently there is a government CfD auction and implementing the changes prior to the CfD deadline will affect the cost of the projects and therefore feel it would be more prudent that a grace period is allowed for in the implementation of these new changes.

They also recommended that new proposed changes to the GB Grid Code in this modification should not be applied retrospectively and that the ECP 10.4 (b) should not be removed from the GB Grid Code because many wind turbine manufacturers use the MDP (Manufacturer Data Paper Report) to declare compliance with the FRT requirements of the GB Grid Code for less complex connections/projects.

## **Panel recommendation vote**

The Panel met on 24 February 2022 to carry out their recommendation vote. They assessed whether a change should be made to the Grid Code by assessing the proposed change against the Applicable Grid Code Objectives.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Alan Creighton, Network Operator Representative**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Yes	Neutral	Yes	Yes	Yes	Yes
<b>Voting Statement</b>						
The Original Proposal provides more flexible arrangements for Generators to demonstrate compliance with the Grid Code to accommodate the current and future generation technologies and sizes, which should reduce the time and improve the efficiency of demonstrating compliance. There are a small number of issues raised by stakeholders in the DFMR, and clarity is needed as to whether these issues have been addressed, ideally to the stakeholders satisfaction, by the final proposed legal text.						

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Alastair Frew: Generator**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Neutral	Neutral	Neutral	Yes	Neutral	Yes
<b>Voting Statement</b>						
I think this updates the testing requirements to include items which have been previously missed.						

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Christopher Smith: Offshore Transmission Licensee**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Neutral	Neutral	Neutral	Yes	Yes	Yes
<b>Voting Statement</b>						
The modification provides greatly clarity on the compliance process which will benefit both USERS and the COMPANY.						

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **John Harrower: Generator**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Yes	Neutral	Yes	Neutral	Yes	Yes
<b>Voting Statement</b>						

The proposed changes facilitate flexibility and provide logistical benefits when carrying out the often difficult to coordinate compliance testing. The changes also facilitate testing of larger machines which are impractical to test onsite. It is my opinion, however, that for particularly significant sites, the ESO should still be present to witness site testing.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Antony Johnson (on behalf of Rob Wilson): National Grid ESO**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Yes	Yes	Yes	Neutral	Neutral	Yes

#### Voting Statement

The changes proposed in this modification are not massive but are helpful in ensuring a continued robust approach to testing, including simulations, and in light of technical developments will give users continued confidence that their technologies are compliant. We note the requirement for minor consequential changes to a STC procedure (STCP19-5) with regard to voltage control testing procedures and test data submission format to make sure that these requirements stay aligned where, due to the timing of a FON, they would need to also involve an OFTO (and therefore being defined in the STC) rather than solely the generator through the Grid Code. The ESO has confirmed that this will be proposed to the March STC panel. STCP changes are subject to approval by the panel only so would not be part of an Authority decision but would need to be coordinated with this.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Robert Longden: Supplier**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Neutral	Yes	Neutral	Neutral	Yes	Yes

#### Voting Statement

The Original proposal provides more flexible and appropriate arrangements for compliance testing of generators than the current Baseline. It should be implemented.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Roddy Wilson: Onshore Transmission Licensee**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Yes	Neutral	Neutral	Yes	Yes	Yes

#### Voting Statement

The solution will help provide improved clarity in the present compliance testing process and meets the objectives described in the modification proposal.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Sigrid Bolik: Generator**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)

Original	Yes	Yes	Yes	Neutral	Neutral	Yes
<b>Voting Statement</b>						
It is unclear if changes to the CP is expected to be applied retrospectively. In itself, the changes are supported as they support clarity of performance in plant operation.						

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Graeme Vincent (on behalf of Steve Cox): Network Operator Representative**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Overall (Y/N)
Original	Yes	Neutral	Neutral	Yes	Yes	Yes
<b>Voting Statement</b>						
The proposed modifications should provide clarity on testing requirements for new technologies and larger wind turbines whilst maintaining appropriate levels of compliance assessment.						

**Vote 2 – Which option is the best?**

Panel Member	BEST Option
Alan Creighton	Original
Alastair Frew	Original
Christopher Smith	Original
John Harrower	Original
Antony Johnson (Alternate for Rob Wilson)	Original
Robert Longden	Original
Roddy Wilson	Original
Sigrid Bolik	Original
Graeme Vincent (Alternate for Steve Cox)	Original

### Panel conclusion

The Panel, unanimously recommended that the Proposer's solution should be implemented.

## When will this change take place?

### Implementation date:

The earliest implementation date sought is Q2 2022 with careful consideration given to the timing of the fourth CfD Allocation Round sealed bid window.

### Date decision required by:

The decision is required from the Authority as soon as reasonably practicable.

### Implementation approach:

This modification does not impact on any industry systems. However, some industry stakeholders have expressed concern with the timing of the fourth Cf Ogd Allocation



Round which is currently open for applications and the sealed bid window: 9–29 March 2022 (shortest timeline) or 24 May–15 June 2022 (longest timeline). Generators may have to factor in additional costs of compliance in line with the implementation of GC0138. The Authority will be minded to factor these concerns into their decision when the Final Modification Report is issued to them.

### Interactions: This modification does not impact on any industry systems

- |  |   |   |                                |
|--|---|---|--------------------------------|
| <input checked="" type="checkbox"/> STC            | <input type="checkbox"/> BSC                                  | <input type="checkbox"/> SQSS                   | <input type="checkbox"/> Other |
| <input type="checkbox"/> European<br>Network Codes | <input type="checkbox"/> EBGL Article 18<br>T&Cs <sup>1</sup> | <input type="checkbox"/> Other<br>modifications |                                |

The Compliance Processes and European Compliance Processes include offshore wind farms within their scope. Where offshore wind farm transmission networks are transitioned to Offshore Transmission Owner (OFTO) ownership before a Final Operational Notification has been issued, STC Procedure STCP19-5 applies rather than Grid Code. Therefore, there is no direct cross code impact to STC however, it would be useful to revise STCP19-5. The ESO has plans to do this.

These changes are being proposed in conjunction with those of [GC0141](#) – which contains proposed changes to how data and models are exchanged. GC0138 and GC0141 remain separate to each other however; the progression of each is not contingent on that of the other.

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<sup>1</sup> If the modification has an impact on Article 18 T&Cs, it will need to follow the process set out in Article 18 of the European Electricity Balancing Guideline (EBGL – EU Regulation 2017/2195) – the main aspect of this is that the modification will need to be consulted on for 1 month in the Code Administrator Consultation phase. N.B. This will also satisfy the requirements of the NCER process.



## Acronyms, key terms and reference material

Acronym / key term	Meaning
Baseline	The code/standard as it is currently
BSC	Balancing and Settlement Code
CMP	CUSC Modification Proposal
CP	Compliance Process
CUSC	Connection and Use of System Code
EBGL	Electricity Balancing Guideline
ECP	European Compliance Process
FATs	Factory Acceptance Tests
HVDC	High Voltage Direct Current
MDPR	Manufacturer Data Paper Report
OC5	Grid Code – Operating Code 5
OFTO	Offshore Transmission Owner
RfG	Requirements for Generators
STCP19-5	System Operator Transmission Owner Code Procedure 19-5 “Offshore Transmission System Compliance Process and Testing”
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
T&Cs	Terms and Conditions

### Reference material:

1. Guidance notes covering the demonstration of compliance for Power Park Modules, Synchronous Generators and HVDC Interconnectors under both EU Code and GB Code can be found on the National Grid ESO website under Grid Code, Associated Documents.

<https://www.nationalgrideso.com/industry-information/codes/grid-code-old?code-documents=>

2. GC0141 Grid Code Modification

<https://www.nationalgrideso.com/industry-information/codes/grid-code-old/modifications/gc0141-compliance-processes-and-modelling>

**Annexes**

<b>Annex</b>	<b>Information</b>
Annex 1	GC0138 Proposal Form
Annex 2	GC0138 Terms of Reference
Annex 3	GC0138 Legal Text
Annex 4	GC0138 Workgroup Consultation Responses
Annex 5	GC0138 Workgroup Vote
Annex 6	Code Administrator consultation responses