

GC0178: Temporary Overvoltage – Specification of Limits and Clarification of Obligations

Workgroup 3, 14 September 2026.

Online Meeting via Teams

WELCOME

Agenda

Topics to be discussed	Lead
Introductions	Chair
Action log review	All
Summary of the proposal	Proposer
Review of the work required by PSC	Proposer
Introducing the team	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	Alternate
Proposer	Bieshoy Awad	NESO	
Workgroup Member	Cornel Brozio	SP Energy Networks	Graeme Vicent
Workgroup Member	Harry Burns	EDF Renewables UK	Bukky Daniel
Workgroup Member	Isaac Gutierrez	Scottish Power Renewables	Belinda Gonzalez Parrado
Workgroup Member	John Reilly	EDF (Existing Nuclear)	Alan Spiers
Workgroup Member	Martin Aten	Uniper	Sean Gauton
Workgroup Member	Mzamoyabo Sibanda	SSE Renewables	John Hylands
Workgroup Member	Nicola Barberis Negra	Orsted	Sridhar Sahukari
Workgroup Member	Paul Youngman	Drax	Nina Sanghera
Workgroup Member	Darshak Shah	BP	N/A

Workgroup Membership

Role	Name	Company	Alternate
Observer	Owen Curran	Siemens Gamesa Renewable Energy	Tobias Siepker
Observer	Murali Venkata	Siemens Energy	Shafiu Ahmed
Observer	Andrew Larkins	Sygensys	N/A
Observer	Mike Kay	P 2 Analysis	N/A
Observer	David Griffiths	RWE Renewables	Wenyuan Wang
Observer	Zulfiqar Ali Gill	EDF Energy NNB	N/A
Authority Representative	Shilen Shah	Ofgem	

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 solution(s), 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.

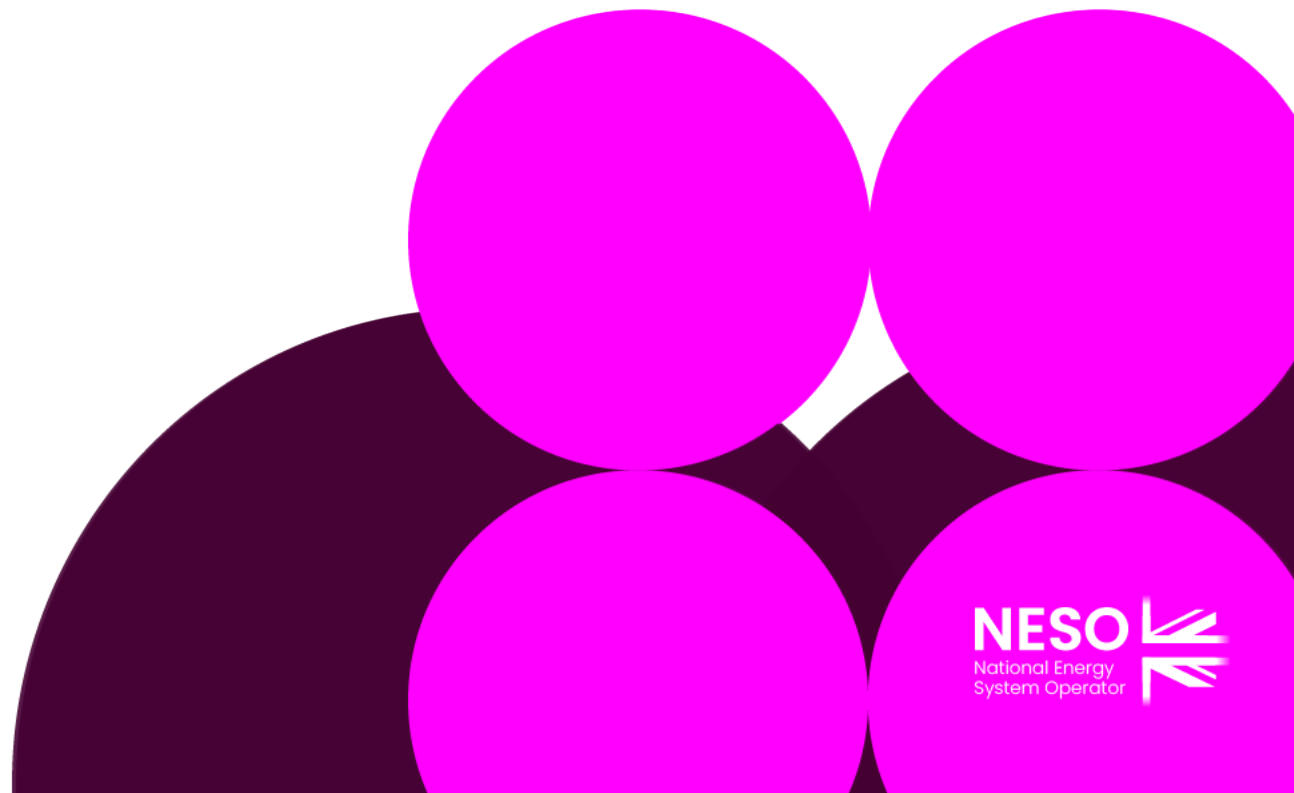
Terms of Reference

Workgroup Term of Reference

- a) Implementation and costs including, but not limited to detailed CBA assessment for change of design for Users of the code and for TOs;
- b) Review and develop draft 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;
- d) Consider implications to sections linked to the Regulated Sections of the Grid Code;
- e) Define appropriate limits for temporary overvoltage, both in terms of magnitude and duration, based on system needs assessment. The limits should cover both the temporary overvoltages imposed on the User by the System, and temporary overvoltages imposed on the System by the User;
- f) Clarify the requirements on how plant need to perform during temporary overvoltage in terms of reactive support, ride through, and otherwise under consideration of existing design standards and capabilities;
- g) Consider how compliance with temporary overvoltage requirements applicable to generation plant would be assessed;
- h) Where possible, ensure the proposal does not require unnecessary modifications to existing Plant (including for TOs and Users).
- i) Consider the suitability of a cost recovery mechanism and any investment required by existing Users.
- j) Assess the suitability of a derogation mechanism for applicable Users.

Action Log Review

Catia Gomes – NESO Code Administrator

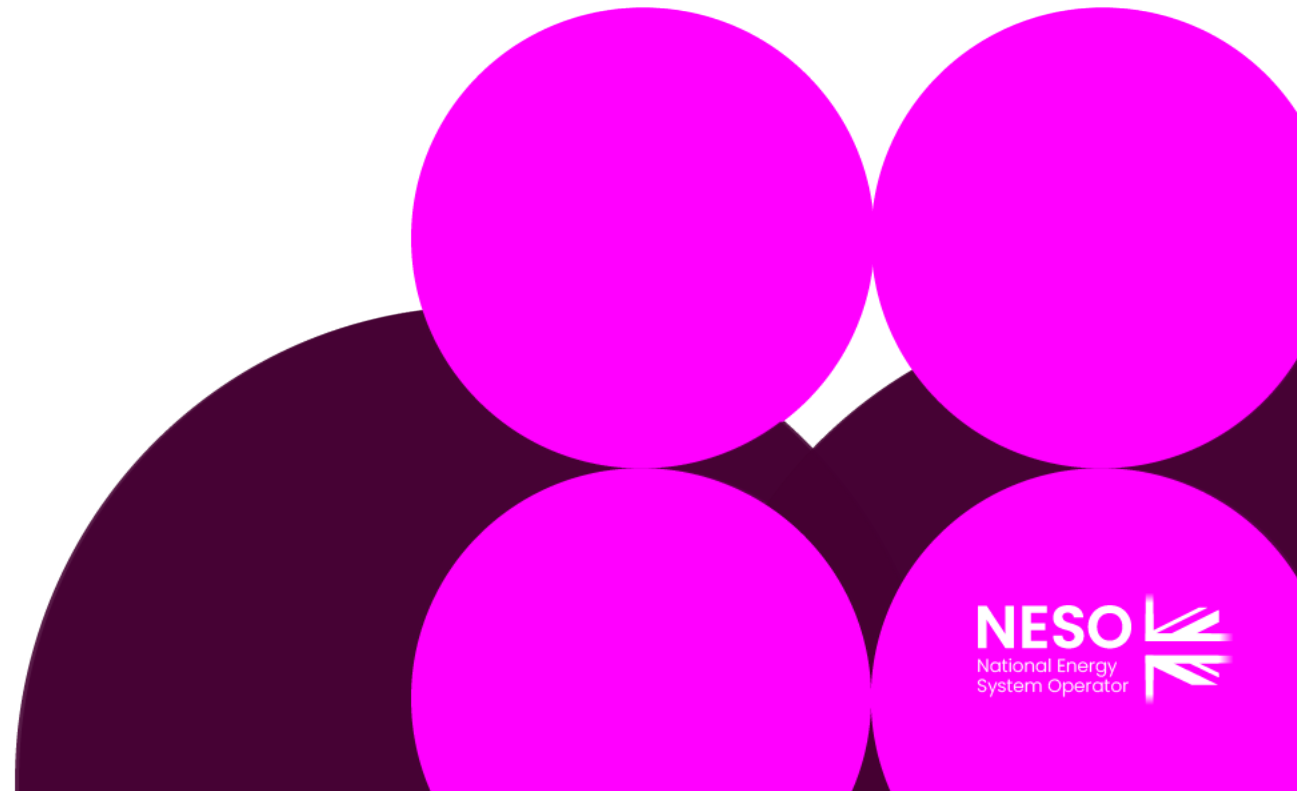


Action Log

Action	Description	Owner	Due	Status
1	The Proposer to ascertain whether the analysis that took place to develop the TGN 288 limits took the impact on G59 and G99 protection and advise Workgroup member on the outcome.	BA	WG2	Open
2	Share the revised 132 kV limit values currently used by SP Energy Networks with the Workgroup	CB	WG2	Open
4	Review the Terms of Reference and Proposal form	All	WG3	Open
5	Engage an external consultant to perform the required analysis	BA	WG3	Propose to close

Summary of the Proposal

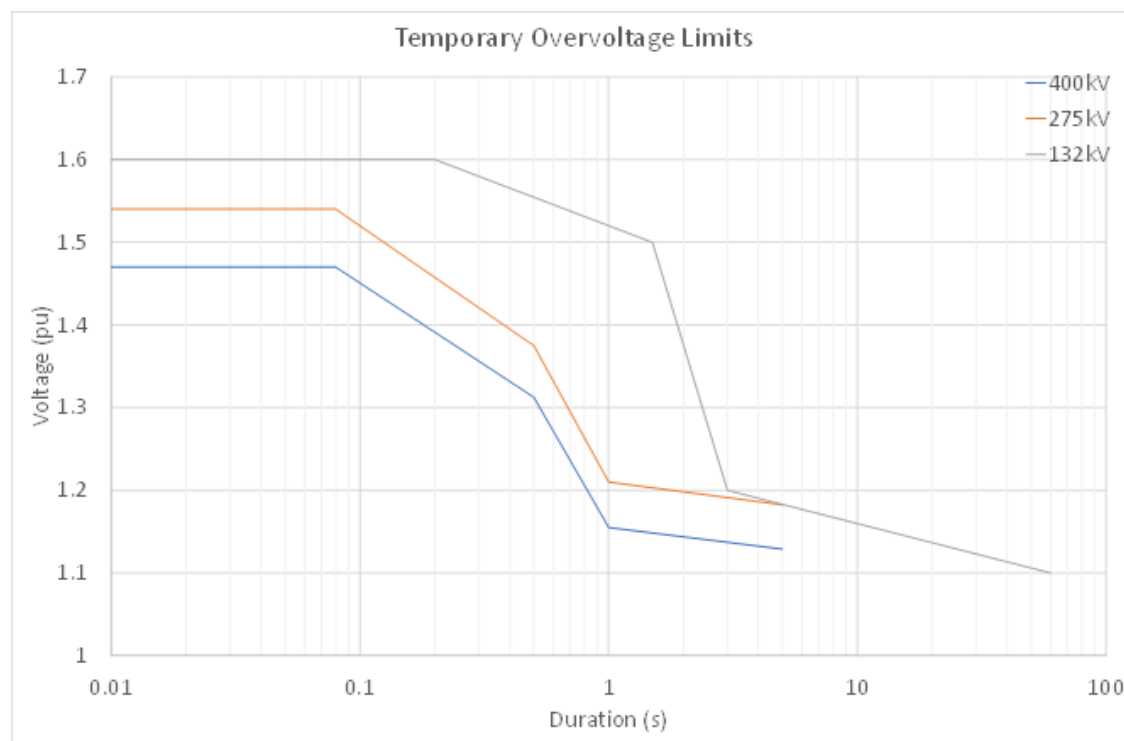
Bieshoy Awad– NESO



Proposal Outline

- Specify overvoltage limits as a system parameter to be maintained by TOs and NESO.
- Explicitly specify obligations on Users during an overvoltage (post fault or otherwise)
 - Ride through
 - Voltage regulation during overvoltage
 - Any other obligations
- Potentially, discussion of generation compliance studies required.
- Ensure consistent treatment across the generation fleet but provide means to delay/avoid significant modifications to Users' plant unless/until necessary.

Overvoltage Limits



- Scope of CC.6.1.7 and ECC.6.1.7 extended to cover unplanned events
- Overvoltage limits to be specified in these two clauses
- Limits to be considered
 - TGN288 – Starting point
 - RfG
 - Other reasonable alternatives
- Limits apply at transmission voltage – Other voltages to be inferred

Fault Ride Through Requirements

- CC.6.1.7/ ECC.6.1.7 limits to be referred to in fault ride through sections
- All generation plant
 - Relieved from the requirement to ride through a post fault overvoltage above the limit specified
 - Explicitly required to ride through an overvoltage up to the limit specified
- New generation plant
 - Required to be designed to ride through an overvoltage/post fault overvoltage equal to the limit specified.

Impact on Existing Plant

- Generators to maximise their plant ride through via exploring any untapped capability.
- Modification to existing generation plant to be minimised and to be implemented only if and when required
- Exploring opportunities for measures other than modifications to Generators' plant (e.g. one-off works and restrictions during certain outage conditions) if mitigation costs are excessive.
- Cost recovery mechanisms to be discussed (however, this is not a Grid Code issue)

Details of the work required to inform the proposal

Bieshoy Awad – NESO

Scope of the Analysis Required: Assessment of Current Status

- A review of the terminology and the significance of each term in relation to different design and operational studies. This is to agree a consistent set of terms (surges, transient, temporary, etc...) and their intended use (e.g. which terms describe levels that apply for insulation coordination and which terms describe the levels that apply for control system design).
- A review of the conditions that would result in a temporary overvoltage to materialise. This review should cover:
 - the mechanisms where temporary overvoltage arising at a particular node is driven by system behaviour with the generation connected to this site being either not contributing to or reducing the magnitude and duration of that temporary overvoltage ;
 - the mechanisms where temporary overvoltage is driven by the behaviour of a particular generation site; and
 - the mechanisms where temporary overvoltage is driven by interactions between various generation sites within the vicinity of each other.

It should also

- cover what drives the magnitude and the duration of temporary overvoltages arising from the mechanisms identified and the implications of system parameters (short circuit level/voltage stiffness/etc..) on this;
- consider real cases reported worldwide.
- consider all phenomena where knowledge and understanding is already established
- examine new phenomena and techniques, methodologies, complexities due to more power electronics and other technologies which could exacerbate temporary overvoltage
- review screening methodologies to identify areas affected by all phenomena and detailed assessment methodologies applicable in each case

Scope of the Analysis Required: Assessment of Current Status

- A review of the effects of temporary overvoltage on different plant and apparatus connected to the system, including synchronous machines, Wind turbines of different types, Interconnectors, dynamic reactive compensation, etc... The review should consider the impacts of both the magnitude and the duration of temporary overvoltage.
- Assessment of the status of the National Electricity Transmission System in terms of
 - severity of temporary overvoltage;
 - identification of temporary overvoltage hotspots (both in magnitude and duration); and
 - identification of potentially affected generation sites.

Scope of the Analysis Required: Management of Temporary Overvoltage

- A review of the standard practice of managing temporary overvoltage in power systems. This should cover both design aspects (e.g. reactive compensation, surge arrestors, any other equipment) and operational aspects. It should also cover the role that generation plant could contribute to managing temporary overvoltage. It will also be necessary to explore how such practices interact with other aspects of network design/operation.
- A review of the standard practice of protection against temporary overvoltage, used for both generation and transmission equipment, and how these are coordinated with other voltage transients.
- Identify the cost implications of agreeing a particular limit to temporary overvoltage in terms of both the investment requirements on the transmission system and the costs of achieving compliance on Users equipment.

Scope of the Analysis Required: Detailed modelling and Assessment

- Identify the modelling requirements necessary to facilitate assessment and demonstration of compliance with temporary overvoltage requirements on the National Electricity Transmission System, both in planning timescales (i.e. to identify TOs' investment), and for operational timescales (i.e. by NESO).
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- Conduct a detailed assessment for the National Electricity Transmission System as necessary to support the specification of the limits. This is not intended to replace any assessment by Transmission Licensees to identify works required to achieve compliance with the agreed limits.
- Conduct, or provide the basis for conducting, a cost benefit analysis for:
 - The most appropriate temporary overvoltage level.
 - Dealing with existing plants that do not meet the temporary overvoltage .
- Recommend a set of limits on temporary overvoltage to be specified in the Grid Code.

Scope of the Analysis Required: Compliance Assessment for User's Plant

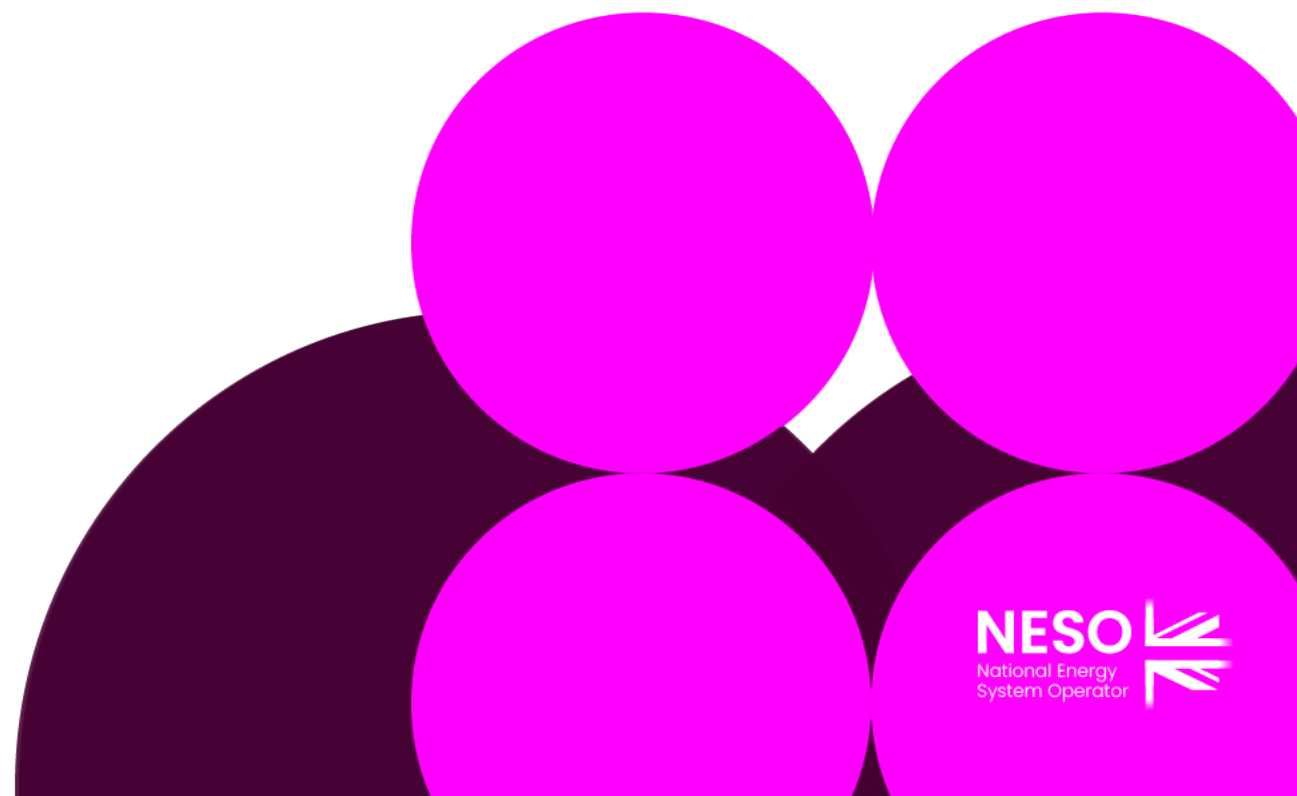
- Identify the minimum modelling requirements necessary to facilitate assessment and demonstration of compliance with temporary overvoltage requirements for Users' Plant.

Scope of the Analysis Required: Discussion and Workgroup Input

- Any feedback about the scope.
- Workgroup to provide input throughout the process.
- Need for engagement with OEMs both individually and as a collective
- Need for engagement with developers to understand how the specification of limits at the Grid Entry Point interacts with the fact that Power Park Units respond to voltage at their own terminal.
- Input from TOs to ensure solutions are implementable.

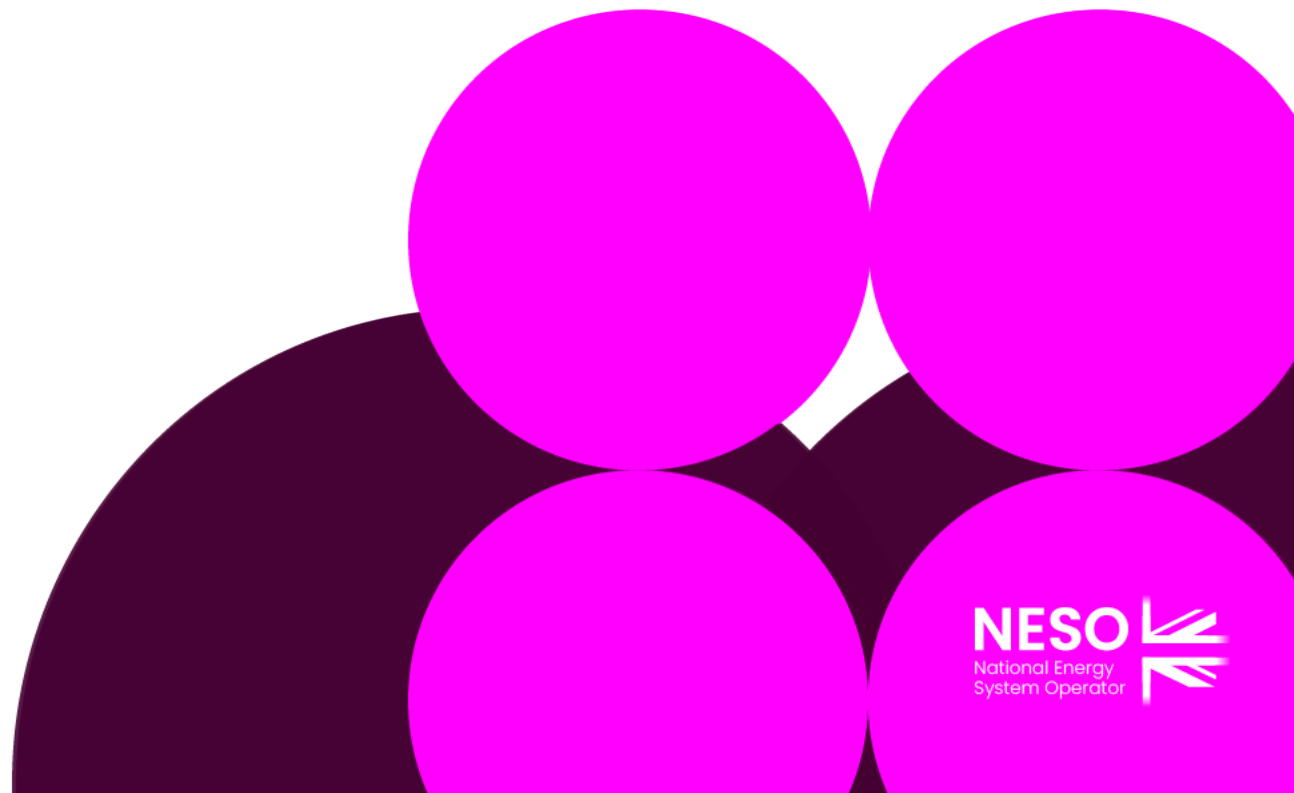
Introducing the Team

Bieshoy Awad – NESO



Any Other Business

Catia Gomes – NESO Code Administrator



Next Steps

Catia Gomes – NESO Code Administrator

