|  |  |  |  |
| --- | --- | --- | --- |
| Workgroup Consultation | | | |
| GSR032:  Implementation of the Electricity System Restoration Standard  **Overview:** This Modification is proposing a number of changes to the SQSS to facilitate the direction issued by BEIS in accordance with Special Condition 2.2 of National Grid’s Electricity System Operator’s Transmission Licence. Implementing an Electricity System Restoration Standard (ESRS) which requires 60% of electricity demand to be restored within 24 hours in all regions, and 100% of electricity demand to be restored within 5 days nationally. | | **Modification process & timetable**    **Proposal Form**  01 July 2022  **Workgroup Consultation**  23 May 2023 - 13 June 2023  **Workgroup Report**  04 July 2023  **Code Administrator Consultation**  17 July 2023 - 07 August 2023  **Draft Modification Report**  05 September 2023  **Final Modification Report**  25 September 2023  **Implementation**  TBC  **1**  **2**  **3**  **4**  **5**  **6**  **7** | |
| **Have 5 minutes?** Read our [Executive summary](#_Executive_summary_1)  **Have 20 minutes?** Read the full [Workgroup Consultation](#_Why_change?)  **Have 30 minutes?** Read the full Workgroup Consultation and Annexes. | | | |
| **Status summary:** The Workgroup are seeking your views on the work completed to date to form the final solution(s) to the issue raised. | | | |
| **This modification is expected to have a: High Impact** Transmission Owners and Offshore Transmission Owner | | | |
| **Governance route** | Standard Governance modification with assessment by a Workgroup | | |
| **Who can I talk to about the change?** | **Proposer:** Sade Adenola [Sade.adenola@nationalgrideso.com](mailto:Sade.adenola@nationalgrideso.com)  Phone: 07748180789 | | **Code Administrator** **Chair**: Milly Lewis  milly.lewis@nationalgrideso.com  Phone: 07811036380 |
| **How do I respond?** | Send your response proforma to[box.sqss@nationalgrideso.com](mailto:box.sqss@nationalgrideso.com) **by 5pm on 23 May 2023** | | |

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# Executive summary

This Modification is proposing a number of changes to the SQSS to facilitate the direction issued by BEIS in accordance with Special Condition 2.2 of National Grid’s Electricity System Operator’s Transmission Licence. Implementing an Electricity System Restoration Standard (ESRS) which requires 60% of electricity demand to be restored within 24 hours in all regions, and 100% of electricity demand to be restored within 5 days nationally.

What is the issue?

The modification is necessary to implement the Electricity System Restoration Standard (ESRS) issued by BEIS. The date by which BEIS require the ESO to be compliant with the ESRS is 31 December 2026.

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

**Proposer’s solution:** The proposersuggested that SQSS modification Working Groups determine how implementation of the Electricity System Restoration Standard (ESRS) can be facilitated by code modifications.

**Implementation date:** 31st December 2026.

**Summary of potential alternative solution(s) and implementation date(s):**

*Summary of any alternatives that have been discussed/raised (1-3 sentences).*What is the impact if this change is made?

Positive impacts in five areas; improved safety and reliability of the system, lower bills than would otherwise be the case, benefits for society, reduced environmental damage, improved quality of service

Interactions

There are a suite of modifications related to the implementation of the Electricity System Restoration Standard; Grid Code [GC0156](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0156-facilitating-implementation-electricity-system); CUSC [CMP398](https://www.nationalgrideso.com/industry-information/codes/cusc/modifications/cmp398-gc0156-cost-recovery-mechanism-cusc-parties) and [CMP412](https://www.nationalgrideso.com/industry-information/codes/cusc/modifications/cmp412-cmp398-consequential-charging-modification); BSC [P451](https://www.elexon.co.uk/mod-proposal/p451/); STC-P changes [PM0128](https://www.nationalgrideso.com/industry-information/codes/stc/modifications/pm0128-implementation-electricity-system-restoration) and STC [CM089](https://www.nationalgrideso.com/industry-information/codes/stc/modifications/cm089-implementation-electricity-system-restoration).

What is the issue?

In April 2021, the Department for Business, Energy and Industrial Strategy (BEIS)1 released a [policy statement](https://www.gov.uk/government/publications/introducing-a-new-electricity-system-restoration-standard) setting out the need to introduce a legally binding target for the restoration of electricity supplies in the event of a total or partial shutdown of the National Electricity Transmission System (NETS) .

This new policy is called the Electricity System Restoration Standard (ESRS). As a consequence of BEIS’s policy statement, Ofgem performed an [initial consultation](https://www.ofgem.gov.uk/publications/consultation-licence-amendments-facilitate-introduction-electricity-system-restoration-standard) in April 2021 followed by a [statutory consultation](https://www.ofgem.gov.uk/publications/statutory-consultation-licence-amendments-facilitate-introduction-electricity-system-restoration-standard-0) in July 2021 on licence amendments to facilitate the introduction of an ESRS, and to align the regulatory framework for procurement of restoration services with that of other balancing services.

On 24th August 2021, Ofgem published a [decision letter](https://www.ofgem.gov.uk/publications/decision-licence-modifications-facilitate-introduction-electricity-system-restoration-standard) stating that they made the decision to make the licence modifications. The modification decisions are publicly available and were implemented on 19th October 2021.

These licence modifications include but are not limited to:

• Introducing the definition of “restoration services” in Standard Condition C1 and amending the definition of balancing services to include “restoration services”.

• Replacing all references to “black start” with “Electricity System Restoration” in the Electricity Transmission Licence, including in the ESO’s Special Licence Conditions, to align the licence terminology with BEIS’s policy.

• Introduction of updated Special Condition 2.2 of National Grid’s Electricity System

Operator’s Transmission Licence requiring the introduction of an Electricity System Restoration Standard (ESRS) which requires 60% of electricity demand to be restored within 24 hours in all regions and 100% of electricity demand to be restored within 5 days nationally.

This modification is therefore necessary following a direction issued by BEIS. The date by which BEIS require the ESO to be compliant with the ESRS is 31 December 2026.

## Why change?

This Modification is proposing changes to the SQSS to facilitate the direction issued by BEIS in accordance with Special Condition 2.2 of National Grid’s Electricity System Operator’s Transmission Licence. Implementing an Electricity System Restoration Standard (ESRS) which requires 60% of electricity demand to be restored within 24 hours in all regions, and 100% of electricity demand to be restored within 5 days nationally.

The SQSS requires further review to ensure it is consistent with the changes being introduced to the Grid Code and STC to facilitate the implementation of the ESRS.

What is the solution?

## Proposer’s solution

It is proposed to establish a SQSS modification Working Group to determine how implementation of the Electricity System Restoration Standard (ESRS) can be facilitated by code modifications.

This modification will build on the work completed through the implementation of the EU Emergency and Restoration Code ([EU 2017/2196](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.312.01.0054.01.ENG&toc=OJ:L:2017:312:TOC%22)) which was in part introduced to the Grid Code through Grid Code modifications [GC0125](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0125-eu-code-emergency-restoration-black-start), [GC0127](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0127-eu-code-emergency-restoration-requirements) and [GC0128](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0128-eu-code-emergency-restoration-requirements) and further being implemented through Grid Code modification [GC0148 (Implementation of EU Emergency and Restoration Code Phase II)](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0148-implementation-eu-emergency-and-restoration-code) and [GC0156 (Facilitating the Implementation of the Electricity System Restoration Standard).](https://www.nationalgrideso.com/industry-information/codes/gc/modifications/gc0156-facilitating-implementation-electricity-system)

This modification includes the following proposals for Transmission Owners to consider the following issues when designing their networks.

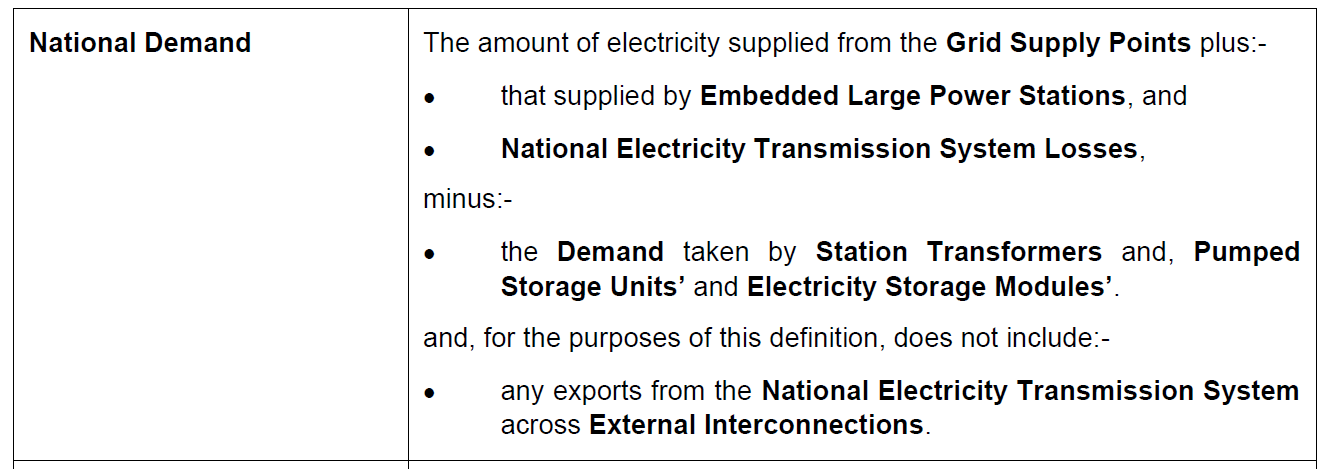
* At each Grid Entry Point, the ability for Restoration Contractors to energise part of the Transmission System at 0MW output and subsequently load the generator above Stable Export Limit (SEL) to feed local demand. This process would rely on Restoration Contractors sufficient volumes of the reactive power be it from an Anchor Plant or Top Up Plant.
* No Load gain between adjacent substations must be designed so that it can be energised during System Restoration. (i.e., circuit busbars and associate reactive plant) This would include energising from Anchor Plant or synchronising Top Up Plant such that demand can be supplied as part of a Local Joint Restoration Plan or Distribution Restoration Zone Plan. Once a power island is created by Restoration Contractors, it must be possible to synchronise other Users to the network to either offer auxiliary supplies or enable the Synchronising of other Power Islands.
* The ability to deliver reactive compensation in steps of up to 60MVAr from a proportion of the reactive compensation equipment thereby enabling utilisation of this equipment during a restoration.
* Compensation equipment, such as Static Compensators or rotary compensators should be energised and used within the initial stages of a restoration.
* The ability to utilise Offshore Networks as part of the Restoration Process.

Workgroup considerations

The Workgroup convened 3 times to discuss the perceived issue, detail the scope of the proposed defect, devise potential solutions, and assess the proposal in terms of the Applicable Code Objectives.

**Consideration of the proposer’s solution**

*Definitions and refining the new text*

The Proposer clarified that for restoration purposes, Electricity Demand is based on the Grid Code definition of National Demand. 

Through reviews of the draft legal text the Workgroup agreed that there should not be specific references to relevant clauses/sections of the Grid Code and STC.

*Obligation, representation and retrospectivity*

The Proposer confirmed that existing OFTOs are exempt from retrospective ESRS changes if built before 2026, after which the ESRS requirements would apply to any newly built OFTOs (or OFTOs being planned for 2026+).

It was confirmed that all existing and future onshore operations would need to be compliant with the ESRS requirements.

The Workgroup was suggested that OFTO developers are required to be part of this discussion as they will be involved in implementing any standards to future-proof infrastructure etc. The ESO rep outlined that onshore TOs and DNOs have been involved in ESRS discussions to date, more developers joined at Workgroup 3.

*In or out of the SQSS*

[insert discussion as to what should be included in the SQSS to support designing versus the obligations laid out in other codes]

**Consideration of other options**

*Loading capacity*

The Workgroup queried what the expectations for restarting generation in the event of a significant outage event were– i.e., that restarting would need to be at the lowest output to avoid instability issues. It was confirmed that loading capacity is covered in contracts and not in scope for this Workgroup.

**Impact assessments and cost considerations resulting from the modification**

Some Workgroup members raised concerns about the cost implications of meeting the standards across the whole network (e.g. there is no cost recovery mechanism defined for OFTOs yet). The ESO team acknowledged that to meet the new standards, investments will be required across the industry, ESO included, and shared that Ofgem have been engaged on this point.

A question was raised as to whether the modification will result in a blanket change across the whole network or whether implementation of these requirements would be targeted (at first at least) – i.e., sections of the network targeted and tested prior to a blanket roll-out across the network. As a blanket implementation would have significant impacts on TOs and license holders, the group raised the importance of TOs understanding the implications of the ESRS changes and the duty of care to customers to balance against the changes needed. ESO agreed that impacts would need to be scoped but the ESRS changes are a license obligation so do not need an impact assessment to warrant the change.

In response to the request for more design specifications to help assess the impact of the changes across the network ESO did confirm that they had received a request to remove some specific details during earlier ESRS discussions.

The Workgroup raised a need for an impact assessment to understand the implications for compliance (including the network’s current compliance status) and the impact to investment plans from this change. When ESO asked whether the workgroup could deliver such numbers to inform the discussion, the Workgroup suggested that impacts could be shared but not costs.

**Workgroup consultation question: Xxxxx?**

## Draft legal text

The Legal text for this solution will be developed in line with the legal text drafted for GC0156.

The draft legal text for this change can be found in Annex 3.

What is the impact of this change?

|  |  |
| --- | --- |
| Proposer’s assessment against 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  The SQSS is introducing robust network design to support the ability to restore the network following a total or partial shutdown. |
| (ii) ensure an appropriate level of security and quality of supply and safe operation of the National Electricity Transmission System; | Positive  Proposed changes would ensure stability of Power Islands by restoring sufficient demand during system restoration. |
| (iii) 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 |
| (iv) facilitate electricity Transmission Licensees to comply with any relevant obligations under EU law | Positive  Provide assurance of restoring the System following a total or partial national power outage. |

Do you believe that GSR Original proposal better facilitates the Applicable Objectives?

When will this change take place?

### Implementation date

31st December 2026.

### Date decision required by

July 2023.

### Implementation approach

New Restoration Decision Support Tool, Restoration Tool, Local Joint Restoration Plans, Distributed Restoration Zone Plans & Annual Restoration Strategy.

Do you support the implementation approach?

Interactions

|  |  |  |  |
| --- | --- | --- | --- |
| ☒ Grid Code | ☒ BSC | ☒ STC | ☒ CUSC |
| ☒ European Network Codes | ☒ Other modifications |  |  |

How to respond

## Standard Workgroup consultation questions

1. Do you believe that the Original Proposal and/or any potential alternatives better facilitate the Applicable Objectives?
2. Do you support the proposed implementation approach?
3. Do you have any other comments?

## Specific Workgroup consultation questions

1. Xxxxxxxxx

The Workgroup is seeking the views of SQSS Users and other interested parties in relation to the issues noted in this document and specifically in response to the questions above.

Please send your response to[[box.sqss@nationalgrideso.com](mailto:cusc.team@nationalgrideso.com)](mailto:box.sqss@nationalgrideso.com) [using the response pro-forma which can be found on the SQSS modification page.](mailto:cusc.team@nationalgrideso.com)

[In accordance with Governance Rules if you wish to raise a Workgroup Consultation Alternative Request, please fill in the form which you can find at the above link.](mailto:cusc.team@nationalgrideso.com)

*[If you wish to submit a confidential response, mark the relevant box on your consultation proforma. Confidential responses will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Panel, Workgroup, or the industry, and may therefore not influence the debate to the same extent as a non-confidential response.](mailto:cusc.team@nationalgrideso.com)*

[Acronyms, key terms, and reference material](mailto:cusc.team@nationalgrideso.com)

|  |  |
| --- | --- |
| **[Acronym / key term](mailto:cusc.team@nationalgrideso.com)** | **[Meaning](mailto:cusc.team@nationalgrideso.com)** |
| [BEIS](mailto:cusc.team@nationalgrideso.com) | [Department for Business, Energy, and Industrial Strategy](mailto:cusc.team@nationalgrideso.com) |
| [BSC](mailto:cusc.team@nationalgrideso.com) | [Balancing and Settlement Code](mailto:cusc.team@nationalgrideso.com) |
| [BSC](mailto:cusc.team@nationalgrideso.com) | [Balancing and Settlement Code](mailto:cusc.team@nationalgrideso.com) |
| [CMP](mailto:cusc.team@nationalgrideso.com) | [CUSC Modification Proposal](mailto:cusc.team@nationalgrideso.com) |
| [CUSC](mailto:cusc.team@nationalgrideso.com) | [Connection and Use of System Code](mailto:cusc.team@nationalgrideso.com) |
| [CUSC](mailto:cusc.team@nationalgrideso.com) | [Connection and Use of System Code](mailto:cusc.team@nationalgrideso.com) |
| [EBR](mailto:cusc.team@nationalgrideso.com) | [Electricity Balancing Guideline](mailto:cusc.team@nationalgrideso.com) |
| [ESO](mailto:cusc.team@nationalgrideso.com) | [Electricity System Operator](mailto:cusc.team@nationalgrideso.com) |
| [ESRS](mailto:cusc.team@nationalgrideso.com) | [Electricity System Restoration Standard](mailto:cusc.team@nationalgrideso.com) |
| [EU](mailto:cusc.team@nationalgrideso.com) | [European Union](mailto:cusc.team@nationalgrideso.com) |
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| [STC](mailto:cusc.team@nationalgrideso.com) | [System Operator Transmission Owner Code](mailto:cusc.team@nationalgrideso.com) |
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| [TO](mailto:cusc.team@nationalgrideso.com) | [Transmissions Owner](mailto:cusc.team@nationalgrideso.com) |

### [Reference material](mailto:cusc.team@nationalgrideso.com)

* [[GC0156 Modification](mailto:cusc.team@nationalgrideso.com)](https://www.nationalgrideso.com/industry-information/codes/grid-code-old/modifications/gc0156-facilitating-implementation)

[Annexes](mailto:cusc.team@nationalgrideso.com)

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| --- | --- |
| **[Annex](mailto:cusc.team@nationalgrideso.com)** | **[Information](mailto:cusc.team@nationalgrideso.com)** |
| [Annex 1](mailto:cusc.team@nationalgrideso.com) | [Proposal form](mailto:cusc.team@nationalgrideso.com) |
| [Annex 2](mailto:cusc.team@nationalgrideso.com) | [Terms of reference](mailto:cusc.team@nationalgrideso.com) |
| [Annex 3](mailto:cusc.team@nationalgrideso.com) | [Draft legal text](mailto:cusc.team@nationalgrideso.com) |