



Grid Code Review Panel

Thursday 26 October 2023

Faraday House

WELCOME



Purpose of Panel & Duties of Panel Members

The **Panel** shall be the standing body to carry out the **functions** referred to in the Governance Rules (**GR3.1.1**)

Functions (GR.3.2)

The **Panel** shall endeavour at all times to operate:

- in an **efficient, economical and expeditious manner**, taking account of the complexity, importance and urgency of particular Modification Proposals; and
- With a view to ensuring that the **Grid Code** facilitates **achievement of the Grid Code Objectives**.

Duties of Panel Members & Alternates (GR.3.3)

1. Shall act **impartially** and in accordance with the requirements of the **Grid Code**; and
2. Shall not have any **conflicts of interest**.

Shall not be representative of, and shall act without undue regard to the particular interests of the persons or body of persons by whom he/she was appointed as Panel Member and any Related Person from time to time.

Approval of Panel Minutes

Approval of Panel Minutes from the Meeting held

28 September 2023

12 October (Special Panel for GC0162)



Action Log

Action No.	Status	Action	Date raised	Owner	Due	Comments and Updates
440	Open	Update on the status of GC0139 and remaining work required to be given to GCRP following completion of analysis and tender.	28/09/2023	TP	23/11/2023	The subgroup are reviewing the analysis mid November and an update can be given to November GCRP after analysis is reviewed.
441	Open	CATO legislation update to be given to the STC Panel	28/09/2023	DS	25/10/2023	On agenda for 25/10/2023 STC Panel.
442	Open	European legislation: provide update covering interactions between GB and EU law with regard to the Grid Code.	28/09/2023	JWh/JW		ESO technical and commercial codes teams are looking into this and will revert to GCRP.
443	Open	Add HND Subgroup update into monthly slide pack for GCRP.	28/09/2023	JW	23/11/2023	HND meeting on 15/10/2023. They are pulling together a plan and associated communications. Update at November GCRP.
444	Open	Energy Code Reform Update to be given by Code Administrator to the STC Panel	28/09/2023	SC	25/10/2023	On agenda for 25/10/2023 STC Panel



Chair's Update

Authority Decisions and Update (as at 18 October 2023)



Decisions Pending

- ☐ **GC0156:** Facilitating the Implementation of the Electricity System Restoration Standard (expected sat 31 October).

Decisions Received since last Panel meeting

- ☐ None

Received Final Modification Reports since last Panel Meeting

- ☐ None


The Authority's publication on decisions can be found on their website below:

<https://www.ofgem.gov.uk/publications/code-modificationmodification-proposals-ofgem-decision-expected-publication-dates-timetable>

New modifications submitted

Self-Governance





GC0163 – GB Grid Forming (GBGF) - Removal of Virtual Impedance restriction

Background

As deeply discussed/consulted, concluded and commonly agreed within ESO's GB Grid Forming Best Practice Group including comprehensive stakeholders with a good mix of background in the UK and wider*:

- For the position of ESO, the equivalent Internal Voltage Source should be defined as a Grey Box rather than a White Box, where its functionality & performance as well as inputs/outputs should be clearly defined. Such a proposal of Grey Box has been widely supported by comprehensive external stakeholders during Best Practice Group discussions and individual stakeholder engagements for consultation purpose.
- For the ESO's position, the Internal Voltage Source should be defined as the Grey Box so the clause, **definition and figures as relevant to Virtual Impedance in current Grid Code should be removed.**
- Such proposal with updated wordings have been internally reviewed.

Note*: For details, please see the reference as listed.

ESO's GB Grid Forming Best Practice Guide as issued in April, 2023

URL: <https://www.nationalgrideso.com/document/278491/download>

GC Changes as Proposed

Internal Voltage Source or IVS	<p>For a GBGF-S, a real magnetic field, that rotates synchronously with the System Frequency under normal operating conditions, which as a consequence induces an internal voltage (which is often referred to as the Electro Motive Force (EMF)) in the stationary generator winding that has a real impedance.</p> <p>In a GBGF-I, switched power electronic devices are used to produce a voltage waveform, with harmonics, that has a fundamental rotational component called the Internal Voltage Source (IVS) that rotates synchronously with the System Frequency under normal operating conditions.</p> <p>For a GBGF-I there must be an <u>internal impedance</u> with only real physical values, between the Internal Voltage Source and the Grid Entry Point or User System Entry Point.</p> <p>For the avoidance of doubt, a virtual impedance, is not permitted in</p> <p>GBGF-I.</p>
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ECC.6.3.19.3 As noted in ECC.6.3.19.2, **Grid Forming Capability** is not a mandatory requirement, however where a **User** (be they a **GB Code User** or **EU Code User**) or **Non-CUSC Party** wishes to offer a **Grid Forming Capability**, then they will be required to ensure their **Grid Forming Plant** meets the following requirements.

- (i) The **Grid Forming Plant** must fully comply with the applicable requirements of the Grid Code including but not limited to the **Planning Code (PC)**, **Connection Conditions (CC's)** or **European Connection Conditions (ECC's)** (as applicable), **Compliance Processes (CP's)** or **European Compliance Processes (ECP's)** (as applicable), **Operating Codes (OC's)**, **Balancing Codes (BC's)** and **Data Registration Code (DRC)**.
- (ii) Each **GBGF-I** shall comprise an **Internal Voltage Source** ~~behind an impedance and reactance. For the avoidance of doubt, the reactance between the Internal Voltage Source and Grid Entry Point or User System Entry Point (if Embedded) within the Grid Forming Plant can only be made by a combination of several physical discrete reactances. This could include the reactance of the Synchronous Generating Unit or Power Park Unit or HVDC System or Electricity Storage Unit or Dynamic Reactive Compensation Equipment and the electrical Plant and Apparatus connecting the Synchronous Generating Unit or Power Park Unit or HVDC System or Electricity Storage Unit (such as a transformer) to the Grid Entry Point or User System Entry Point (if Embedded).~~

The ask

This proposal has been widely circulated with industry via GCDF and the GB Grid Forming Best Practice guide workgroup

The modification enables the use of virtual impedance in a grid forming solution and therefore should have no negative impact on the industry.

we are therefore proposing this modification is carried out using self governance straight to CAC.

Critical Friend Feedback – GC0163

Code Administrator comments	Amendments made by the Proposer
<p>Requested for clarity throughout the document</p> <p>Requested additional evidence of prior stakeholder engagement to be added</p> <p>Timeline provided</p>	<p>Proposer accepted all amendments made by the Code Administrator</p>

Timeline for GC0163 – Proposed Timeline – Code Administrator Consultation

Milestone	Date
Modification presented to Panel	26 October 2023
Code Administrator Consultation (1 Month for Grid Code)	13 November 2023 to 13 December 2023
Draft Self Governance Modification Report issued to Panel (5 working days)	17 January 2024
Panel undertake Draft Self Governance Modification Report determination vote	25 January 2024
Final Self Governance Modification Report issued to Panel to check votes recorded correctly	29 January 2024
Appeals Window (15 working days)	05 February 2024 to 26 February 2024
Implementation Date	04 March 2024

GC0163 – the asks of Panel

- **AGREE** that this Modification meets the Self-Governance Criteria (Panel decision) rather than Standard Governance (Ofgem decision)
- **AGREE** that this Modification should proceed to Code Administrator Consultation
- **NOTE** that there appear not to be any impacts on the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the Grid Code
- **NOTE** the proposed timeline

Grid Code Self-Governance Criteria

Self-Governance Criteria	<p>A proposed Modification that, if implemented,</p> <ul style="list-style-type: none">(a) is unlikely to have a material effect on:<ul style="list-style-type: none">(i) existing or future electricity consumers; and(ii) competition in the generation, storage, distribution, or supply of electricity or any commercial activities connected with the generation, storage, distribution or supply of electricity; and(iii) the operation of the National Electricity Transmission System; and(iv) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and(v) the Grid Code's governance procedures or the Grid Code's modification procedures, and(b) is unlikely to discriminate between different classes of Users.(c) other than where the modification meets the Fast Track Criteria, will not constitute an amendment to the Regulated Sections of the Grid Code.
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New modifications submitted

Standard Governance





GC0164 - Operating Code No.2 (OC2) Simplification

Grid Code Review Panel - October 2023

F.Kasibante

GC0164 OC2 Simplification

What's the issue?

Operating Code 2 (OC2 Operational Planning and Data Provision) is one **section within the Grid Code where the complexity of the text makes it difficult for the reader to understand and comply with current processes or understand their own and others' obligations**. It also contains Appendices which are more logically located in other sections of the Grid Code.

This is the **first modification** resulting from both the Alignment, Simplification and Rationalisation Workstream (ASRW) and the Steering Group of the Digitalised Whole System Technical Code (dWSTC) project.

Why Change?

The **Grid Code is a large, complex** and very interlinked document.

OC2 is relatively stand-alone section within the code, is of modest size for a Grid Code section, and is both out of date and **not one of the most heavily used parts of the Code**. It therefore **presents a good opportunity to test out the simplification** principles and process with the resources currently available.

What is the proposed solution?

- Operating Code No.2 (OC2) **has been rewritten by the ASRW**.
- A modification **to relocate the Generator Performance Charts into the Planning Code is also proposed**.
- **Some definitions have been improved**. It is unclear what the best approach is to deal with this proposed change.
- **Update** other sections of the Grid Code as a consequence of changes to references within OC2 if required

GC0164 OC2 Simplification

What is the benefit for the Grid Code User?

1. **Clearer obligations** and **easier implementation** will help improve Code Use .
2. Simplification of OC2 will result in **more efficient use**, ease in complying with, and **understanding OC2 provisions** by users.
3. It will **reduce the need for users to develop sets of guidance documents** which is usually done by industry in the attempt to make the codes useable by their respective operational teams.

What is the proposed governance route?

Standard Governance proposed but the Proposer is open to the Grid Code Review Panel's expert guidance on the best route to take given the unusual nature of this modification.

Why is Standard Governance the proposed route?

There has been wide industry engagement prior to proposing this modification however, OC2 has been significantly changed and therefore could potentially require some extra scrutiny which could be helpful and therefore provided by a Workgroup.

An Ofgem decision would support the changes and will enable ongoing work on code alignment, simplification, and rationalisation

GC0164 OC2 Simplification

The Definitions challenge

Stakeholders proposed that rationalising the Glossary and Definitions would help make the whole Grid Code more usable and less complex. There are currently 82 pages of Glossary & Definitions in the Grid Code.

The proposer seeks to have the improved definitions to sit alongside the simplified OC2 text but is welcome to Panel's specialist guidance on other options in the interest of Grid Code objectives.

The test used by the ASRW while simplifying/rationalising the definitions

1. Could the proposed new definition work/apply in the rest of the Grid Code?
2. Is it simpler?

GC0164 OC2 Simplification

The Definitions challenge

Suggestions for how sections can be re-written individually – and how the definitions/glossary can be treated

Options for redrafting

1. Rewrite sections in turn, inheriting all definitions unchanged.
2. Rewrite sections in turn, modifying definitions in the process.
3. Review and rationalise all definitions before rationalizing/rewriting the text.
4. Rewrite sections in turn, creating new definitions for the new sections, and retaining old definitions unchanged for the old sections.

GC0164 OC2 Simplification

The Definitions challenge

Redrafting options

Option	Pro	Con
1 – Rewrite section by section; unchanged definitions	<ul style="list-style-type: none">• Easiest/quickest rewrite.	<ul style="list-style-type: none">• Leaves the complex and confusing interlocking definitions (particular for generating plant) all in place.
2 – Rewrite section by section; modify definitions	<ul style="list-style-type: none">• Relatively easy for the new sections.• Resolves the complexity of the definitions	<ul style="list-style-type: none">• Creates significant work in that every other section will need to be checked for the changed definitions, and in some cases, other sections will need modifying too.
3 – Rationalize definitions first	<ul style="list-style-type: none">• Resolves the complexity of definitions	<ul style="list-style-type: none">• Risks being based on old needs and approach.• Will need to review usage in the whole of the Code.• Cannot be used until first new sections drafted.• Detailed drafting work likely to uncover new necessary tweaks.• Whole Code needs to be redrafted for approval at once – or reverts to approach 4
4 – Rewrite; create new definitions for new text.	<ul style="list-style-type: none">• Fairly easy rewrite• Resolves the complexity of definitions	<ul style="list-style-type: none">• Requires a new and old glossary to be in use at the same time until whole code rewritten.• Two sets of definitions are created

GC0164 OC2 Simplification

The Definitions challenge

Summary and Recommendation

- Option 1 does not do much for overall usability for users, leaving the current extensive and interlocking definitions in place, so should not be considered further.
- Option 2 creates significant work, delivers benefits while reducing risk.
- Option 3 risks being based on old needs and approach.
- Reviewing the pros and cons of the other options identified, option 4 guarantees the best outcome with only modest additional work over option 1.
- Option 4 is the recommended one from the ASRW team.

Critical Friend Feedback – GC0164

Code Administrator comments	Amendments made by the Proposer
<p>Advised on Governance route</p> <p>Rewording for clarity and simplification</p> <p>Advised adding annex with background detail rather than having it within the Proposal form</p> <p>Provided timeline</p>	<p>Proposer accepted majority of amendments made by the Code Administrator</p>

Timeline for GC0164 – Proposed Timeline - *Workgroup*

Milestone	Date	Milestone	Date
Modification presented to Panel	26 October 2023	Code Administrator Consultation (1 calendar month)	01 April 2024 – 01 May 2024
Workgroup Nominations (15 Working Days)	31 October 2023 to 21 November 2023	Draft Final Modification Report (DFMR) issued to Panel (5 working days)	22 May 2024
Workgroup 1 and 2	07 December 2023 11 January 2024	Panel undertake DFMR recommendation vote	30 May 2024
Workgroup Consultation (15 working days)	22 January 2024 to 12 February 2024	Final Modification Report issued to Panel to check votes recorded correctly	03 June 2024 to 10 June 2024
Workgroup 3	26 February 2024	Final Modification Report issued to Ofgem	17 June 2024
Workgroup report issued to Panel (5 working days)	13 March 2024	Ofgem decision	TBC
Panel sign off that Workgroup Report has met its Terms of Reference	21 March 2024	Implementation Date	10 working days after Authority Decision - ideally 31 July 2024

GC0164 – the asks of Panel

- **AGREE** that this Modification should follow Standard Governance (Ofgem decision) rather than the Self-Governance Criteria (Panel decision)
- **AGREE** that this Modification should proceed to Workgroup
- **AGREE** Workgroup Terms of Reference
- **NOTE** that there appear not to be any impacts on the Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the Grid Code
- **NOTE** the proposed timeline

New modifications submitted

Fast Track





Grid Code Housekeeping Modification GC0165

Grid Code Review Panel, October 2023

Frank Kasibante

GC0165 Housekeeping Modification

What's the issue?

Several formatting and typographical inaccuracies in the Grid Code were highlighted by the ESO during 2023

Why Change?

To correct the minor typographical and formatting errors within the Grid Code. Raising these modifications as one Grid Code change presents efficiencies for both ESO and for industry resource.

What is the proposed solution?

Implement currently identified housekeeping changes in the Grid Code.

What is the benefit for the consumer?

Improved accuracy and quality of the code. The modification will update the Grid Code and make it more user friendly.

What is the proposed governance route?

Fast-track Self-Governance modification

Why is Self-Governance the proposed route?

The modification fulfils the Grid Code Fast Track Self-Governance criteria. It is a housekeeping modification required as a result of some error or factual change, for minor typographical and formatting errors.

Critical Friend Feedback – GC0165

Code Administrator comments	Amendments made by the Proposer
Advised on Governance route Rewording for clarity and simplification	Proposer accepted all amendments made by the Code Administrator

Timeline for GC0165 – Proposed Timeline – *Fast Track Self Governance*

Milestone	Date
Draft Fast Track Self-Governance Report presented to Panel	18 October 2023
Panel decision	26 October 2023
Appeals Window (15 working days)	03 November 2023 to 24 November 2023
Implementation Date	04 December 2023

GC0165 – the asks of Panel

- **AGREE** that this Modification should follow Fast Track Self-Governance Criteria (Panel decision, which must be unanimous)
- **NOTE** the proposed timeline and that this Modification will be implemented upon conclusion of the Appeals window (if no objections are received from industry)

Grid Code Fast Track Criteria

Fast Track Criteria	<p>A proposed Grid Code Modification Proposal that, if implemented,</p> <ul style="list-style-type: none">(a) would meet the Self-Governance Criteria; and(b) is properly a housekeeping modification required as a result of some error or factual change, including but not limited to:<ul style="list-style-type: none">(i) updating names or addresses listed in the Grid Code;(ii) correcting any minor typographical errors;(iii) correcting formatting and consistency errors, such as paragraph numbering; or(iv) updating out of date references to other documents or paragraphs
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Grid Code Self-Governance Criteria

Self-Governance Criteria	<p>A proposed Modification that, if implemented,</p> <ul style="list-style-type: none">(a) is unlikely to have a material effect on:<ul style="list-style-type: none">(i) existing or future electricity consumers; and(ii) competition in the generation, storage, distribution, or supply of electricity or any commercial activities connected with the generation, storage, distribution or supply of electricity; and(iii) the operation of the National Electricity Transmission System; and(iv) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and(v) the Grid Code's governance procedures or the Grid Code's modification procedures, and(b) is unlikely to discriminate between different classes of Users.(c) other than where the modification meets the Fast Track Criteria, will not constitute an amendment to the Regulated Sections of the Grid Code.
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Break



Inflight Modification Updates

Jonathan Whitaker, Code Administrator

GC0117 Timeline Update

	Workgroup Report issued to Panel	DFMR issued to Panel	FMR issued to Ofgem
Previous timeline	18 October 2023	17 January 2023	06 February 2023
New timeline	06 December 2023	14 February 2023	07 March 2023

Rationale: Further Workgroup required to close out actions and complete the Workgroup Vote.

Workgroups Remaining: 1

Ask of Panel: Agree revised timeline.

GC0154 Timeline Update

	Workgroup Report issued to Panel	DFMR issued to Panel	FMR issued to Ofgem
Previous timeline	14 September 2023	15 November 2023	07 December 2023
New timeline	14 September 2023	06 December 2023	03 January 2024

Rationale: The Code Administrator Consultation was delayed by a few days to address legal text issues raised at the Grid Code Review Panel on 28 September 2023. Further time is required to summarise Code Administrator Consultation Responses for the DFMR.

Workgroups Remaining: 0




Ask of Panel: Agree revised timeline.



Panel Tracker

Jonathan Whitaker, Code Administrator

Prioritisation Stack

Grid Code - Prioritisation Stack   			
Mod Number	Previous Priority No:	Priority No	Title
GC0162	2	1	Changes to OC6 to amend the operational timings for the delivery of the additional demand reduction above 20%, with a focus between 20% and 40%
GC0139	3	2	Enhanced Planning Data Exchange to Facilitate Whole System Planning
GC0117	4	3	Improving transparency and consistency of access arrangements across GB by the creation of a pan-GB commonality of Power Station requirements
GC0154	5	4	Incorporation of interconnector ramping requirements into the Grid Code as per SOGL Article 119
GC0155	6	5	Clarification of Fault Ride Through Technical Requirements
GC0103	7	6	The introduction of harmonised Applicable Electrical Standards in GB to ensure compliance with the EU Connection Codes
GC0159	8	7	Introducing Competitively Appointed Transmission Owners
GC0140	9	8	Grid Code Sandbox: enabling derogation from certain obligations to support small-scale trials of innovative propositions

Grid Code Development Forum – Previous and Next

4 October 2023

Creation of an Interconnector Framework

An update was shared in relation to the Interconnector Framework request for input that will be published by the ESO in early October 2023.

Data collection from Dynamic System Monitoring (DSM) Systems

Following the presentation at the August 2023 GCDF in relation to the request for Dynamic System Monitoring (DSM) data from Users, an update was shared in relation to a questionnaire that has been sent to Grid Code Users in order to collect information in relation to DSM units and potential methods for collecting DSM data.

1 November 2023 (Deadline for Agenda items - 25 October)

Final Agenda items TBC but could include:

Digitalised Whole System Technical Code

With the proposed simplification of the 'OC2' section of the Grid Code due to move to the official modification stage shortly, discussions will take place in relation to possible next areas of the Grid Code that could benefit from a review and possible rationalisation / simplification.



Standing Items

- Distribution Code Panel update (Alan Creighton)
- JESG Update (information only)
 - Previous meeting – 10 October 2023 [Meeting materials and Headline Report](#)
 - Next meeting – 14 November 2023



Updates on other industry codes



Electrical Standards

Electrical Standards and documentation Update

Tony Johnson



Any Other Business

Activities ahead of the next Panel Meeting

Grid Code Development Forum	01 November 2023
Modification Proposals to be submitted	08 November 2023
Papers Day	15 November 2023
Panel Meeting	23 November 2023 Teams Meeting

Close



Trisha McAuley

Independent Chair, Grid Code Review Panel