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GC0184: Revising Minimum Reactive Capability Requirements within European Connection Conditions, ECC.6.3

Workgroup 1, 15 October 2026

Online Meeting via Teams

NESO
National Energy System Operator

WELCOME



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Agenda

Topics to be discussed	Lead
Introductions	Chair
Code Modification Process Overview • Workgroup Responsibilities • Workgroup Alternatives and Workgroup Vote	Chair
Objectives and Timeline • Walk-through of the timeline for the modification	Chair
Proposer presentation	Proposer
Agree Terms of Reference	All
Cross Code Impacts	All
Any Other Business	Chair
Next Steps	Chair

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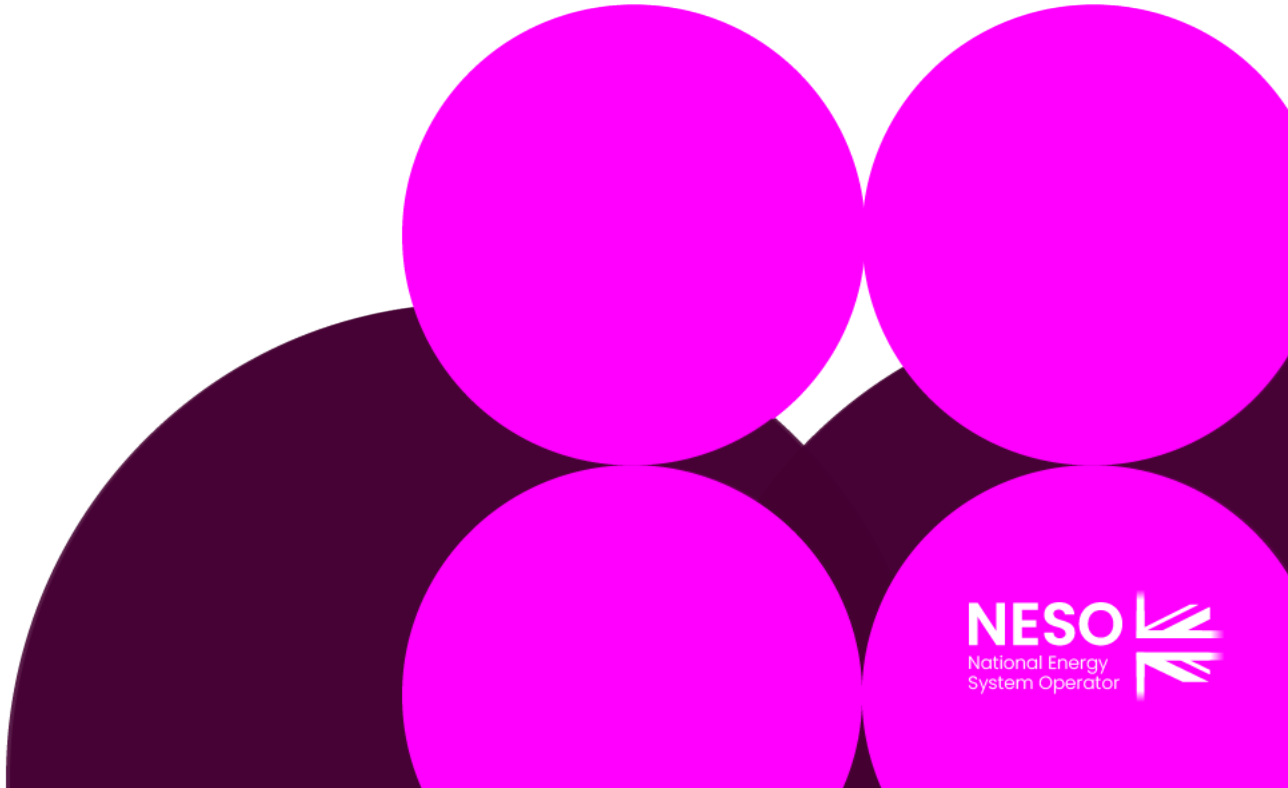
Modification Process

Sarah Williams – NESO Code Administrator



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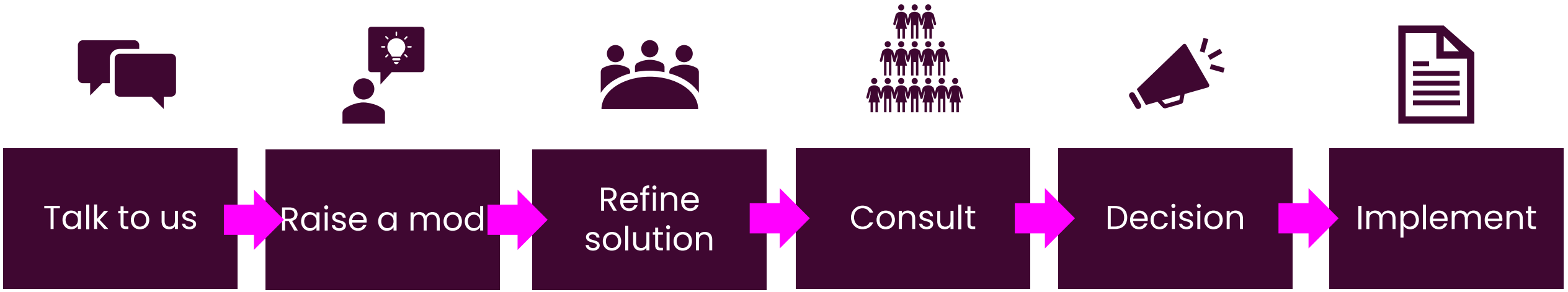
Code Modification Process Overview



Forums

Panels

Workgroups
(Workgroup Consultations)

Ofgem/Panel

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Refine Solution

Workgroups



- If the proposed solution requires further input from industry in order to develop the solution, a Workgroup will be set up.
- The Workgroup will:
  - further refine the solution, in their discussions and by holding a **Workgroup Consultation**
  - Consider other solutions, and may raise **Alternative Modifications** to be considered alongside the Original Modification
  - Have a **Workgroup Vote** so views of the Workgroup members can be expressed in the Workgroup Report which is presented to Panel

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Consult

Code Administrator Consultation

- The Code Administrator runs a consultation on the **final solution(s)**, to gather final views from industry before a decision is made on the modification.

- After this, the modification report is voted on by Panel who also give their views on the solution.



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Decision



- Dependent on the Governance Route that was decided by Panel when the modification was raised

- **Standard Governance:** Ofgem makes the decision on whether or not the modification is implemented

- **Self-Governance:** Panel makes the decision on whether or not the modification is implemented
    - an appeals window is opened for 15 days following the Final Self Governance Modification Report being published

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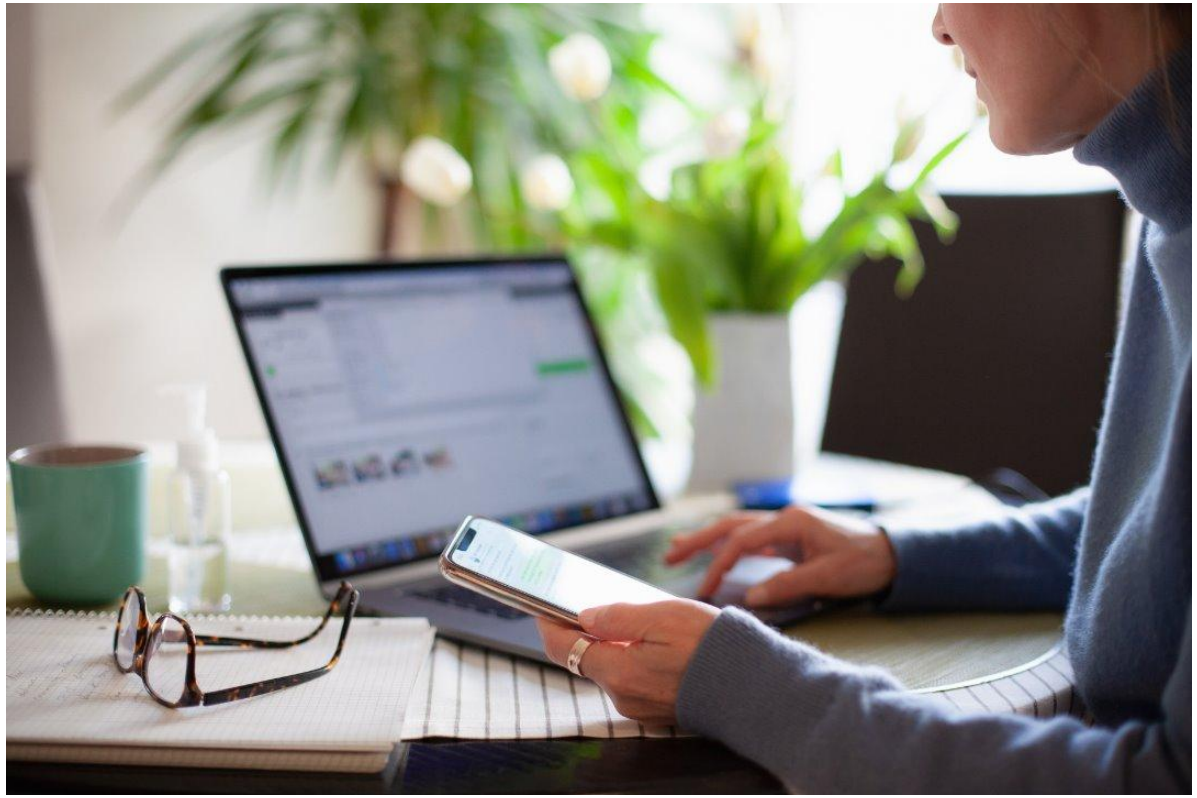
Implement

- The Code Administrator implements the final change which was decided by the Panel / Ofgem on the agreed date.



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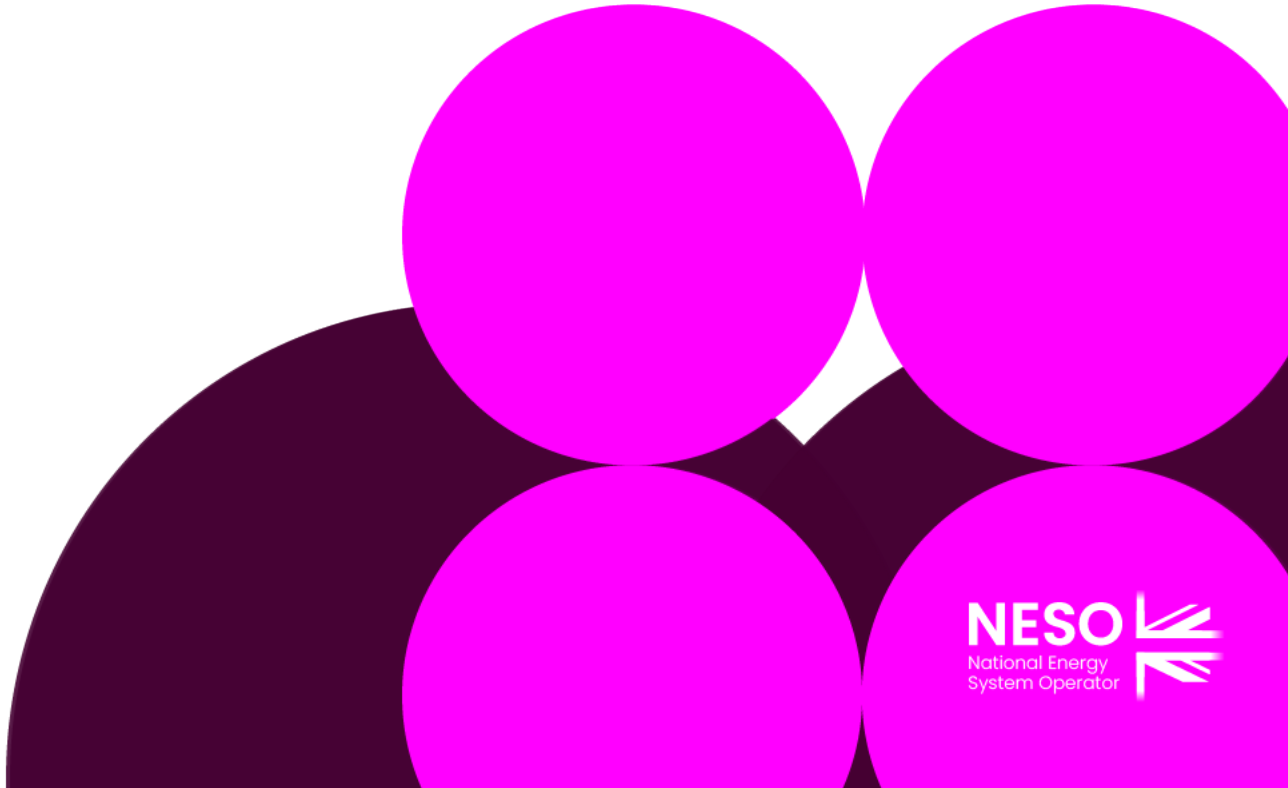
Workgroup Responsibilities and Membership

Sarah Williams – NESO Code Administrator



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

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Workgroup Membership

Role	Name	Company
Proposer	Graham Lear	NESO
Workgroup Member	Andrew Allan	RWE
Workgroup Member	Alan Creighton	Northern Powergrid
Workgroup Member	Andrew Urquhart	SSE Generation
Workgroup Member	Chanura Wijeratne	RES Limited
Workgroup Member	Fraser Scott	Scottish Hydro Electric Transmission
Workgroup Member	Garry Cotter	Orsted
Workgroup Member	Graeme Vincent	SP Energy Networks
Workgroup Member	Harry Evans	Northern PowerGrid
Workgroup Member	Isaac Gutierrez	Scottish Power
Workgroup Member	Lamin Saidy Vulart	Qair UK
Workgroup Member	Mike Toplin	Ocean Winds
Workgroup Member	Miranda Sushant	EDF Power Solutions

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Workgroup Membership

Role	Name	Company
Workgroup Member	Nuno Da Fonseca	UK Power Networks
Workgroup Member	Nigel Platt	Siemens Energy
Workgroup Member	Tim Ellingham	RWE
Workgroup Member	Tom Redfern	Zenobe Energy Ltd
Workgroup Member	Tom Woods	Viridor
Workgroup Member	Xiaoming Li	Zenobe Energy Ltd
Observer	Alistair McLaren	Baywe Re
Observer	Barry Hartnett	Nordex UK
Observer	Cesar Gonzalez Gonzalez	EDP
Observer	Damian Jackman	Field Energy

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Workgroup Membership

Role	Name	Company
Observer	Emma Webster	Bute Energy
Observer	Kaleb Davis	High View Power
Observer	Kush Lohana	TNEI Services Ltd
Observer	Nikos Gouloutis	Fichtner Consulting Engineers UK
Observer	Peter Woodcock	RWE Offshore Wind
Authority Representative	Arshad Syed Anwar	Ofgem

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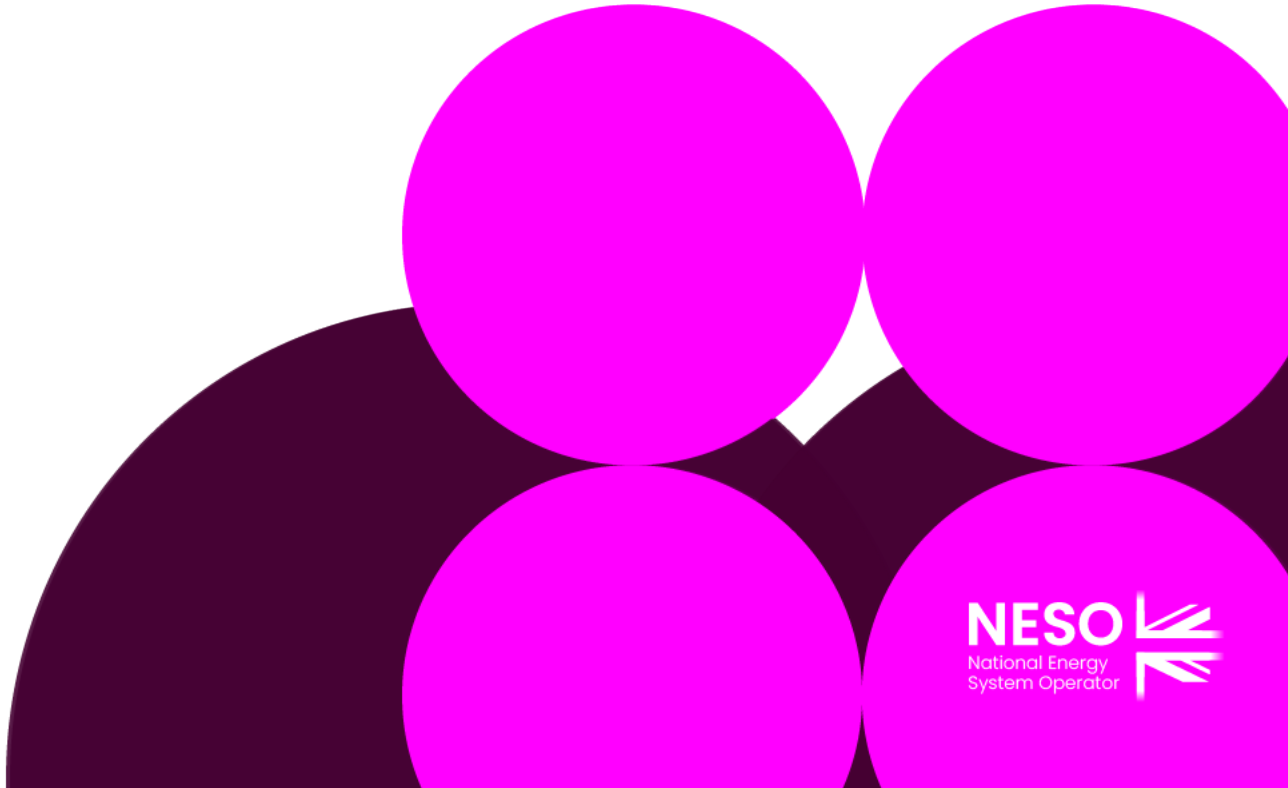
Workgroup Alternatives and Workgroup Vote

Sarah Williams – NESO Code Administrator



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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 the 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 alterative request and an indication of the impacts of those amendments or effects; and
- where possible, an indication of the impact of the proposed alterative 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.

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Can I vote? And What is the Alternative Vote?

To participate in any votes, Workgroup members need to have attended at least 50% of meetings. The vote shall be decided by simple majority of those present at the meeting at which the vote takes place (whether in person or by teleconference)

Stage 1 – Alternative Vote

- Vote on whether Workgroup Alternative Requests should become Workgroup Alternative Grid Code Modifications.

- The Alternative vote is carried out to identify the level of Workgroup support there is for any potential alternative options that have been brought forward by either any member of the Workgroup OR an Industry Participant as part of the Workgroup Consultation.

- **Should the majority of the Workgroup OR the Chair believe that the potential alternative solution may better facilitate the Grid Code objectives than the Original then the potential alternative will be fully developed by the Workgroup with legal text to form a Workgroup Alternative Grid Code modification (WAGCM)** and submitted to the Panel and Authority alongside the Original solution for the Panel Recommendation vote and the Authority decision.

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Can I vote? And What is the Workgroup Vote?

To participate in any votes, Workgroup members need to have attended at least 50% of meetings. The vote shall be decided by simple majority of those present at the meeting at which the vote takes place (whether in person or by teleconference)

Stage 2 – Workgroup Vote

- 2a) Assess the original and Workgroup Alternative (if there are any) against the relevant Applicable Objectives compared to the baseline (the current code)
- 2b) Vote on which of the options is best.

Alternate Requests cannot be raised after the Stage 2 – Workgroup Vote

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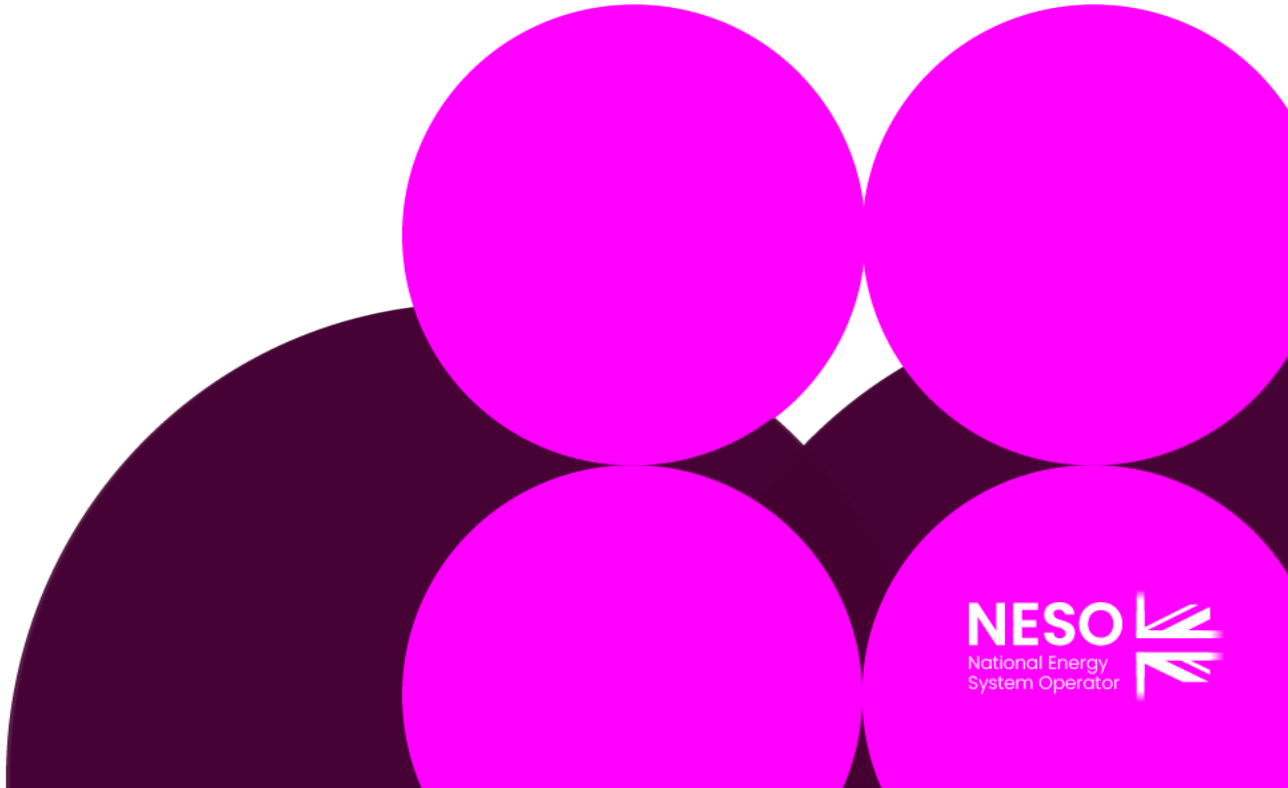
Objectives and Timeline

Sarah Williams– NESO Code Administrator



Timeline for GC0184 as of September 2026

Milestone	Date	Milestone	Date
Modification presented to Panel	25 June 2026	Code Administrator Consultation (1 month)	27 September– 27 October 2027
Workgroup Nominations (15 Business Days)	26 June – 03 September 2026 (additional time to allow for joint DCODE nominations)	Draft Final Modification Report (DFMR) issued to Panel (5 Business Days)	17 November 2027
Workgroups 1 – 5	15 October 2026 04 November 2026 02 December 2026 13 January 2027 10 February 2027	Panel undertake DFMR recommendation vote	25 November 2027
Workgroup Consultation (15 Business Days)	17 February– 10 March 2027	Final Modification Report issued to Panel to check votes recorded correctly Ideally issued within 2 Business Days of Panel's DFMR recommendation vote. They have 5 clear Business Days to check.	26 November – 03 December 2027
Workgroups 6 - 11	24 March 2027 21 April 2027 19 May 2027 16 June 2027 14 July 2027 11 August 2027	Final Modification Report issued to Ofgem This is clear 5 Business Days after Final Modification Report is issued to Panel to check votes recorded correctly	06 December 2027
Workgroup report issued to Panel (5 Business Days) 5 clear Business Days minimum	15 September 2027	Ofgem decision	TBC
Panel sign off that Workgroup Report has met its Terms of Reference	23 September 2027	Implementation Date	10 Business Days following Authority Decision

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Proposer's Solution: Background; Proposed Solution; Scope; and Assessment vs Terms of Reference

Graham Lear – NESO

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What is the issue?

- The ability to maintain the voltage profile across the system, especially during high voltage situations at low demands, where plant outputs are minimal, is becoming more difficult as traditional synchronous machines are decommissioned.
- Growth in renewable plant, embedded generation, and other emerging technologies has resulted in significant operational changes to the Transmission System.
- Whilst much of the modern plant connecting to the system can outperform the existing minimum reactive capability requirement, there is no obligation to do so:
    - Mandatory Service Agreements do not necessitate a minimum requirement above and beyond that which is set out within ECC.6.3.2.
    - Generator Performance Charts must be submitted and adhered to, but do not necessitate a minimum technical requirement.
- The minimum reactive capability requirement needs to ensure the system is operable and remains stable over a range of conditions from high demand to low demand and over the seasonal variations of the year.
- This issue has been outlined within Clean Power 2030 Annex 3: Operability and operations analysis

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What is the solution?

- Review and update the reactive capability requirements held within ECC.6.3.2 for new connections to ensure these are adequate for the present-day system as well as safeguarding against expected future changes.
- The primary focus would be to identify technologies that can deliver additional capability with minimal modification to Plant or need for additional Plant.
- Grid Code clause ECC.6.3.2.4, reactive capability for Type C and D Power Park Modules, HVDC Equipment and OTSDUW Plant and Apparatus at the Interface Point is proposed to align with Figure 1 below.

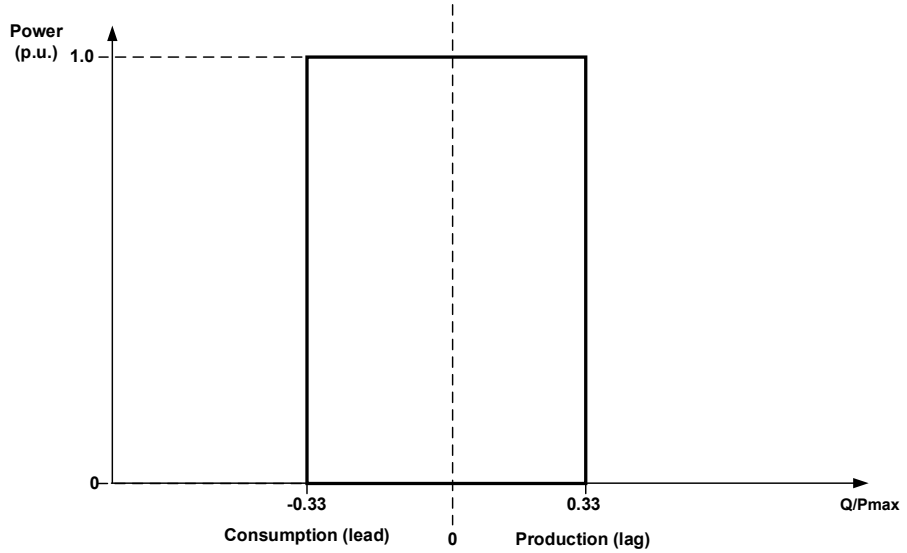

Figure 1

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What is the solution?

- Appropriate amendments to other clauses would need consideration within Workgroup, including any specific technology limitation considerations.
- Additionally, the solution will clarify the reactive capability requirements for non-synchronous storage plant in both an import and export mode of operation, which is currently unclear.
- We will also review related issues identified through external engagement:
    - Where appropriate, correct any misalignment with the wording in CC on reactive capability requirements.
    - Ensure OC.2.4.2 captures all necessary parties who should submit performance charts.

What is in scope?

- Any User classifications currently caught by the requirements within ECC.6.3.2 is in scope, noting that the proposal would not be retrospective.
- This may also necessitate a Distribution Code change to align with these proposals.
- The market mechanisms to procure/utilise the capability is out of scope, noting that CUSC modification CMP457: Revision of the Obligatory Reactive Power Service (ORPS) has been raised.

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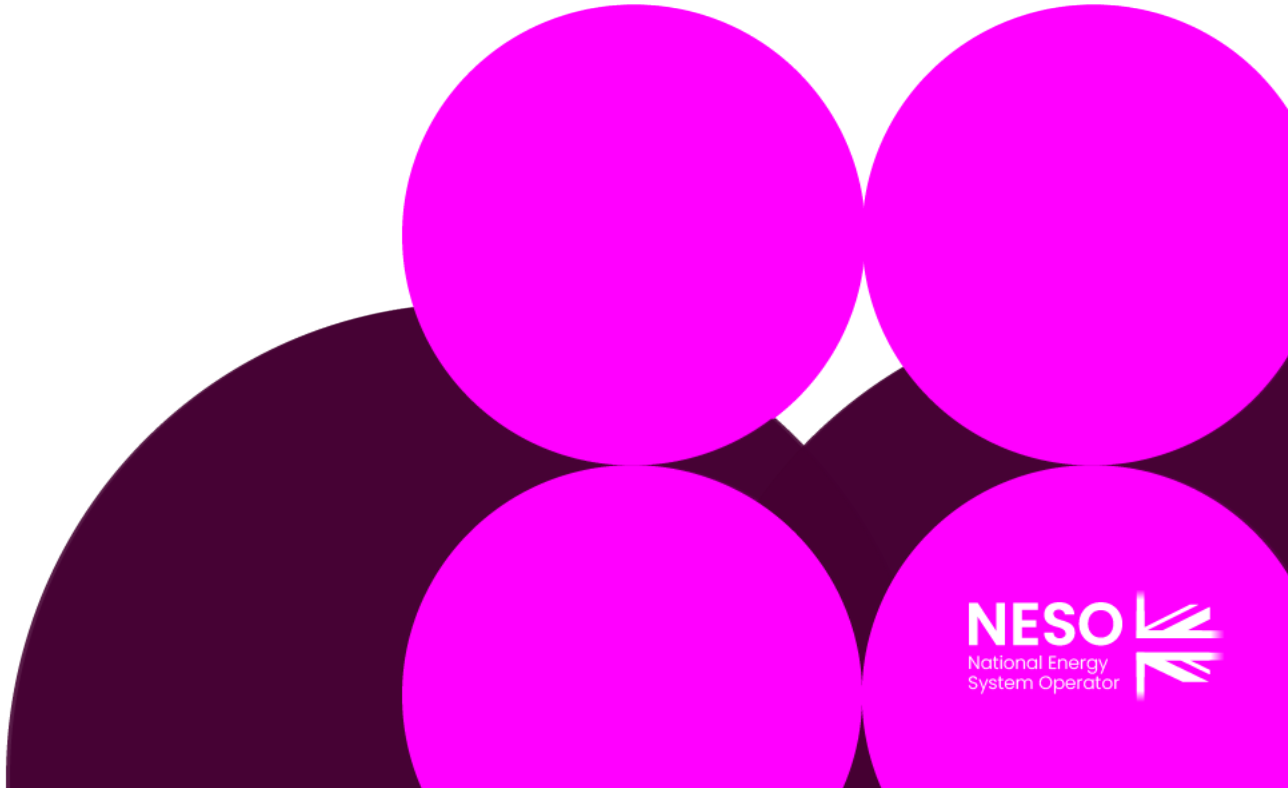
Review Terms of Reference

Sarah Williams– NESO Code Administrator



Terms of Reference

Workgroup Term of Reference	Location in Workgroup Report (to be completed at Workgroup Report stage)
a) Implementation and costs (this shall include all users' costs and a cost benefit analysis).	
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 the minimum reactive capability requirements within ECC.6.3.2 and suitable changes to these to ensure adequate reactive capability to support the system now and in the future.	

Terms of Reference

Workgroup Term of Reference	Location in Workgroup Report (to be completed at Workgroup Report stage)
f) Consider any specific technology limitations and whether it is appropriate and possible (from a regulatory point of view including in relation to the application of the EU Network Code Requirements for Generators) to set different requirements for these.	
g) Consider any potential implications from a possible adoption of the EU NC RfG 2.0.	
h) For any plant capable of operation in both import and export mode, for example electricity storage plant, review the reactive capability requirements in both modes and consider suitable clarifications.	
i) Consider any existing misalignment between the CC and ECC requirements for reactive capability and whether these need to be addressed.	
j) Consider amendments to OC2.3.2 with respect to the submission of Performance Charts.	

Terms of Reference

Workgroup Term of Reference	Location in Workgroup Report (to be completed at Workgroup Report stage)
k) Consider cross code impacts.	
l) Consider whether there is a need to revise the reactive power requirements in EREC G99 to align with proposed changes to the ECCs.	
m) Review the typical reactive capability of new commercially available technologies caught by ECC.6.3.2.	
n) Consider how the Grid Code requirements can be amended to achieve a suitable minimum reactive capability by making best use of the inherent capability of new commercially available technologies caught by ECC.6.3.2. without requiring the installation of additional compensation plant in the Power Generating Facility.	
o) Consider the cost implications to impacted generators of providing the proposed capability and include relevant results into the cost benefit analysis under point a.	
p) Consider whether there are existing mechanisms in place which suitably compensate embedded and non-embedded generators for provision of the additional capability, including plant wear and tear, maintenance and power consumption. Include relevant results into the cost benefit analysis under point a.	

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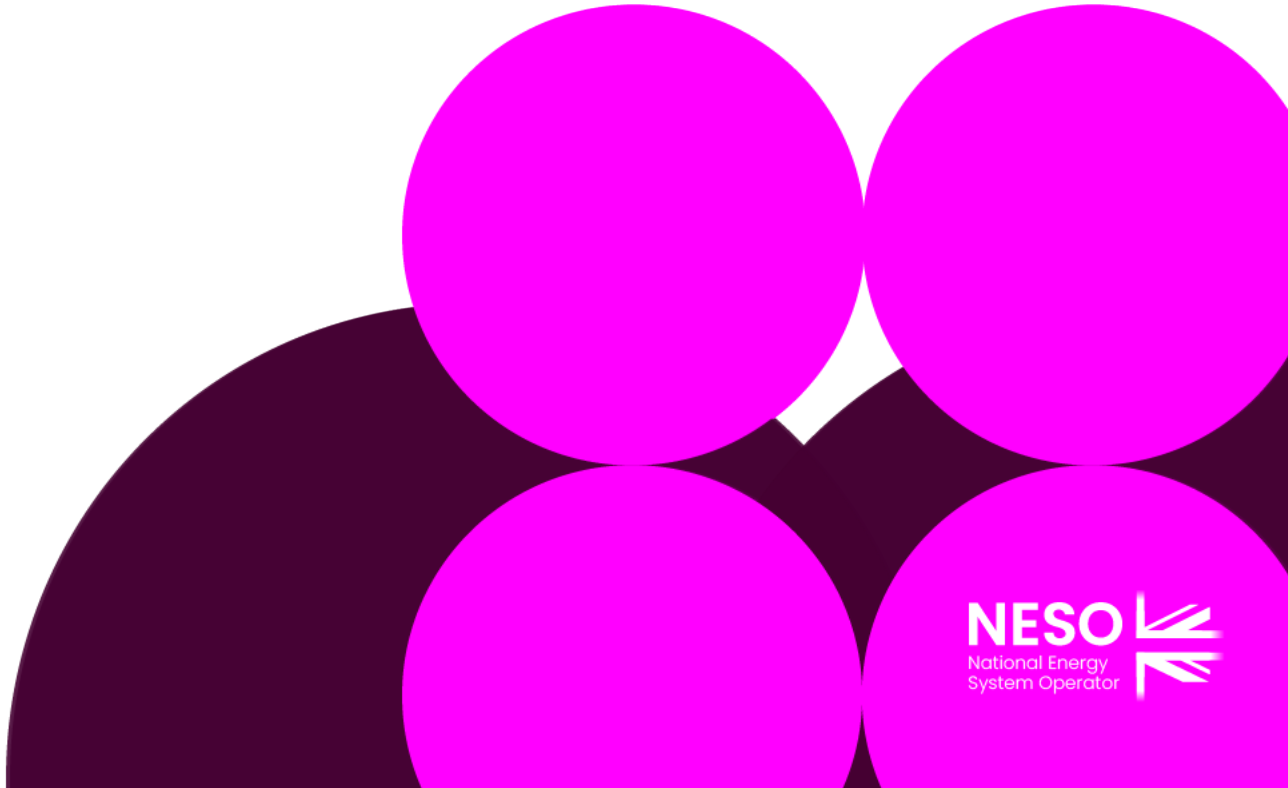
Cross Code Impacts

Sarah Williams– NESO Code Administrator



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Any Other Business

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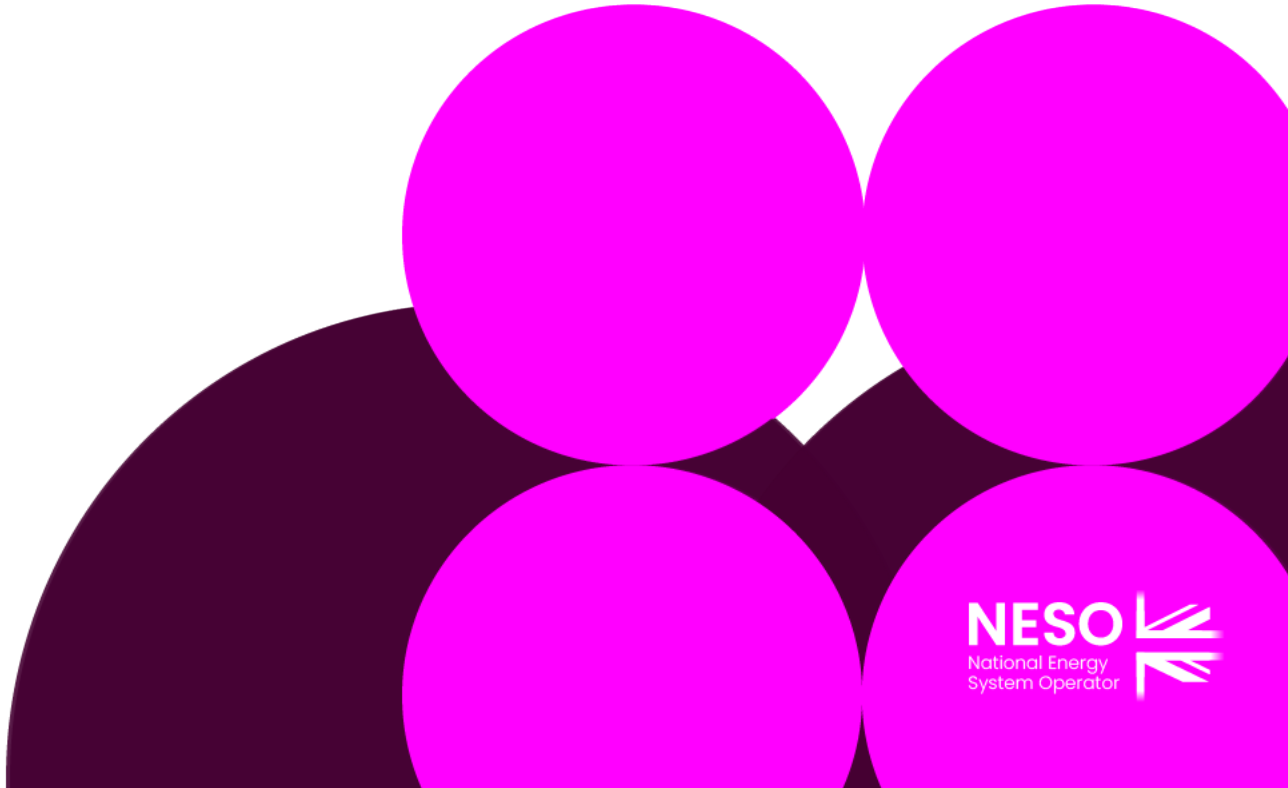

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Next Steps

Sarah Williams – NESO Code Administrator

