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Grid Code Modification Proposal Form																
<p>GC0184:</p> <p>Revising Minimum Reactive Capability Requirements within European Connection Conditions, ECC.6.3</p> <p>Overview: Reviewing the European Connection Conditions ECC.6.3 minimum reactive capability requirements to ensure they reflect the needs of the system now and in the future.</p>	<p>Modification process & timetable</p> <table border="1"> <tr> <td style="text-align: center;">1</td> <td>Proposal Form 12 November 2025</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Workgroup Consultation 05 November – 26 November 2026</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Workgroup Report 21 April 2027</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Code Administrator Consultation 04 May – 04 June 2027</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Draft Final Modification Report 16 June 2027</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Final Modification Report 05 July 2027</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Implementation 01 March 2028</td> </tr> </table>		1	Proposal Form 12 November 2025	2	Workgroup Consultation 05 November – 26 November 2026	3	Workgroup Report 21 April 2027	4	Code Administrator Consultation 04 May – 04 June 2027	5	Draft Final Modification Report 16 June 2027	6	Final Modification Report 05 July 2027	7	Implementation 01 March 2028
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<p>Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.</p>																
<p>This modification is expected to have a: Medium impact Generators and Interconnector Owners</p>																
<p>Modification drivers: New Technologies, System Operability, System Security</p>																
<p>Proposer’s recommendation of governance route Standard Governance modification with assessment by a Workgroup</p>	<p>Proposer’s view on modification priority Standard.</p>															
<p>Who can I talk to about the change?</p>	<p>Proposer: Graham Lear graham.lear@neso.energy</p>	<p>Code Administrator Contact: grid.code@neso.energy</p>														

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What is the issue?

Voltage levels must be maintained within acceptable statutory limits for stable system operation. Reactive Power is key to managing voltage, and NESO as the System Operator needs means of absorption for when voltage is too high and injection when it is too low. 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. The minimum requirement for reactive capability was originally implemented into the Grid Code in June 2005 as part of H/04. Since then, the growth in renewable plant, embedded generation, and other emerging technologies has resulted in significant operational changes to the Transmission System to the point that the minimum reactive capability requirements outlined in ECC.6.3.2 needs reviewing. This issue has been outlined within Clean Power 2030 Annex 3: Operability and operations analysis¹.

Why change?

The minimum reactive capability requirement needs to ensure the system is operable and remain stable over a range of conditions from high demand to low demand and over the seasonal variations of the year. 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 will reward parties for a greater volume of reactive power absorbed or injected, but do not necessitate a minimum requirement above and beyond that which is set out within ECC.6.3.2 and whilst Generator Performance Charts must be submitted and adhered to, they too do not necessitate a minimum technical requirement. This modification will help to ensure there is adequate reactive capability guaranteed within the system.

What is the Proposer's solution?

The Proposer's solution is to 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 target technologies that can deliver additional capability without modification to

¹ [Clean Power 2030 Annex 3: Operability and operations analysis](#)

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Plant or need for additional Plant, and consideration would be given to specific technology limitations. This would include an update to Grid Code clause ECC.6.3.2.4, which details the reactive power requirements for Type C and D Power Park Modules, High Voltage Direct Current (HVDC) Equipment and Offshore Transmission System Development User Works (OTSDUW) Plant and Apparatus at the Interface Point; Figure 1 outlines our recommendation for this. The solution would also remove the current option in ECC.6.3.2.4.4 where a reactive import capability between 50% and 20% of Maximum Capacity can be specified in the Bilateral Agreement. Appropriate amendments to other clauses would need consideration within Workgroup.

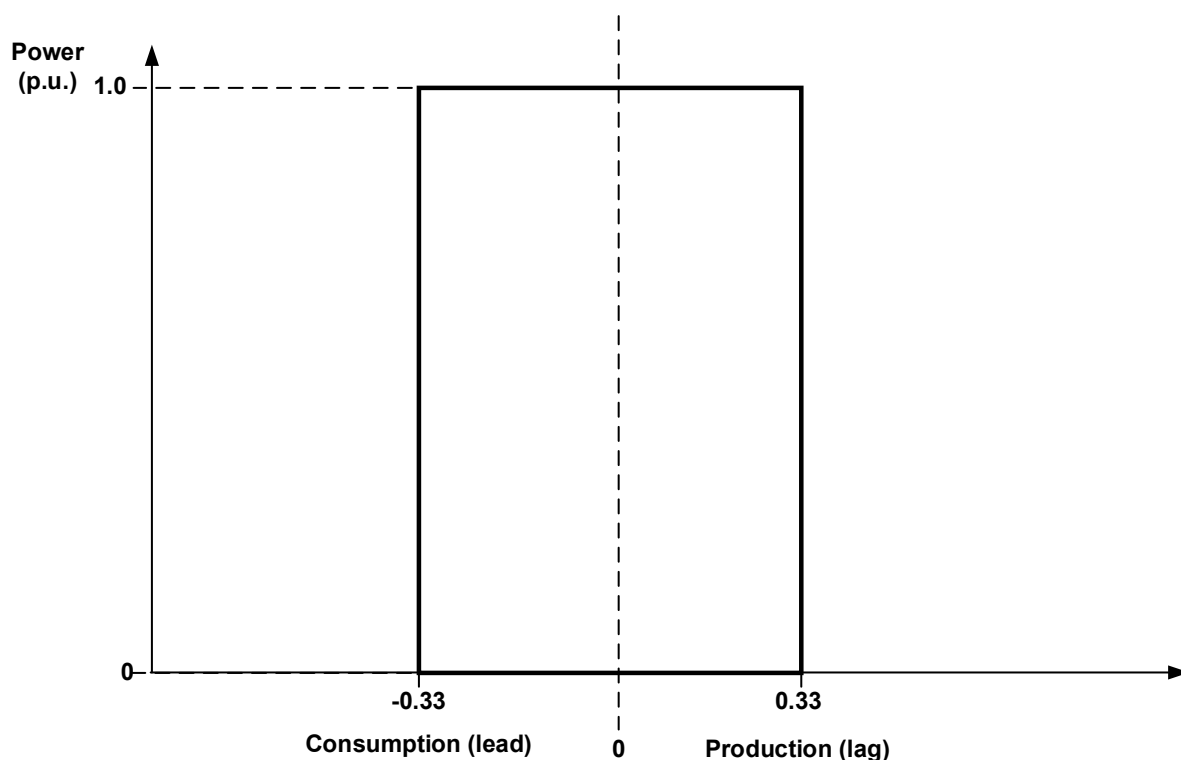


Figure 1 – Proposed Requirement for ECC.6.3.2.4

In addition, the solution would clarify the reactive capability requirements for non-synchronous storage plant in both an import and export mode of operation, which is currently unclear.

The proposed solution would also review these related issues:

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- Consider any misalignment between Connection Conditions (CC) and European Connection Conditions (ECC) regarding reactive power requirements and whether this needs clarifying or amending within ECC.
- Review Operating Code OC.2.4.2 to ensure all necessary parties are captured for submission of performance charts.

What is in and out of scope?

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

Draft legal text

Legal text will need to be developed through Workgroups.

What is the impact of this change?

This change would impact Generators, Interconnector Owners and OTSDUW Users developing OTSDUW Plant and Apparatus.

Proposer's assessment against Grid Code Objectives	
Relevant Objective	Identified impact
(i) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;	Positive Reduce the number of potential new assets that may need to be installed to manage system voltage. Ensures reactive capability is maintained to a sufficient degree to manage an increasingly decentralised system.

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<p>(ii) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);</p>	<p>Neutral Please provide your rationale</p>
<p>(iii) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;</p>	<p>Positive Reduce the number of potential new assets that may need to be installed to manage system voltage. Ensures reactive capability is maintained to a sufficient degree to manage an increasingly decentralised system.</p>
<p>(iv) To efficiently discharge the obligations imposed upon the licensee by this license* and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and</p>	<p>Positive Ensures reactive capability is maintained to a sufficient degree to manage an increasingly decentralised system.</p>
<p>(v) To promote efficiency in the implementation and administration of the Grid Code arrangements</p>	<p>Positive Provide greater clarity to non-synchronous storage Users on the requirements when the plant is operating in an import and export mode of operation.</p>

* See Electricity System Operator Licence

Proposer's assessment of the impact of the modification on the stakeholder / consumer benefit categories

Stakeholder / consumer benefit categories	Identified impact
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Improved safety and reliability of the system	Positive This Modification would improve system operation by efficiently utilising the User Plant for maintaining voltage stability and therefore reducing the requirement for additional assets for voltage management.
Lower bills than would otherwise be the case	Positive The modification will help lower the cost of procuring additional reactive power services.
Benefits for society as a whole	Neutral
Reduced environmental damage	Positive This proposal helps support the move towards electrification of demand and decarbonisation of the energy system by ensuring reactive capability in line with the requirements of a decentralised system.
Improved quality of service	Neutral

When will this change take place?

Implementation date:

01/03/2028

Proposer's justification of Implementation date:

Implementation date chosen to help realise the objectives of Clean Power 30.

Date decision required by

16/02/2028

Implementation approach

No impacts to Digital Data and Technology (DD&T) envisaged by this proposal.

Proposer's justification for governance route

Governance route: Standard Governance modification with assessment by a Workgroup
Further input from a Workgroup is required to develop the solution.

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Proposer’s view on prioritisation

Prioritisation: Standard

Prioritisation Criteria

The proposer must provide an initial assessment of their proposal against the prioritisation criteria, using the table below, and include a clear justification for classifying the Modification as a high priority. To be considered High priority all 3 Criteria must be High Impact. If not, the priority category should be Standard. This assessment will be taken into account when prioritisation determinations are made.

Proposers must:

- demonstrate a link to the delivery of government policies and developments relating to the energy sector as set out in the Strategic Direction Statement (SDS).
- include the level of industry resource, knowledge and/or time required to progress the modification through to implementation.
- include the perceived value, criticality and risk to industry, consumers, and/or other stakeholders of the implementation of the modification.
- provide any additional information to support the proposal such as what is driving the priority, or any relevant deadlines for implementing the modification

Prioritisation Criteria	High Impact
<p>Strongly aligns with the Strategic Direction Statement</p> <p>The Modification strongly supports key government energy policy actions that require immediate progress and aligns with SDS priorities under the Act Now category.</p>	No
<p>Complexity</p> <p>The Modification is highly complex, with a fast-approaching deadline, significant implementation challenges, and a requirement for extensive stakeholder engagement.</p>	No
<p>Importance</p>	No

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The Modification addresses a high-risk or critical issue, making timely action important for stakeholders as it is anticipated to deliver substantial benefits and value.	
Priority Category (To be considered High priority all 3 Criteria must be High Impact.)	Standard

Interactions

- CUSC BSC STC SQSS
 European Network Codes EBR Article 18 T&Cs¹ Other modifications Other

Considerations for changes to also be made in Distribution Code.

Industry engagement and feedback

This modification has been presented at Grid Code Development Forum (GCDF) and Grid Code Review Panel (GCRP) previously and various concerns have been taken on board:

- The possibility of differing capability to meet any proposed reactive requirements based on technology – this will be included in the Terms of Reference for the modification to ensure any exclusions or modifications to the requirements based on technology can be considered.
- Clarification of the issue to be solved – the issue has been reframed to be clearer regarding the reasoning for the need of the modification.
- Other code clarifications – a number of other clarifications have been noted as beneficial, and these have been noted in the Proposer’s solution section of this proposal form.

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Acronyms, key terms and reference material

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
CUSC	Connection and Use of System Code
EBR	Electricity Balancing Regulation
GC	Grid Code
SQSS	Security and Quality of Supply Standards
STC	System Operator Transmission Owner Code
T&Cs	Terms and Conditions
HVDC	High Voltage Direct Current
ORPS	Obligatory Reactive Power Service
OTSDUW	Offshore Transmission System Development User Works
GCDF	Grid Code Development Forum
GCRP	Grid Code Review Panel
ECC	European Connection Conditions
CC	Connection Conditions
OC	Operating Code

Reference material

- [Clean Power 2030 Annex 3: Operability and operations analysis](#)