Public

SQSS Modification Proposal Form

GSR034: Review of Loss of Power Infeed Risk for Offshore DC Converters

Overview: This modification is proposed to assess the 1320MW restriction on the loss of power infeed for outages of offshore DC converters.

Modification process & timetable

1. **Proposal Form**
   22 October 2025
2. **Code Administrator Consultation**
   04 November 2025 - 18 November 2025
3. **Draft Final Modification Report**
   21 November 2025
4. **Final Modification Report**
   03 December 2025
5. **Implementation**
   10 BD after Authority Decision

Status summary: The Proposer is seeking your views on the work completed to date to form the final solution to the issue raised.

This modification is expected to have a: High impact on Offshore Transmission Owners (OFTOs) and Offshore Generators and a **Medium Impact** on NESO

Proposer's recommendation of governance route	Standard Governance modification to proceed to Code Administrator Consultation	
Who can I talk to about the change?	**Proposer:** Bieshoy Awad Bieshoy.awad@neso.energy	**Code Administrator Contact**: Deborah Spencer Deborah.spencer@neso.energy

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What is the issue?

The National Electricity Transmission System (NETS) Security and Quality of Supply Standard (SQSS) restricts the loss of infeed risk for any single *offshore DC converter*, to the normal loss of infeed risk (1320 MW). This restriction, which aims to limit the consumers' exposure to events where frequency drops below 49.5 Hz, could result in additional and potentially sub-optimal investment being required to meet such criteria. It could also result in an unintended detrimental impact on the environment due to the increase in the numbers of cables and landing points required to connect offshore windfarms.

Why change?

There is a drive to ensure that the NETS SQSS remains fit for purpose and that all the limitations on the design imposed by it are reviewed as the need arises. This principle applies to the limit on the *loss of infeed risk* allowed for the loss of an *offshore DC converter.*

The review would also facilitate reducing the footprint and the environmental impacts of large offshore wind connections. For example, a 1800MW windfarm would require a single DC connection rather than two.

Further to this, the review would facilitate the delivery of the designs identified through the Holistic Network Design (HND) process. These designs are expected to deliver £5.6bn of consumer benefits and reduce the environmental footprint of the reinforcement by a third.

What is the Proposer's solution?

Clauses 7.7.2.1 and 7.12.2.1 of the NETS SQSS restrict the loss of power infeed risk associated with a secured event on a single *DC converter* to the *normal loss of infeed risk* (1320MW). A summary of the background and history of these clauses and the changes that necessitate their review is provided in **Annex 01** of this Proposal.

The principle used in this proposal to review the limits to the *loss of infeed risk* applicable to a single *offshore DC converter* (clauses 7.7.2 and 7.12.2 of the NETS SQSS) is to identify the implications of increasing such limit to *the infrequent infeed loss risk* and to check whether these implications are (1) manageable and (2) outweighed by the benefit achieved from such increase.

An assessment of the implications of the increase in the *loss of infeed risk* allowed for a single *offshore DC converter*, the details of which are in **Annex 01** of this document, identified the following impacts:

1. A short-term increase in the frequency response costs required to ensure the system frequency does not drop below 49.2Hz and is restored to above 49.5Hz within 60 seconds following the loss of 1800MW of offshore wind generation. This increase will be negligible once the 1800MW nuclear units are in service[1].
2. An increase in the number of events per year when the system frequency drops below 49.5Hz. This increase will depend on the number of *DC converters* with a loss of infeed risk above 1320MW and the reliability of these converters. If this increase becomes significant, further frequency response would need to be procured to ensure that the loss of these converters would reduce the number of such events to an acceptable level.
3. Subject to the previous point, the cost associated with the potential requirement to ensure that frequency does not drop below 49.5Hz for the loss of offshore windfarms with capacity above 1320MW connected through a single High Voltage Direct Current (HVDC) converter. This cost, based on the analysis presented in Workgroup discussions, is capped at approximately £12m/annum based on a £3.7/MWh price for the relevant frequency response service[2].

The benefits offered by this Proposal, also detailed in **Annex 01**, include £5.6bn savings, a 33% reduction in the environmental footprint of offshore connections, and a 2 million tonne reduction of CO_2 emissions between 2030 and 2032 as identified by the HND work.

Considering that

- the operational impacts of an increase of the maximum loss of infeed risk for an *offshore DC converter* is manageable through procurement of additional frequency response services.
- the cost of these services is unlikely to exceed £12m/annum; and
- the economic and environmental benefits facilitated by such increase are significant.

It is proposed to modify clauses 7.7.2 and 7.12.2 of the NETS SQSS to refer to the *infrequent loss of infeed risk* instead of the *normal loss of infeed risk*.

Legal text

[1] March 2029 according to the Transmission Entry Capacity Register

[2] Dynamic Containment is the frequency response service that is likely to be used to manage the risk identified.

The legal text for this change has been submitted with the Proposal in **Annex 02.**

What is the impact of this change?

Proposer's assessment against SQSS Objectives	
Relevant Objective	**Identified impact**
(a) facilitate the planning, development and maintenance of an efficient, coordinated and economical system of electricity transmission, and the operation of that system in an efficient, economic and coordinated manner;	**Positive** The proposed change will facilitate better optimisation of the offshore network designs.
(b) ensure an appropriate level of security and quality of supply and safe operation of the National Electricity Transmission System;	**Neutral** There will be an increased level of frequency excursions however there is a mechanism to reduce these if necessary. The cost of ensuring this modification is neutral to the frequency excursions is outweighed by the benefits delivered by optimisation will outweigh that cost.
(c) facilitate effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity; and	**Neutral**
(d) facilitate Licensees to comply with any relevant obligations under Assimilated law	**Neutral**

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

Improved safety and reliability of the system	**Neutral**
Lower bills than would otherwise be the case	**Positive** - The facilitation of the implementation of the designs recommended by HND will reduce costs to consumers. - In addition, radial offshore windfarm designs would have better flexibility to optimise their designs as they would be able to connect larger capacities using single converters
Benefits for society as a whole	**Positive** The proposal will accelerate progress towards Net Zero and will help reduce carbon emissions.
Reduced environmental damage	**Positive** A reduction in landing points and cable routes will reduce environmental damage
Improved quality of service	**Neutral**

When will this change take place?

Implementation date

10 Business Days after Authority Decision.

Date decision required by

15 December 2025

Implementation approach

Not applicable

Proposer's justification for governance route

Standard Governance modification to proceed to Code Administrator Consultation in accordance with clause J.5.2.2.4 of the SQSS NETS.

Interactions

☐Grid Code	☐BSC	☐STC	☐CUSC
☐European Network Codes	☐Other modifications	☐Other	

No interactions.

Acronyms, key terms and reference material

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
CUSC	Connection and Use of System Code
DC	Direct Current
HND	Holistic Network Design
HVDC	High Voltage Direct Current
NETS	National Electricity Transmission System
SQSS	Security and Quality of Supply Standards
STC	System Operator Transmission Owner Code

Annexes

Annex	Information
Annex 01	GSR034 Background and Detailed Assessment Considerations
Annex 02	GSR034 Legal Text