

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

Workgroup 2, 10 September 2025

Online Meeting via Teams

WELCOME

Agenda

Topics to be discussed	Lead
Introductions	Chair
Action log review	All
Presentation 'Specification requirements of consultation work'	Proposer
Presentation 'A Proposal for the Workgroup approach'	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.



Timeline for GC0178 as of 29 July 2025

Pre-Workgroup	
Proposal raised	12 March 2025
Proposal Submitted to Panel	27 March 2025
Workgroup Nominations	19 March 2025 to 27 March 2025

Workgroups		Objectives
Workgroup 1	29 July 2025	Objectives and Timeline/ Review and Agree Terms of Reference / Proposer Presentation
Workgroup 2	11 September 2025	Solution Development/ Workgroup Discussions
Workgroup 3	15 October 2025	Solution Development/ Workgroup Discussions
Workgroup 4	12 November 2025	Solution Development/ Workgroup Discussions
Workgroup 5	10 December 2025	Solution Development/ Workgroup Discussions
Workgroup 6	14 January 2026	Draft Workgroup Consultation Review/ Specific Questions / Draft Legal Text Review
Workgroup 7	18 February 2026	Draft Workgroup Consultation Review/ Specific Questions / Draft Legal Text Review
Workgroup 8	18 March 2026	Final Workgroup Consultation Review
Workgroup Consultation	23 March 2026 to 01 May 2026	
Workgroup 9	27 May 2026	Review of Workgroup Consultation Responses/ Alternative Requests Discussion
Workgroup 10	17 June 2026	Review of Solution Position/ Alternative Requests Presentation and vote (if required)
Workgroup 11	15 July 2026	Draft Workgroup Report Review/ ToR discussion/ Draft Legal Text (including WAGCMS)
Workgroup 12	05 August 2026	Final Workgroup Report Review / Workgroup Vote

Timeline for GC0178 as of 29 July 2025

Post Workgroups	
Workgroup Report submitted to Panel	19 August 2026
Panel to agree whether ToR have been met	27 August 2026
Code Administrator Consultation	04 September 2026 to 05 October 2026
Draft Final Modification Report to Panel	21 October 2026
Panel Recommendation Vote	29 October 2026
Final Modification Report to Ofgem	16 November 2026
Decision Date	TBC
Implementation Date	TBC

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

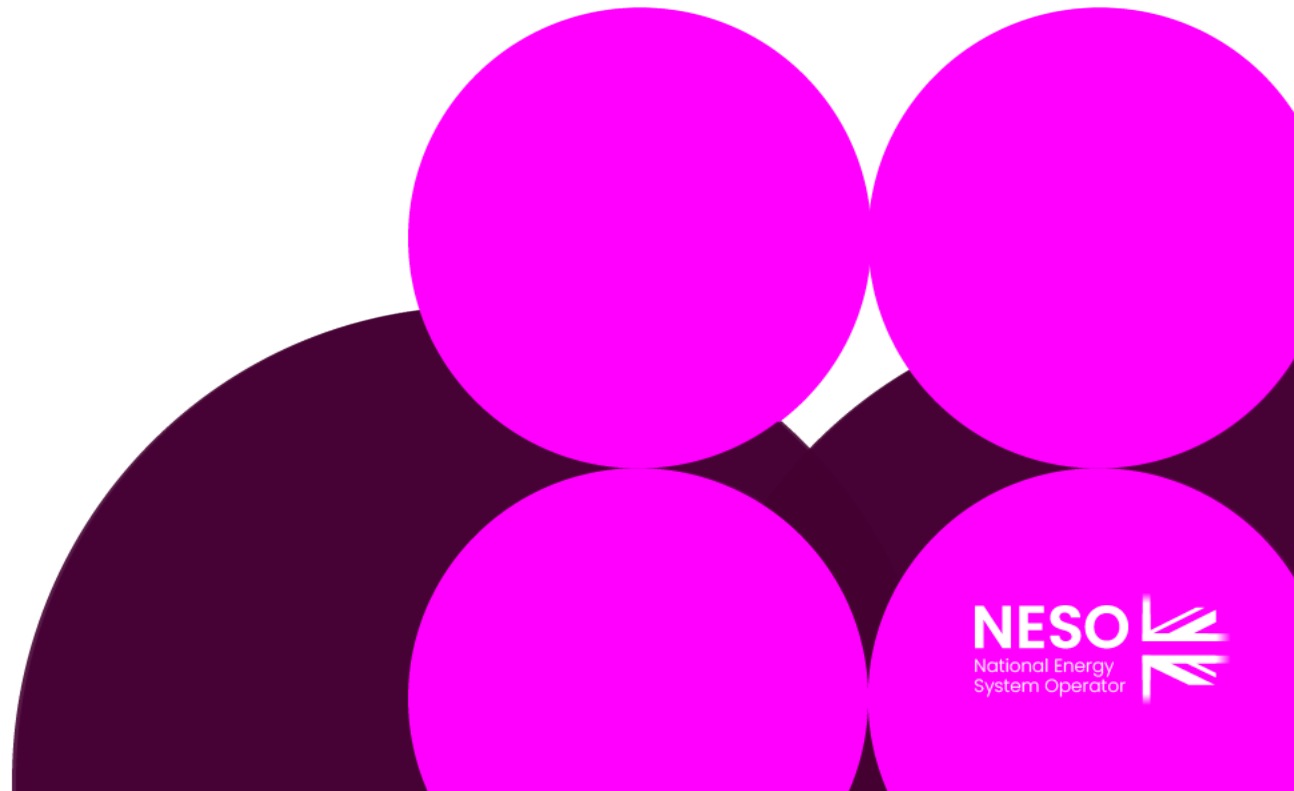


Action Log

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
3	Send out Workgroup invites to other TOs including NGET	Proposer/Chair	WG2	Open

Presentation ' Specification requirements of consultation work'

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 overvoltage 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 mechanism 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 in 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.
- 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
 - 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

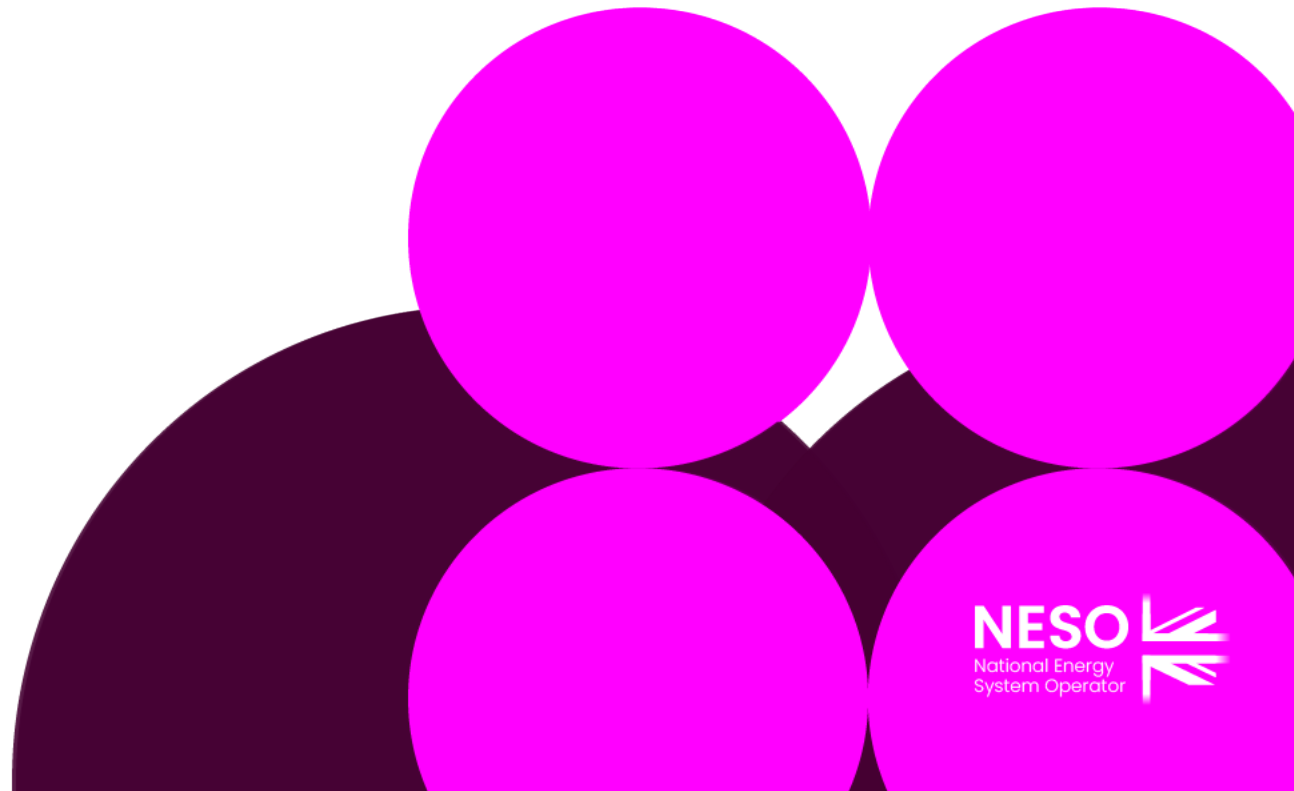
- Identify the minimum modelling requirements necessary to facilitate assessment and demonstration of compliance with temporary overvoltage requirements for Users' Plant.

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.

Presentation 'A Proposal for the Workgroup approach'

Bieshoy Awad – NESO



A Proposal for the Workgroup Approach

- Questions under consideration
 - What are the limits on the overvoltage – Limits need to be consistent for all plants new and existing.
 - How should Generating Units and Power Park Modules respond
 - Ride through, reactive support/voltage control, active power response, what else?
 - Structure of the Solution, i.e. where each requirement would sit.
 - Minimising impact on existing generation fleet
 - Legal framework to deal with this
 - Analysis required
 - Articulating the benefits for having a cost recovery mechanism or the risks of its absence
- Analysis is likely to take time. Workgroup to run in parallel
 - to address issues not related to the analysis and
 - to provide ongoing engagement with analysis conducted.

Any Other Business

Catia Gomes – NESO Code Administrator



Next Steps

Catia Gomes – NESO Code Administrator

