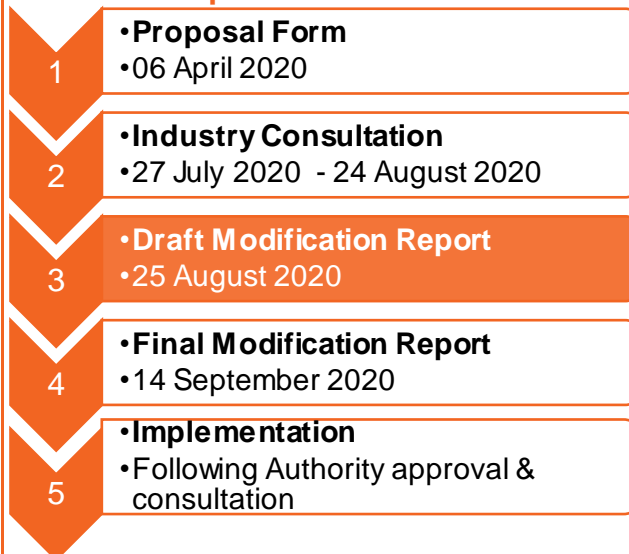


SQSS Draft Final Modification Report

GSR026: Adding Non-Standard Voltages to the SQSS

Overview: Following the rejection of modification GSR021¹ to the System Quality and Standards of Supply (SQSS) by Ofgem, this modification is being raised to seek modifications to the SQSS. A separate modification will be raised to modify the Grid Code. The modifications are looking to incorporate equipment at nominal voltages other than those that are currently used within the Codes. It is also proposed to align the SQSS with the Grid Code with the term 'supergrid' being referred to as a voltage over 200kV.

Modification process & timetable



Have 5 minutes? Read our [Executive summary](#)

Have 10 minutes? Read the full [Draft Final Modification Report](#)

Have 20 minutes? Read the full Draft Final Modification Report and annexes

Status summary: Draft Final Modification Report. This Report will be submitted to the SQSS Panel for them to carry out their recommendation vote on whether this change should happen.

This modification is expected to have a:	<p>Medium impact: Any users subject to requirements of the Grid Code installing equipment at novel voltages, who will gain clarity.</p> <p>Low impact: Users subject to requirements of the Grid Code of equipment at standard voltages who will see no change.</p>		
Governance route	<p>The SQSS Panel agreed that this modification should proceed to Industry Consultation and Ofgem will make the decision on whether it should be implemented.</p>		
Who can I talk to about the change?	<table border="0"> <tr> <td data-bbox="327 1713 877 1926"> Proposer: Louise Trodden, National Grid ESO Phone: 07866 165538 Email: louise.trodden@nationalgrideso.com </td><td data-bbox="877 1713 1450 1926"> Code Administrator: Shazia Akhtar, National Grid ESO Phone: 07787266972 Email: Shazia.Akhtar2@nationalgrideso.com </td></tr> </table>	Proposer: Louise Trodden, National Grid ESO Phone: 07866 165538 Email: louise.trodden@nationalgrideso.com	Code Administrator: Shazia Akhtar, National Grid ESO Phone: 07787266972 Email: Shazia.Akhtar2@nationalgrideso.com
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¹ <https://www.nationalgrideso.com/codes/security-and-quality-supply-standards/modifications/gsr021-operational-and-planning-criteria>

Executive Summary

This modification is running alongside the Grid Code modification GC0142² which is following the same modification timeline. These modifications have been raised in response to a previously rejected SQSS modification GSR021³. Both modifications seek to include non-standard voltages which are currently not specified in Grid Code or the SQSS and align them where possible. GSR026 will also align the term 'Supergrid' with the Grid Code.

What is the issue?

The SQSS currently only references the specification and performance requirements for adding equipment of the following kilovolt voltages: 400kV, 275kV and 132kV. Future technical advancements and equipment of other nominal voltage specifications and requirements are not defined in the Code. 220kV is a common European Union (EU) transmission voltage. It is possible that this, along with equipment of other common voltages (e.g. 380kV, 110kV) could be connected to the GB system in the near future.

Supergrid assets are defined as assets over 200kV in the Grid Code, but as assets at 275kV and above in the SQSS.

What is the solution and when will it come into effect?

Proposers solution:

To remove references to specific nominal voltages and replace them with voltage ranges; to ensure that all future possibilities are captured, and there is better alignment with the approach followed in EU codes.

To seek further alignment with the Grid Code; the same defined term for Supergrid assets will apply in the SQSS.

Implementation date:

Implementation will occur following Ofgem approval and consultation process, to modify electricity transmission licences to reflect the latest version of the SQSS.

What is the impact if this change is made?

Who will it impact?

Medium impact on any users' subject to requirements of the Grid Code installing equipment at novel voltages, who will gain clarity.

Low impact on Users subject to requirements of the Grid Code of equipment at standard voltages who will see no change.

² <https://www.nationalgrideso.com/industry-information/codes/grid-code-old/modifications/gc0142-adding-non-standard-voltages-grid>

³ <https://www.nationalgrideso.com/codes/security-and-quality-supply-standards/modifications/gsr021-operational-and-planning-criteria>

Interactions

This modification allows for consistency with the changes being proposed to the Grid Code under Grid Code modification GC0142.

Draft Final Modification Report

This document is the GSR026 **Draft Final Modification Report**. This document outlines;

- **What is the issue?**
- **What is the solution?**
 - Proposer's solution
 - Legal text
- **What is the impact of this change?**
 - Industry Consultation Summary
- **When will the change take place?**
- **Acronym table and reference material**

What is the issue?

A previous modification ([GSR021](#)) to include 220kV assets into the SQSS was rejected by Ofgem in July 2016. This was for the following reasons:

- There were concerns regarding the original proposal having only considered the addition of 220kV as a nominal voltage and did not cover future technological advancements or subsequent new voltage rates.
- The original proposal was also not detailed enough to differentiate how both on and offshore voltages were reported in chapter 6 and chapter 10 of the SQSS.

These assets are currently situated at the Kintyre-Hunterston subsea alternating current (AC) link with two subsea cables between Crossaig on the Kintyre peninsula and Hunterston. The connection to the Onshore transmission system is via two 400/220kV supergrid transformers at Hunterston and via two 200/132kV transformers at Crossaig. Whilst there is currently no user equipment directly affected by the new voltage, 220kV assets are not currently specified within the SQSS.

This defect remains however, this modification now seeks to expand the SQSS to clarify the requirements that will be placed on equipment at non-standard voltages. For reference, currently 400kV, 275kV and 132kV are voltages typically referred to within the SQSS. This means that any other nominal voltages specification and requirements are not defined in the code.

The proposed changes to the SQSS would ensure:

- Current and future nominal voltage levels within the transmission network have clear specification and performance requirements.
- Assets operating at such nominal voltages are appropriately specified within the codes, with the aim to include specifications for voltages in such a way that will enable consistency for both the Grid Code and the SQSS.

- Greater flexibility, should other nominal voltages (other than 400kV, 275kV and 132kV) be used for the design of high voltage (HV) equipment in the future and the operational range associated with the designed nominal voltage.

What is the solution?

Proposer's solution:

This modification will update the SQSS with the changes outlined in the legal text (Annex 1) to ensure that nominal voltages other than those used as standard in Great Britain (GB) (132kV, 275kV, 400kV) can be accommodated for equipment connecting to the system.

The legal text relies on the use of voltage ranges for equipment to ensure that all future possibilities are captured and so better aligns the SQSS and Grid Code with the approach followed in European Union (EU) codes.

In the Grid Code, assets over 200kV are defined as Supergrid assets. Currently, the defined term in the SQSS states Supergrid assets at 275kV and above. To seek further alignment with the Grid Code, this modification also seeks to propose that the same defined term apply in the SQSS.

Legal text

The legal text for this change can be found in Annex 1.

What is the impact of this change?

Who will it impact?

These changes aim to make it clearer for those connecting to the transmission system what performance and specification should be followed at each nominal voltage. It also allows for consistency with the changes being proposed to the Grid Code.

Proposer's Assessment against SQSS Objectives

The Proposers view is that this modification will better facilitate the SQSS objectives, support alignment with EU codes and facilitate the future of the system.

Impact of the modification on the SQSS objectives:	
Relevant Objective	Identified impact
(i) 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
(ii) ensure an appropriate level of security and quality of supply and safe operation of the National Electricity Transmission System;	Positive
(iii) facilitate effective competition in the generation and supply of electricity, and (so far as consistent	Positive

therewith) facilitating such competition in the distribution of electricity; and	
(iv) facilitate electricity Transmission Licensees to comply with their obligations under EU law.	Positive

Industry Consultation Responses

The Industry Consultation was issued on the 27 July 2020, closed on 24 August 2020 and received 2 responses. A summary of the responses can be found in the table below, the full responses can be found in Annex 2.

Code Administrator Consultation summary	
Question	
Do you believe that the GRS026 Original Proposal better facilitates the Applicable SQSS Objectives?	<p>Yes, the changes provide additional clarity for Users connected to parts of the transmission system operating at other than a current standard GB voltage.</p> <p>Yes, GSR026 better facilitates the appropriate SQSS objectives, specifically in relation to (i), (ii) and (iv).</p>
Do you support the proposed implementation approach?	Yes. The implementation should align with the implementation of the changes proposed in GC0142.
Do you have any other comments?	Yes.
Legal text issues raised in the consultation	
<p>In table 6.4, '132kV' should be '132kV and above' to cater for provision of a connection to a Distribution Network or Non-Embedded Customer operating at a nominal voltage above 132kV.</p> <p>Following this feedback, the legal text has been amended and can be found in Annex 3.</p>	

When will this change take place?

Implementation date:

Implementation should occur following Ofgem approval and consultation process, to modify electricity transmission licences to reflect the latest version of the SQSS.

Implementation approach:

Implementation of this modification will only require minor amendments to the legal text of the SQSS, and alignment to a similar change being taken forward in the Grid Code (GC0142).

The application should apply to all new equipment -no changes in costs for specifications or system changes are envisaged. SSE has confirmed that the equipment currently installed (for example Kintyre-Hunterston) can comply with the operational limits specified.

Acronym table, key terms and reference material

Acronym / key term	Meaning
AC	Alternating Current
EU	European Union
HV	High voltage
kV	kilovolt
SQSS	Security and Quality of Supply Standard. This sets out the criteria and methodology for planning and operating the National Electricity Transmission System (NETS).

Reference material:

1. [GSR021 Decision Letter from Ofgem](#)
2. [GSR021 Industry Consultation Paper](#)
3. [GC0142 Code Administrator Consultation](#)

Annexes

Annex	Information
Annex 1	Proposal form
Annex 2	Legal Text
Annex 3	Industry Consultation Responses