

# GC0138:

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

01	Proposal Form
02	Workgroup Consultation
03	Workgroup Report
04	Code Administrator Consultation
05	Draft Grid Code Modification Report
06	Final Grid Code Modification Report

**Purpose of Modification:** 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
- strengthen effectiveness of simulations.



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

- assessed by a Workgroup

This modification was raised 12 February 2020 and will be presented by the Proposer to the Panel on 27 February 2020. The Panel will consider the Proposer's recommendation and determine the appropriate route.



**High Impact:**

***Owners of generation plant, offshore transmission systems and HVDC Interconnectors Owners (and manufacturers supplying plant)***

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## Timetable

### The Code Administrator recommends the following timetable:

Initial consideration by Workgroup	dd month year
Workgroup Consultation issued to the Industry	dd month year
Modification concluded by Workgroup	dd month year
Workgroup Report presented to Panel	dd month year
Code Administration Consultation Report issued to the Industry	dd month year
Draft Final Modification Report presented to Panel	dd month year
Modification Panel decision	dd month year
Final Modification Report issued the Authority	dd month year
Decision implemented in Grid Code	dd month year

 Any questions?

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## Proposer Details

<b>Details of Proposer:</b> (Organisation Name)	National Grid ESO
Capacity in which the Grid Code Modification Proposal is being proposed: (e.g. CUSC Party)	N/A
<b>Details of Proposer's Representative:</b> Name: Organisation: Telephone Number: Email Address:	Mark Horley Electricity Connection Compliance Team, NGESO 01926 655465 Mark.Horley@nationalgrideso.com
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<b>Attachments (Yes/No): Yes</b> <b>If Yes, Title and No. of pages of each Attachment:</b> <ul style="list-style-type: none"> <li>Proposed legal text changes</li> <li>Draft legal text</li> </ul>	

## Impact on Core Industry Documentation.

<b>BSC</b>	<input type="checkbox"/>
<b>CUSC</b>	<input type="checkbox"/>
<b>STC</b>	<input checked="" type="checkbox"/>
<b>Other</b>	<input type="checkbox"/>

This change relates to updating the Grid Code Compliance Processes (CP), the European Compliance Processes (ECP) and Testing and Monitoring (OC5) to improve flexibility for users and increase effectiveness.

The 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 STCP19-5 applies rather than 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.

## 1 Summary

### Defect

Currently the specifications of testing included in the Grid Code have deficiencies which do not fully facilitate users to demonstrate compliance without onsite intervention by National Grid ESO attendance.

Technological developments mean that Factory Acceptance Testing (FATs) is desirable to facilitate the use of larger Power Park Units and HVDC Systems / Plant. 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 a number of suppliers concerned that the Grid Code does not allow this method of demonstrating compliance and therefore jeopardises market development.

Concerns have been raised that Fault Ride Through simulations specified in the Grid Code are not representative of operational scenarios which may occur, particularly in large wind farms.

### What

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.

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

## Why

The proposal is to update the Compliance Processes sections of the Grid Code (CP & ECP) and Grid Code OC5 detailing Fault Ride Through Testing, submission of test data and the detailed test requirements.

This proposal facilitates 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 site witnessing and provide standards for the format of any test data sent to National Grid ESO for review.

Additionally, changes to technology and scale of technology being employed need to be reflected in the way requirements are fulfilled.

## How

The proposal is to update the Compliance Processes and European Compliance Processes sections of the Grid Code (CP & ECP) and Operating Code OC5 detailing Fault Ride Through (FRT) Testing, submission of test data, detailed test and simulation requirements.

## 2 Governance

### Justification for [Normal, Urgent, Self-Governance or Fast Track Self-Governance] Procedures

Given impact on Generators, normal governance procedures should be followed.

### Requested Next Steps

This modification should:

- be assessed by a Workgroup

## 3 Why Change?

Changes to the testing methodology and test data submission are required to facilitate successful first-time demonstration of compliance by users with quick turnaround of approval without National Grid ESO attending all sites. Where National Grid ESO is not attending site testing, there is much easier scheduling by the User saving time, production interruption and resource.

Modification of the type testing requirements are necessary to facilitate continued development particularly of wind turbine technology while mitigating risk to system operation. Failure to agree a mutually acceptable methodology for FRT testing could jeopardise/delay the next generation of offshore wind development.

## 4 Code Specific Matters

### Technical Skillsets

Understanding and experience of the methods for practical demonstration of compliance of various generation and Interconnector technology with the Grid Code.

A working group involving plant manufacturers along with Generators, Offshore wind farm developers and HVDC Converter station owners would be useful to ensure the technical changes in the proposals are suitable for the wider industry and supply chain whilst maintaining security of the electricity supply.

### Reference Documents

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/codes/grid-code?code-documents>

## 5 Solution

The proposal is to update the 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.

## 6 Impacts & Other Considerations

The 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 STCP19-5 applies rather than 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.

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

None Identified

### Consumer Impacts

None Identified

## 7 Relevant Objectives

### Impact of the modification on the Applicable Grid Code Objectives:

Relevant Objective	Identified impact
(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	Positive – additional obligations to demonstrate plant will not disconnect during a network event
(b) 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);	Positive – allowing larger wind turbines to enter the UK offshore market
(c) 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 – additional obligations to demonstrate plant will not disconnect during a network event
(d) 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	None
(e) To promote efficiency in the implementation and administration of the Grid Code arrangements	None

The proposed changes will improve efficiency for users to demonstrate compliance thereby saving cost. Changes to the default on site test procedures will improve consistency between sites providing more comprehensive demonstration thereby increasing confidence in compliance to Grid Code and network security. Changes to include Factory Acceptance Testing for larger Power Park Units and HVDC installations will better facilitate market development and drive down industry costs.

## 8 Implementation

While draft legal text is being proposed and most aspects are already accepted as guidance and occurring as custom and practice, National Grid ESO expects that there

will be detailed discussion by the industry on some points. The earliest implementation date is predicted as October 2020.

## 9 Legal Text

Draft legal text attached as an annex.

## 10 Recommendations

### Proposer's Recommendation to Panel

Panel is asked to:

Agree that Normal governance procedures should apply

- Refer this proposal to a Workgroup for assessment.