

GC0186: Proposed Grid Code Changes – Post Electricity System Restoration Standard (ESRS)

Workgroup Meeting 2

Thursday 09 July 10am

Online Meeting via Teams

WELCOME

Agenda

Topics to be discussed	Lead
Action log Review	Chair
Presentation – Protection System Risks during ESR Testing	NGET
Review of Legal Text and high-level issues identified	Proposer
Any Other Business	Chair
Next Steps	Chair

Expectations of a Workgroup Member

Contribute to the discussion

Be respectful of each other's opinions

Language and Conduct to be consistent with the values of equality and diversity

Do not share commercially sensitive information

Be prepared – Review Papers and Reports ahead of meetings

Complete actions in a timely manner

Keep to agreed scope

Email communications to/cc'ing the .box email

Your Roles

Help refine/develop the solution(s)

Bring forward alternatives as early as possible

Vote on whether or not to proceed with requests for Alternatives

Vote on whether the solution(s) better facilitate the Code Objectives

Workgroup Membership

Role	Name	Company	Industry Sector
Proposer	Antony Johnson	NESO	System Operator
Workgroup Member	Andrew McLeod	Northern Powergrid	Network Operator
Workgroup Member	Ben Green	Orsted	Generator
Workgroup Member	Garth Graham	SSE Generation	Generator
Workgroup Member	Isaac Gutierrez Dr	Scottish Power Renewables	Generator
Workgroup Member	John Knott	SP Energy Networks	Network Operator
Workgroup Member	Jonathan Lakey	Ocean Winds	Generator
Workgroup Member	Leon Burdekin-Roberts	EDF Power Solutions	Generator
Workgroup Member	Paul Swan	SSEN Transmission	Onshore Transmission
Workgroup Member	Paul Turner	SP ENWL	Network Operator
Workgroup Member	Thomas West	National Grid Distribution	Distribution
Workgroup Member	Tim Ellingham	RWE	Generator
Observer	Kwaku Nti	Perigus Energy	Generator
Observer	Ross McFarlane	Northern Powergrid	Network Operator
Observer	Tina Dawn Marshall	Tina Marshall Consultancy	

Workgroup Membership

Role	Name	Company	Industry Sector
Observer	Victor Ugbome	NESO	System Operator
Authority Representative	Calum Watkins	Ofgem	
BSC Representative	Jacob Snowden	Elexon	
D Code Representative	Jeevan Dhaliwal	Energy Networks	

What is the Alternative Request?

What is an Alternative Request? The formal starting point for a Workgroup Alternative Modification to be developed which can be raised up until the Workgroup Vote.

What do I need to include in my Alternative Request form? The requirements are the same for a Modification Proposal you need to articulate in writing:

- a description (in reasonable but not excessive detail) of the issue or defect which the proposal seeks to address compared to the current proposed solution(s);
- the reasons why you believe that the proposed alternative request would better facilitate the Applicable Objectives compared with the current proposed solution(s) together with background information;
- where possible, an indication of those parts of the Code which would need amending in order to give effect to (and/or would otherwise be affected by) the proposed alternative request and an indication of the impacts of those amendments or effects; and
- where possible, an indication of the impact of the proposed alternative request on relevant computer systems and processes.

How do Alternative Requests become formal Workgroup Alternative Modifications? The Workgroup will carry out a Vote on Alternatives Requests. If the majority of the Workgroup members or the Workgroup Chair believe the Alternative Request will better facilitate the Applicable Objectives than the current proposed Original solution, the Workgroup will develop it as a Workgroup Alternative Modification.

Who develops the legal text for Workgroup Alternative Modifications? NESO will assist Proposers and Workgroups with the production of draft legal text once a clear solution has been developed to support discussion and understanding of the Workgroup Alternative Modifications.

GC0186 Timeline

Milestone	Date	Milestone	Date
Modification presented to Panel	26 February 2026	Code Administrator Consultation (1 month)	03 February 2027 – 03 March 2027
Workgroup Nominations (5 Business Days)	18 May 2026 – 26 May 2026	Draft Final Modification Report (DFMR) issued to Panel	22 April 2027
Workgroup 1 Workgroup 2 Workgroup 3 Workgroup 4	11 June 2026 09 July 2026 06 August 2026 24 August 2026	Panel undertake DFMR recommendation vote	29 April 2027
Workgroup Consultation (15 Business Days)	03 September – 24 September 2026	Final Modification Report issued to Panel to check votes recorded correctly	30 April 2027 – 07 May 2027
Workgroup 5 Workgroup 6 Workgroup 7 Workgroup 8	07 October 2026 04 November 2026 03 December 2026 08 January 2027	Final Modification Report issued to Ofgem	11 May 2027
Workgroup report issued to Panel (papers day)	21 January 2027	Ofgem decision	TBC
Panel sign off that Workgroup Report has met its Terms of Reference	28 January 2027	Implementation Date	TBC

Terms of Reference

- | |
|--|
| a) Implementation and costs; |
| b) Review draft legal text should it have been provided. If legal text is not submitted within the Grid Code Modification Proposal the Workgroup should be instructed to assist in the developing of the legal text; |
| c) Consider whether any further Industry experts or stakeholders should be invited to participate within the Workgroup to ensure that all potentially affected stakeholders have the opportunity to be represented in the Workgroup. Demonstrate what has been done to cover this clearly in the report; and |
| d) Consider implications to sections linked to the Regulated Sections of the Grid Code |
| e) Consider whether it is appropriate to treat NGET, SPT and SHE Transmission in the same way (allowing for Regional differences where agreed) during a Restoration event. |
| f) Consider whether to introduce the concept of Regional Restoration Plans (RRPs) into the Grid Code drafting. |
| g) Consider changes to OC5.7 with regard to deadline charge tests to ensure fit for purpose tests whilst ensuring consistency and efficiency where necessary. |
| h) Consider whether it is appropriate to introduce a requirement into the Grid Code to ensure TOs and Network Operators can switch at sufficient speed to facilitate the Electricity System Restoration Standard |
| i) Review Planning Code PC.A.5.7 to ensure the requirements apply to CUSC parties, other than Large and Directly Connected Power Stations |
| j) Ensure consistency between Data Registration Code (DRC) Schedule 16 and other sections of the Grid Code. |

Terms of Reference

- | |
|---|
| k) Consider the arrangements to enable Restoration Contractors with one Control Point and multiple sites with Restoration Contracts to meet the requirements of their Restoration Contracts, particularly in terms of timescales |
| l) Ensure that the Grid Code places a requirement on relevant parties to ensure that LJ RPs, DRZPs and RRP s contain a sufficient level of confidentiality, especially between Restoration Contractors and CUSC Parties (excluding relevant Network Operators). |
| m) Consider any cross-code impacts. |
| n) Ensure the proposed changes arising from this modification do not have a negative impact on CUSC Parties who are already working to meet the requirements of Grid Code modification GC0156. |
| o) Consider any housekeeping changes identified to those parts of the code that are to be updated as part of this modification. |
| p) Consider whether it is appropriate to include, at this stage, the role that CATO's might have in the future in relation to RRP s. |
| q) Identify and consider the costs and resource implications for the parties affected by the proposal. |
| r) Consider how the RRP s will be implemented/instructed. |
| s) Consider the implications for Network Operators and Transmission Owners of the modification proposal. |

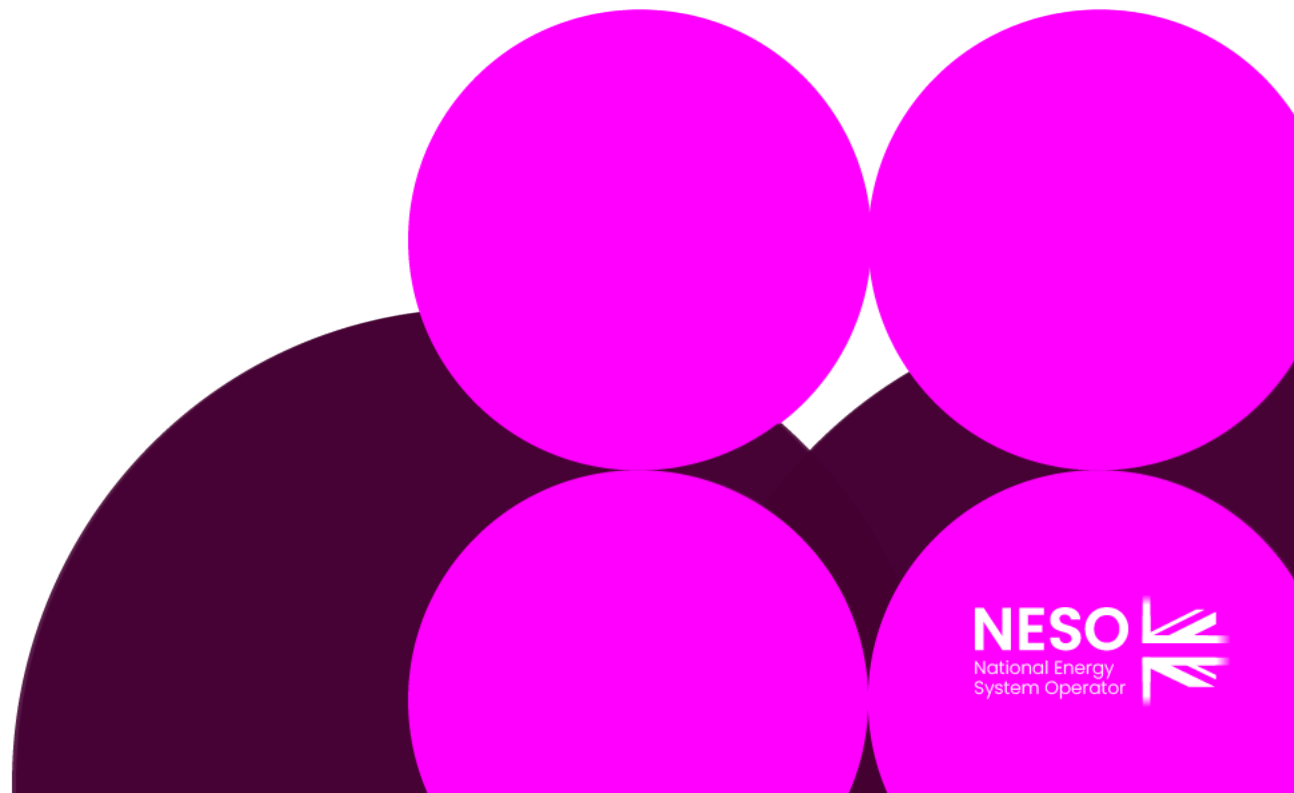
Terms of Reference

t) Consider whether there are any changes required to the Distribution Code (DCode), particularly DOC9.

u) Consider whether cost recovery is required for impacted parties as a result of this proposal.

Action Log Review

Sarah Williams – NESO Code
Administrator

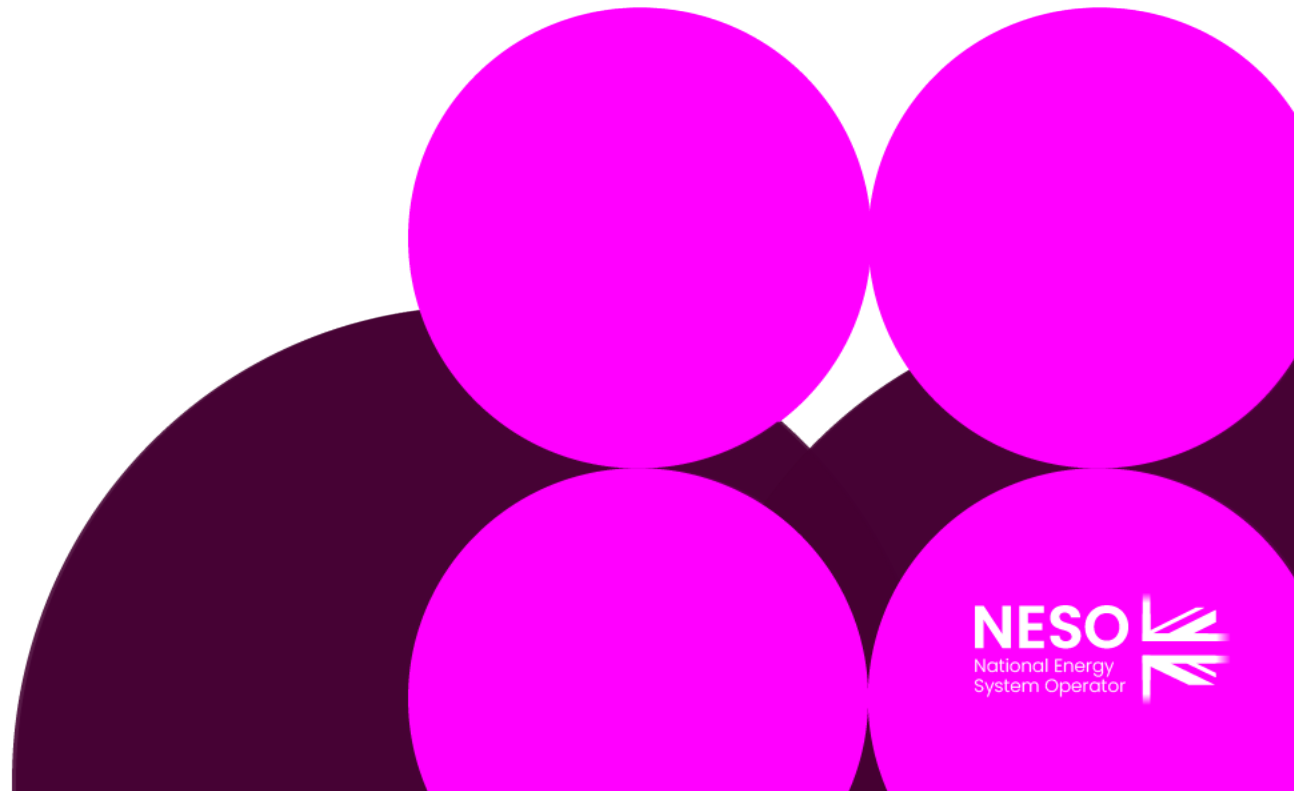


Action Log

Action	Description	Owner	Due	Status
1	Review and respond to all legal text comments, update drafting and circulate revised versions.	AJ/SW	WG2	Propose to close
2	Review the draft legal text and provide comments	All	19-Jun	Open
3	Engage with NGET to provide further detail and slides on testing proposals for a future meeting.	AJ/GL	WG2	Open
4	Send updated invites for the August Workgroup	SW	WG2	Propose to close
5	Refine the wording of the Terms of Reference (specifically around the multi-site/control point drafting)	AJ/BG	WG2	Open

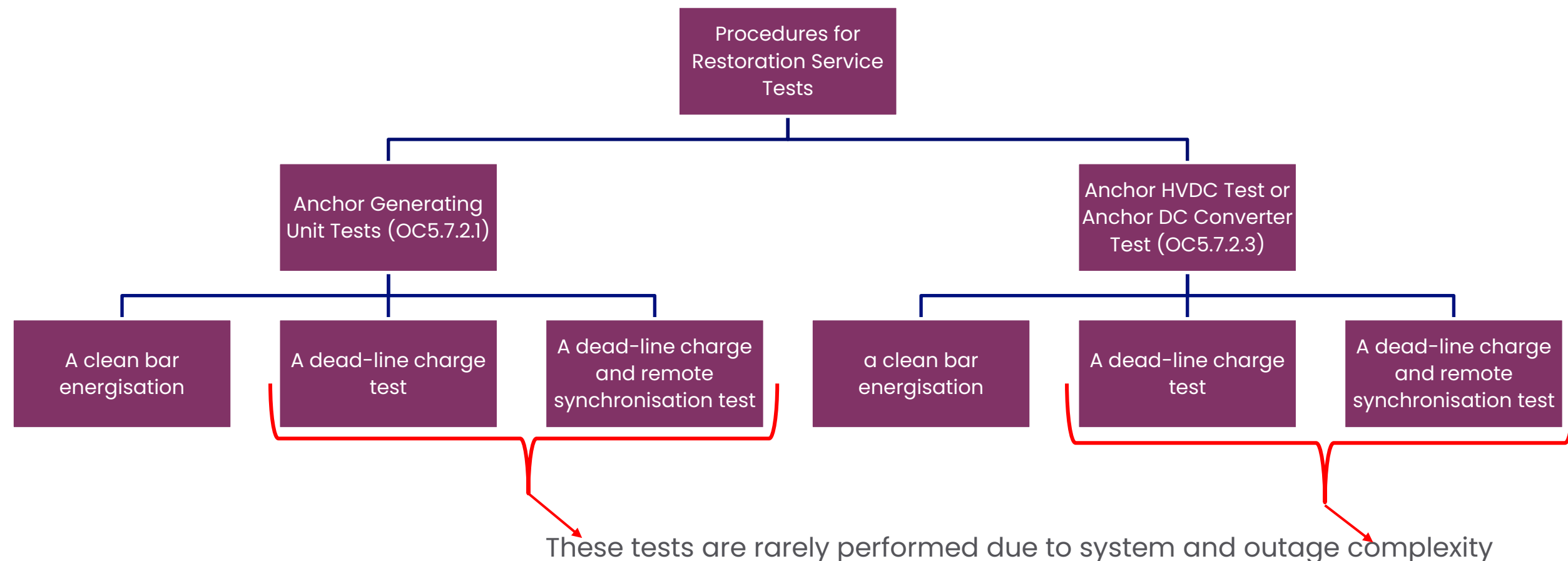
Presentation – Protection system risks during ESR Testing

Anas Nassar - NGET

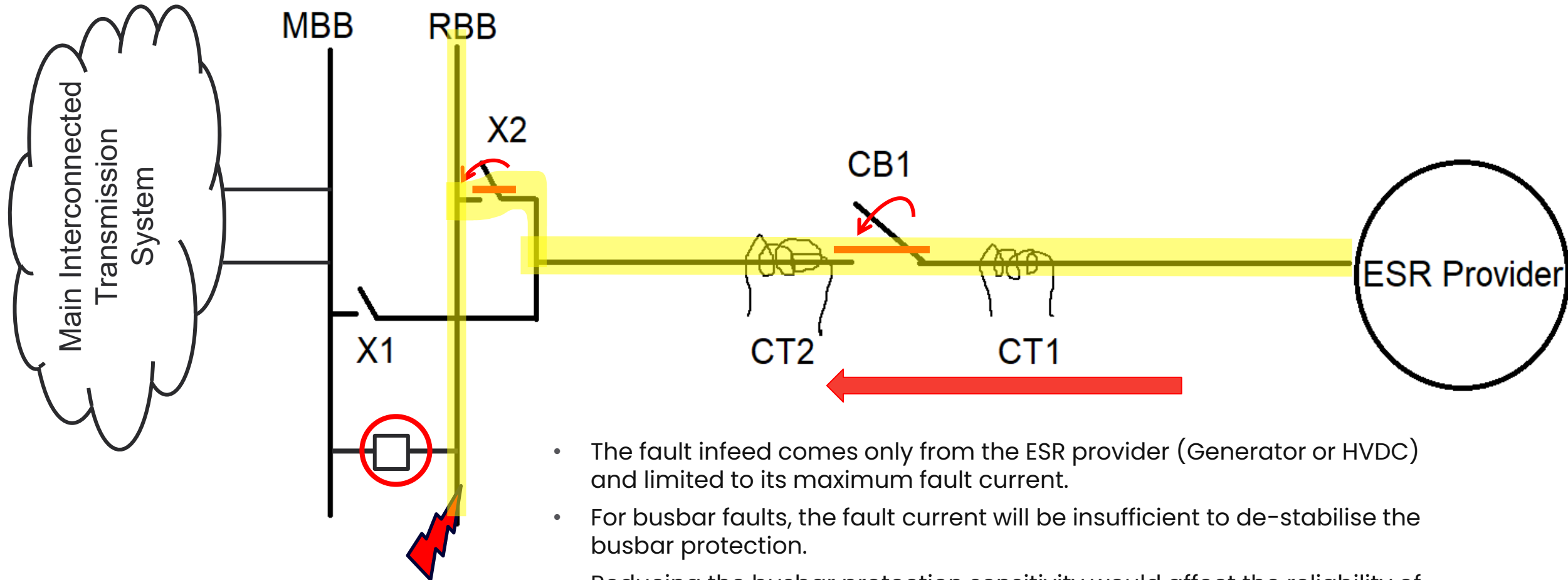


Restoration Service tests

OC5.7.2 (Procedures for Restoration Service Tests) stipulates the need for two restoration contractor's tests that have an impact on the transmission system protection; these tests are:



Energising Clean bar



- The fault infeed comes only from the ESR provider (Generator or HVDC) and limited to its maximum fault current.
- For busbar faults, the fault current will be insufficient to de-stabilise the busbar protection.
- Reducing the busbar protection sensitivity would affect the reliability of the live system (i.e. MBB).

Available options

Energise to the open CB

This limits the test to the generator's open CB which elements the busbar faults. However, if the TO owns an asset(s) between the transmission level CB and the generator, the TO would still need to clear the fault on these assets. In that case another CB and/or isolator should be opened. Sometimes this is not feasible due to interlocking schemes.

Change the overcurrent relay settings

If eliminating the TOs owned assets from the test is not feasible, the setting of the existing O/C relays (if available) should be modified on the test day to provide fault clearance. **This requires additional hours during the test as well as long notice to allocate resources and run simulation studies**

Install a temporary overcurrent relay

If there is not any O/C, a temporary O/C must be commissioned before the test and decommissioned upon the completion of the test.

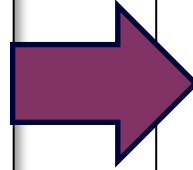
This a major piece of work and will require work on a live busbar. Therefore, **it requires extended outage to commission and decommission the relay as well as long notice** to allocate resources and run simulation studies

Proposed modifications to the GC

OC5.7.2.1 (for Anchor Generator)

(g) Where required by **The Company** and/or relevant **Network Operator** and technically feasible, the test may be arranged such that the relevant **Generating Unit shall energise the dead sections of the System** as required in the relevant **Restoration Plan**. As part of these tests, **The Company** (in the case of an **Local Joint Restoration Plan**) or **Network Operator** (in the case of a **Distribution Restoration Zone Plan**) may require the **Anchor Generator** to undertake a:

- a) A dead line charge test only; or
- b) A dead line charge and a remote synchronisation test.



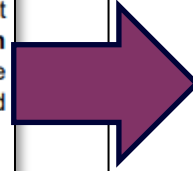
(g) Where required by **The Company** and/or **Relevant Transmission Licensee** and/or relevant **Network Operator** ~~and technically feasible~~, the test may be arranged (where it is technically feasible to do so) such that the relevant **Generating Unit** shall energise a the dead sections of the System or to a point of the System agreed between The Company and/or Transmission Licensee and/or Network Operator as required to facilitate the test and provide assurance that the requirements of the relevant Restoration Plan can be satisfied in the relevant Restoration Plan. As part of these tests, **The Company** (in the case of an **Local Joint Restoration Plan**) or **Network Operator** (in the case of a **Distribution Restoration Zone Plan**) may require the **Anchor Generator** to undertake a:

OC5.7.2.3 for Anchor HVDC

OC5.7.2.3

Anchor HVDC Test or Anchor DC Converter Test

- a) The **HVDC System** or **DC Converter** shall demonstrate its technical capability to energise the busbar of the disconnected AC substation to which it is connected, within the **GB Synchronous Area** within a timeframe specified by **The Company** and/or relevant **Network Operator** in the **Anchor Restoration Contract** or **Top Up Restoration Contract**. In the case of **HVDC Systems** this shall be in accordance with the requirements of ECC.6.3.5.4. As part of this test, all **Auxiliaries** are required to be derived from within the **HVDC System** or **DC Converter Station**;
- b) The test shall be carried out while the **HVDC System** or **DC Converter Station** starts from **Shutdown**;
- c) The test shall be deemed to have been successfully completed when the following conditions are cumulatively fulfilled:
 - i) The **HVDC System Owner** has demonstrated its **HVDC System** or **DC Converter Station** is able to energise the busbar of the isolated AC-substation to which it is connected within the **GB Synchronous Area**.



OC5.7.2.3

Anchor HVDC Test or Anchor DC Converter Test

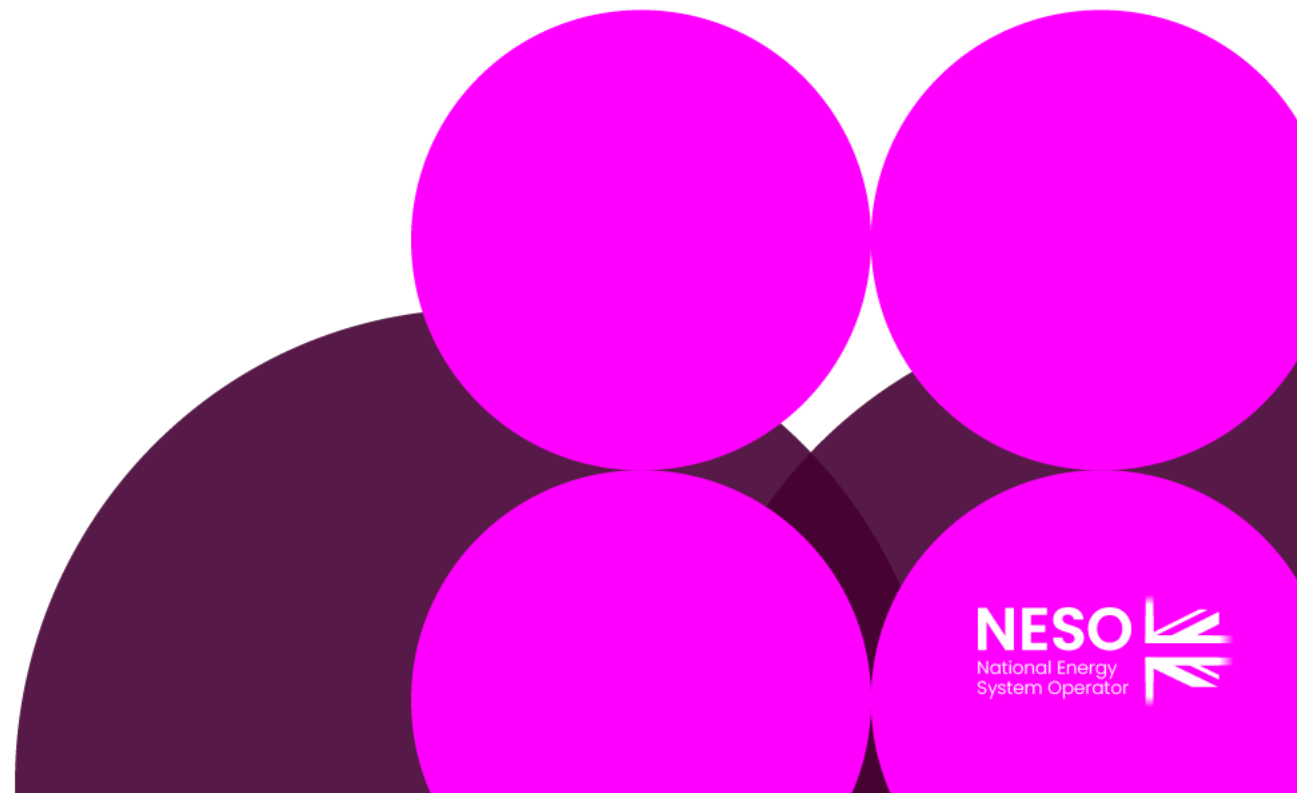
- a) The **HVDC System** or **DC Converter** shall demonstrate its technical capability to energise the busbar of the disconnected AC substation to which it is connected, or equivalent, within the **GB Synchronous Area** within a timeframe specified by **The Company** and/or relevant **Network Operator** in the **Anchor Restoration Contract** or **Top Up Restoration Contract**. In the case of **HVDC Systems** this shall be in accordance with the requirements of ECC.6.3.5.4. As part of this test, all **Auxiliaries** are required to be derived from within the **HVDC System** or **DC Converter Station**;
- b) The test shall be carried out while the **HVDC System** or **DC Converter Station** starts from **Shutdown**;
- c) The test shall be deemed to have been successfully completed when the following conditions are cumulatively fulfilled:
 - i) The **HVDC System Owner** has demonstrated its **HVDC System** or **DC Converter Station** is able to energise the busbar of the isolated AC-substation to which it is connected within the **GB Synchronous Area** or an equivalent as agreed with The Company and/or Relevant Network Operator and Relevant Transmission Licensee.

Conclusion

- The proposed changes are giving NESO and TOs the flexibility on deciding the energisation boundaries during the ESR test.
- These modification minimise the need for protection modifications and the associated delay and outages.
- Some cases will still require protection modifications (when it is unavoidable to energise TO owned assets).

Legal Text Review

Antony Johnson – Proposer



Legal Text Reviewed / Updated

- Glossary and Definitions (G&D)
 - Planning Code (PC)
 - European Connection Conditions (ECC)
 - Operating Code 5 (OC5)
 - Operating Code 9 (OC9)
 - Balancing Code 2 (BC2)
-
- All the above documents are available on the NESO website including changes and comments

High Level Issues identified during Review of Legal Text

- The Legal drafting still includes some regional differences between England and Wales and Scotland. This is on the basis that SPT and SHETL are happy to instruct Generation whereas NGET are not. NGET are more interested in greater autonomy in the LJRP, DRZP and RRP phases so it makes sense for the LJRP, DRZP and RRP to reflect this but still allow for regional differences between England and Wales and Scotland.
- The question has been asked if the introduction of Annexes into LJRPs, DRZPs and RRP for Restoration Contractors and Users (so they do not have total visibility of the plans) would work, especially for training purposes.
- In the early implementation phase of GC0156, several comments were raised from one Stakeholder on terminology, particularly in the Planning Code and ECCs. NESO have an action to go back to the Stakeholder and share the proposed drafting with them.
- A question was raised on what Block Loading is as part of the comments received. We could introduce a defined term of “Block Loading Action” in the Glossary and Definitions if this would be helpful
- Propose to step through the legal text comments – many of which have been accepted and are a good set of comments. We would like to take the opportunity for thanking Stakeholders for their time in reviewing the drafting.

Review of Legal Text

- **Glossary and Definitions**
- **Planning Code**
- **European Connection Conditions**
- **Operating Code 5**
- **Operating Code 9**
- **Balancing Code 2**

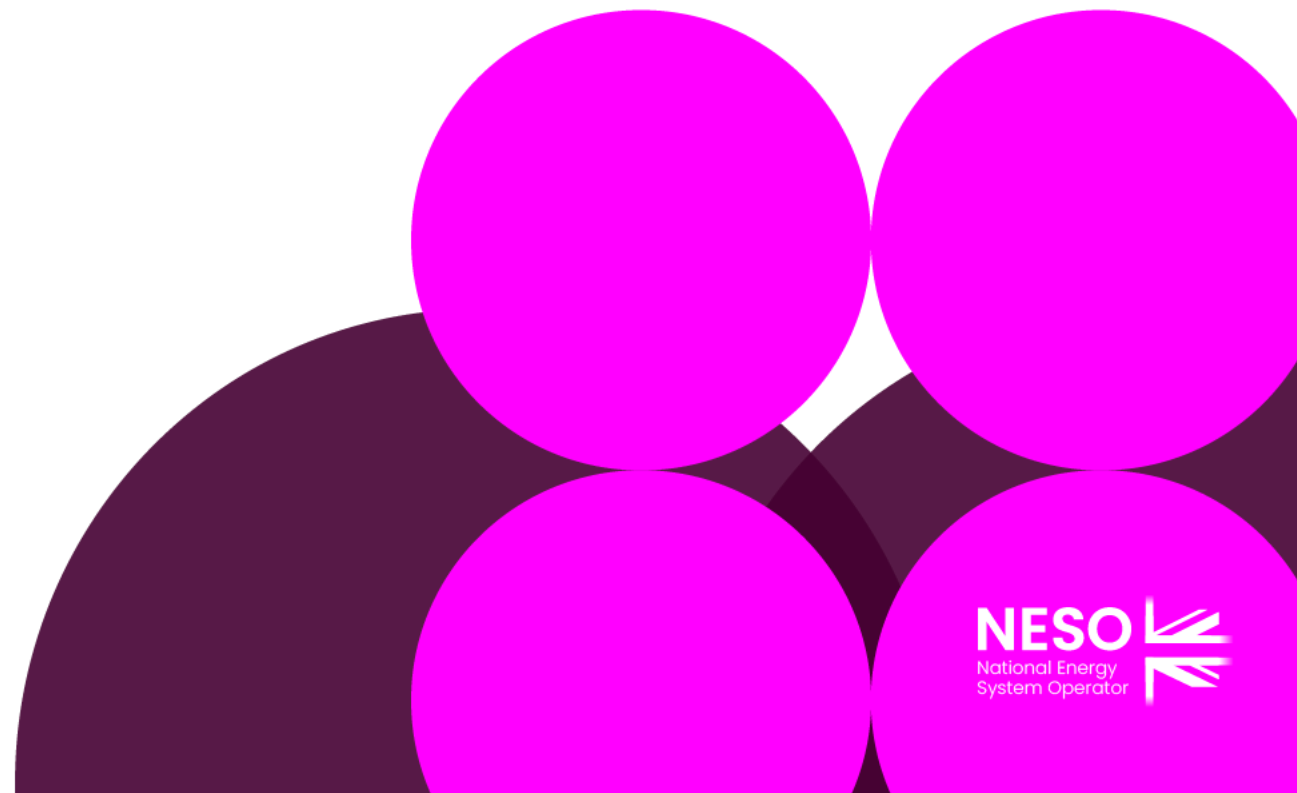
- *(Note as there is a change to OC9 but in particular BC2 which has an impact on the market, there will be an impact on the European Balancing Guideline which will trigger a one month consultation as a minimum)*

Further Work Required

- Update outstanding Sections of legal text (in particular)
 - Connection Conditions (broadly a copy of the ECCs when finalized)
 - Data Registration Code
 - Other consequential sections of code as necessary
- Review developed legal text
 - Glossary and Definitions
 - Planning Code
 - European Connection Conditions
 - Operating Code 5
 - Operating Code 9
- Start preparing Draft Consultation / Workgroup Report
- Consider raising consequential STC/STCP Change

Any Other Business

Sarah Williams – NESO Code
Administrator



Next Steps

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Administrator

