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Workgroup Consultation

GC0183: Generator and Interconnector Availability During a Severe Space Weather Event

Overview: This modification will make changes to the Grid Code to obligate Generators, Interconnector Owners and Restoration Contractors to notify NESO of their intended position in the event of severe space weather.

Modification process & timetable



Have 5 minutes? Read our [Executive summary](#)
Have 50 minutes? Read the full [Workgroup Consultation](#)
Have 100 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 to the issue raised.

This modification is expected to have a: High impact on Generators, Interconnector Owners, Restoration Contractors and National Energy System Operator. **Medium impact** on Network Operators.

Modification drivers: System Operability and System Security.

Governance route	Urgent modification to proceed under a timetable agreed by the Authority (with an Authority Decision).	
Who can I talk to about the change?	Proposer: Helen Newman Helen.Newman@neso.energy 07860 319 716	Code Administrator Chair: Claire Goult Claire.Goult@neso.energy 07938 737 807
How do I respond?	Send your response proforma to grid.code@neso.energy by 5pm on 29 August 2025	

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Executive Summary

Space weather, particularly during periods of high solar activity, can induce electrical currents in power grids potentially damaging infrastructure and leading to instability or supply shortfalls. To address these risks, National Energy System Operator (NESO) and industry parties are developing a 'Space Weather Industry Protocol' to guide operational decisions during severe space weather events, with plans for it to be shared from September 2025. This modification seeks to make changes to obligate Generators, Interconnector Owners and Restoration Contractors to notify NESO of their expected availability during severe space weather events.

What is the issue?

The Proposal covers the specific challenge around knowledge of Generator and Interconnector Owner availability and intentions to facilitate system operation by NESO in a severe space weather event.

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

Proposer's solution: Generators, Interconnector Owners and Restoration Contractors to be obligated to notify NESO and the market about their intended position during severe space weather events, after NESO issues a relevant notification.

Implementation date: 10 Business Days following an Authority Decision.

What is the impact if this change is made?

The purpose is to provide greater visibility for NESO of the operational status of key assets during a severe space weather event. This will support NESO in managing scenarios that have the potential to lead to a shortfall in electricity supply or instability of the GB Power System. Network Operators and Transmission Owners (through a separate STC change) may need to inform NESO via a 'Space Weather Outcome Statement' if their assets have experienced impacts as a result of space weather.

Interactions

Changes to the Balancing Mechanism Reporting Service (BMRS) or interactions with Grid Code modification [GC0164](#) may be needed. Consideration is also being given to whether the System Operator Transmission Owner Code (STC) should be amended due to the 'Space Weather Industry Protocol', rather than as a direct result of this (GC0183) Grid Code modification.

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What is the issue?

What is the defect the Proposer believes this modification will address?

Space weather refers to the environmental conditions in space. It can have a significant effect on the functionality of power grids because the rapid fluctuations in the Earth's magnetic field induce an electric field in the Earth's surface. This electric field then drives electrical currents to flow through conductive structures; these are known as geomagnetically induced currents (GICs). This can potentially lead to damage to some assets across the electricity system, depending on the asset design, location and geology.

The Sun experiences 11-year cycles of solar activity; the peak of this is called the solar maximum. The solar maximum of the current cycle was reached in 2025. During the solar maximum and the following 2-3 years, solar storms that lead to GICs are statistically more likely. Over the last 12 months, NESO and industry stakeholders have been working together in the space weather subgroup to better understand the effects on the GB electricity system and is currently drafting a 'Space Weather Industry Protocol' (SWIP).

The intention is that this will be shared with affected parties in September 2025 and will provide guidelines for operational decision making during an anticipated or actual severe space weather event. Following discussions around the protocol, a risk has recently been recognised that some Generators, Interconnector Owners and Restoration Contractors may potentially alter the operational status of their assets, depending on the notification and severity of a space weather event. For example, some assets may cease operations entirely whilst others might reduce output (Generation) or flow (Interconnector). If this occurs, it could potentially lead to a shortfall in supply or, in the worst case, system instability.

Why change?

The change is necessary to enable NESO and market participants to understand the intended positions of Generators, Interconnector Owners and Restoration Contractors during a severe space weather event. This will ensure NESO can effectively manage the system in real-time.

The Original Proposal form can be found in **Annex 01**.

Workgroup considerations

The Workgroup convened 3 times to discuss the issue as identified by the Proposer within the scope of the defect, develop potential solutions, and evaluate the proposal in relation to the Applicable Code Objectives.

Workgroup Discussion ahead of the Workgroup Consultation

Background, Risk and Mitigation Overview

The Proposer outlined the modification's background, including associated risks and mitigation strategies, and highlighted the following key points to Workgroup members:

- The Sun experiences 11-year cycles of solar activity; the peak of this is called the solar maximum. The solar maximum of the current cycle was reached in 2025.
- During the solar maximum and the following 2–3 years, solar storms that lead to GICs¹ are statistically more likely.
- GICs can potentially lead to damage to some assets across the electricity system, depending on location, geology and asset design.
- A 'Space Weather Industry Protocol' (SWIP) is currently being drafted by NESO and stakeholders.
- The SWIP Workgroup has recognised a risk that some Generators, Interconnector Owners and Restoration Contractors may potentially alter the operational status of some assets. For example, some assets may cease operations whilst others might reduce output or flow.
- This change in operational status could lead to a shortfall in electricity supply or instability of the GB electricity system.
- To mitigate this risk, NESO will need to understand the intended positions of Generators, Interconnector Owners and Restoration Contractors in the event of a severe space weather event to ensure the system can be effectively managed in real-time.

The Proposer explained that following initial discussions with industry at the SWIP Workgroup and the Grid Code Development Forum, two possible routes for the proposal were identified:

¹ Geomagnetically induced currents (GICs) are electrical currents induced at the Earth's surface by rapid changes in the geomagnetic field caused by space weather events.

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Physical Notification (PN)

Area of code: [BC1.4.2 (a) (2) Day Ahead Submissions]

Purpose: To obligate Generators, Interconnector Owners and Restoration Contractors to notify NESO of their position within X number of hours of a space weather Notification being received.



Outage Declaration

Area of code: TBC

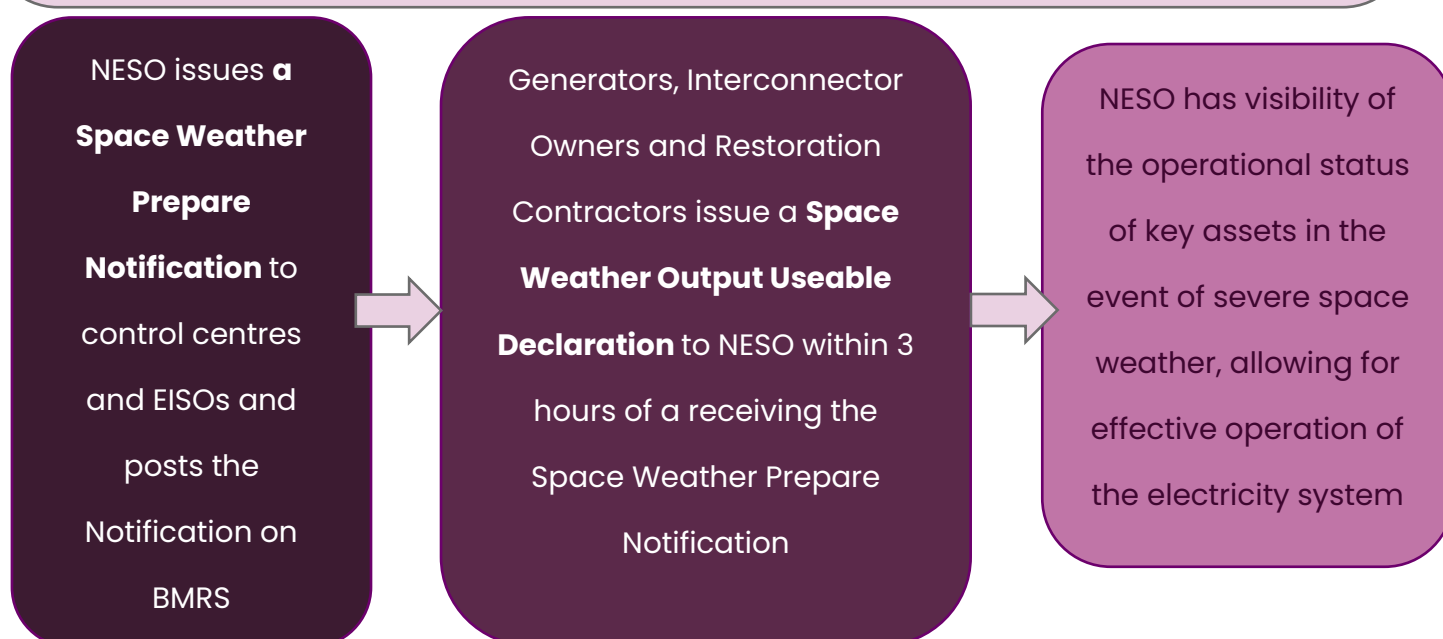
Purpose: In the event of a space weather Notification being issued by NESO, Generators and Interconnector Owners will issue an Outage Declaration to NESO setting out their anticipated availability during and after a severe space weather event.



The Proposer indicated to the Workgroup that neither of these two options would be taken forward as the following option is now considered to be more suitable, and the final proposal is based solely on this option.

Space Weather Output Useable Declaration

Make an amendment to the Grid Code to obligate Generators, Interconnector Owners and Restoration Contractors to issue a 'Space Weather Outage Declaration' to NESO (and advise the market, via their REMIT (Regulation for Energy Markets Integrity and Transparency) / information submissions), setting out their anticipated availability during and after a severe space weather event, following a space weather Notification being issued by NESO.



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Space weather Generator and Interconnector Briefing

A Workgroup member shared some insights with members regarding the subject matter. It was explained that space weather refers to the environmental conditions in space which are influenced by the Sun and solar wind. It includes phenomena such as solar flares, coronal mass ejections (CMEs) and geomagnetic storms. These events can disrupt satellites, power grids and more.

The following information was presented to the Workgroup: risk context, wider impacts, examples of impact, risk factors, solar cycles, typical timescales, and the importance of working closely with the Met Office. The full presentation can be found in **Annex 04**.

Space Weather Industry Protocol

A member of the Workgroup noted that the industry has collaborated closely with the Met Office over the past 15 years to enhance understanding of space weather and its impacts. This collaboration has recently included the development of the proposed 'Space Weather Industry Protocol' (SWIP) which led to the submission of GC0183. Another member enquired about the timeline for the implementation of the SWIP.

The Proposer stated that the SWIP is nearly complete and will be sent to members of the drafting group for review before a possible industry-wide release by September 2025. There will be two versions: one for parties with Critical National Infrastructure (CNI) and another, partially redacted for other industry stakeholders.

A member questioned whether development timescales, for the SWIP, would impact this modification or if the SWIP is entirely independent. Another member clarified that GC0183 is not dependent on the SWIP and that GC0183 does not overlap with it, though both are intended to be aligned in terms of notification wording to maintain consistency. GC0183 is primarily to provide information to NESO to understand the intended position of Generators, Interconnector Owners and Restoration Contractors in the event of a severe space weather event, in particular to understand if there will be any impact on their availability. In terms of the proposed 'Outcome Statements', if a User experienced anything to do with space weather, then it is ensuring that information where appropriate can be more widely disseminated, such as to the Met Office. The questioner agreed this was a useful clarification.

Met Office Scale Specific to GICs

A Workgroup observer noted that this modification appears to be specific to the impact of GICs and does not appear to consider the impact of space weather on communication systems or Global Positioning Satellites (GPS) utilised for timing, both of which may directly or indirectly influence Generator operations. For instance, certain

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wind farms rely on satellite communications for specific aspects of their communication and control systems. The observer raised the question of whether BMRS notifications to Users would be appropriate in cases involving significant non-GIC space weather events.

The NESO Grid Code Subject Matter Expert (SME) confirmed this topic had been discussed as part of the urgent criteria at the Special Grid Code Review Panel on 17 July 2025. It was concluded GC0183 is about reporting, which contributed to the decision to support urgency.

Another member agreed with the observer's view that there are many things affected by space weather but the context here is about known impacts on the electricity system as opposed to impacts on communication systems, which may or may not be used by parties. It is not for BMRS to be broadcasting threats or impacts of space weather. The Met Office is focused on advising NESO on G4/G5 events and these events will be notified to industry parties through the BMRS system or other communication routes as appropriate. There are also a number of space weather situations which happen so quickly that there is not enough time to put information out via BMRS. The approach of GC0183 is not to cover every single space weather phenomena that could happen but focusing on those that could impact on electrical assets as opposed to potentially wider impacts on communications.

Draft Legal Text Discussion

Glossary and Definitions

'Space Weather Advisory'

A Workgroup member requested clarification on who the stakeholders might be in terms of 'Space Weather Advisory' information, as they had noticed statements in the legal text are being issued directly to Control Centres and Externally Interconnected System Operators (EISOs). This would be Network Operators and Users but not necessarily Generators as Generators use Control Points rather than Control Centres. It was clarified that the original intention was for stakeholders to obtain information through BMRS. However, following discussion, it was recognised that network control centres (as non market participants) do not regularly monitor the BMRS. Therefore, for effective network control and to ensure Interconnector Owner awareness, alternative communication measures may be necessary. Not all Control Centres (eg Network Operator Control Centres) are required to take action; only the Generators, Interconnector Owners and Restoration Contractors are required to respond with respect to the notification, though it is worth noting that under the Grid Code, Generating Plant is controlled from a "Control Point" rather than a Control Centre.

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In respect of the proposed 'Space Weather Advisory' Grid Code definition it was noted that the intention was for NESO to inform stakeholders; such as Generators, Interconnector Owners and Network Operators; of relevant information without it being in the form of a 'Notification' (requiring specific action(s) from certain parties).

A member pointed out that 'Control Centre' is not the right term, as it refers to a location and is not capable of issuing statements; 'Network Operator' may be more suitable. They also noted that the modification title mentions Generators and Interconnector Owners, but the requirements now affect Control Centres and possibly other Users, broadening the stakeholder group. Another member agreed and suggested using the term 'Network Operator' instead of 'Control Centre'. The NESO Grid Code SME felt the term User may be a simple way of capturing all stakeholders.

After this discussion, the member queried whether Transmission Owners (TOs) would be affected. If so, there may be a need to consider an STC modification to also apply to TOs noting obligations cannot be placed on TOs as part of the Grid Code. The Proposer replied that this is still under consideration and there is no definitive answer yet, but a consequential STC modification may be needed if TOs are included. That said, if this is the case, it is suggested any changes to the STC are applied as a consequence of the Grid Code changes and the Grid Code takes the lead in defining the requirements necessary.

It was suggested in the second drafting of the legal text that the term EISO should be removed from the definition. The NESO Grid Code SME agreed with this assessment stating EISOs would be covered by the Control Point definition and hence would directly monitor the BMRS. One member pointed out that there is no mention of Control Point in the 'Space Weather Advisory' definition. The SME clarified that the Control Point definition in the Grid Code includes EISOs with a Control Centre and confirmed the wording is correct and agreed to remove EISO from the definition.

'Space Weather Awareness Notification'

A member asked why the anticipated levels in this definition were set between G2 and G4, with G5² excluded. It was clarified that the approach is to avoid unnecessary advance awareness of anticipated low level (no/minor significance) events and instead issue an actual notification, to wider stakeholders, to prepare in the event of a G5 (high significance) situation. The Met Office monitors these space weather conditions and will provide information to NESO and other relevant parties. If a G5 event is anticipated, the

² Met Office Space weather scale for geomagnetic storms – G1 to G5

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Met Office will notify NESO to move to the 'prepare' or 'possible stage' depending on how much notice has been given.

A NESO Grid Code SME raised concerns about using G2 to G5 terminology due to possible confusion with existing Grid Code terms, for example, Engineering Recommendation G5 which is used in the Grid Code as a defined term in respect of harmonic assessment which is a very different subject when compared to space weather. A member clarified these rankings were not being defined, and that G2 to G4 were bracketed to show no relation to current Grid Code definitions. The SME suggested explicitly defining terms (e.g. Met Office G2, Met Office G3 etc), while the member proposed adding a clarifying sentence stating these do not relate to anything currently defined in the Grid Code.

A discussion was held regarding the use of email for awareness notifications, while other notifications are distributed via BMRS. It was clarified that this approach provides NESO with flexibility to alert specific organisations through awareness notifications, whereas the broader community receives notifications only for events that significantly affect them. The Proposer noted that the emergency planning team would send the awareness emails for informational purposes. These notifications do not initiate any required actions, which accounts for the procedural differences.

The NESO Grid Code SME asked the Workgroup whether definitions should mention the Met Office or just refer to notifications from The Company about space weather. The Proposer clarified that The Company, not being a space weather expert, will follow Met Office advice and rankings, rather than the Grid Code. This reliance on the Met Office is reflected in the definitions.

'Space Weather Output Usable Declaration'

A Workgroup member questioned the wording of this definition and if there was rationale behind an outage always being classified as a 'planned outage' versus it being a force majeure or an emergency event. The NESO Grid Code SME explained that an unplanned outage typically refers to a fault occurring without prior warning, however, in this case, prior notice was provided. A member raised a concern that, as an Interconnector Owner, they could be required to cease operations if connected substations choose to shut down their assets for infrastructure protection, thus the Interconnector outage would not be planned as it is outside of their control. The Proposer clarified that GC0183 focuses on notifying parties of intended plans. If a TO substation providing power to the Interconnector Owner decides to disconnect, this does not alter the intention of the Interconnector Owner. This scenario is not within the scope of

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GC0183, as it may occur as part of normal business operations such as a planned or unplanned outage.

A participant raised a question regarding the use of 'Interconnector' instead of 'Interconnector Owner' in the legal text definitions, highlighting that 'Interconnector' refers to equipment, whereas 'Generator' denotes an individual or entity. The NESO Grid Code SME concurred that 'Interconnector Owner' would be more appropriate and committed to reviewing the terminology within the definitions. Additionally, a member emphasised the importance of maintaining consistent terminology across all definitions and in OC2.

It was noted by the Workgroup that where a 'Space Weather Cessation Notification' is issued then this affords relevant stakeholders the opportunity, if they wish, to update/amend/change (as they see fit) the information they have previously provided to NESO in any previously submitted 'Space Weather Output Usable Declaration' (and do so within 3 hours of the cessation notification being issued).

'Space Weather Prepare Notification'

A member asked for a timeline of notifications, specifically questioning if any are issued between 12 hours and 20 minutes in advance. The Proposer clarified that the definition of 'Space Weather Advisory' covers this period but does not require notification or action; it simply allows NESO to share information as needed. Only notifications trigger action. The Proposer provided flow diagrams to help understand the notification timelines. These can be found in **Annex 06**.

Operating Code 2 (OC2)

The NESO Grid Code SME questioned whether 'TSO' (Transmission System Operator) in OC2.5.1 was appropriate terminology, noting it's not defined in the Grid Code. It was clarified that the intention, of the proposed wording, was to allow for the possibility that the Externally Interconnected System Operator (EISO) may notify relevant parties including neighbouring TSOs and market participants at their discretion but is not obliged to do so. One NESO Grid Code SME wondered if this detail was necessary. Another NESO Grid Code SME noted that this arose from discussions about sharing information with European colleagues when Interconnectors are about to become unavailable.

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A member raised concerns about possible conflicts with safety requirements and output declarations under OC2.5.1 b) and OC2.5.2 b), asking whether leniency would apply if compliance posed risks. The group discussed clarifying the wording to allow exceptions for safety risks, with immediate notification required. It was agreed that the purpose is to keep NESO informed for planning and provisions should be considered to accommodate such scenarios. The Proposer agreed to consider the possible wording.

Considering OC2.5.2, one member raised a concern that when a possible notification has been issued it may only be 20 to 60 minutes before a space weather event occurs and questioned if it was feasible for a Generator to respond in this timeframe. The Proposer explained the intention of the wording in the draft is 'without undue delay' and it is recognised that there will not always be time for everyone to respond. The Proposer confirmed if you have acted expeditiously then you have done it 'without undue delay', even though that may be 65 to 70 minutes.

Referring to OC2.5.4, a member questioned using 'User' and 'neighbouring assets,' noting that TOs aren't Users and that this issue was raised before in the Glossary and Definitions section. The member believes the intent is unclear and requires clarification.

Operating Code 7 (OC7)

The NESO Grid Code SME questioned whether it would be more appropriate to include the space weather notifications in OC2 or BC1, commenting that there are a lot of similarities between the approach in BC1.5.4 (Reserve and System Margin) and the proposals for GC0183, especially the references back to OC7. They noted that OC2 covers outages in planning timescales, whereas BC1 covers issues in the pre-gate closure period. The SME noted that the space weather notification work covers the period towards the end of OC2 timescales but also transitions over into BC1 timescales so the issue is not clear cut. The SME also stated that changes to BC1 would have EBR implications and would require at least a one-month Code Administrator Consultation period.

Workgroup Consultation question 7: Do you believe that the proposed legal drafting currently developed for OC2 is best included in OC2 or should it be in BC1 bearing in mind the space weather timescales involved?

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Terms of Reference (ToR)

ToR 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; and

Regarding ToR c), a member asked whether the Workgroup consisted of any Interconnector representatives; another member confirmed they represented an Interconnector Owner.

ToR f) Identify interactions with other Industry related processes dealing with the issue and consider ways in which information should be incorporated. Where relevant suggest ways in which these might be taken forward.

Members requested the Grid Code Review Panel clarify what is meant by the term 'issue' and would like to add further wording to indicate the issue is referring to Space Weather. This is scheduled to be taken to the Grid Code Review Panel on 21 August 2025

ToR g) Consider interaction with other obligations on stakeholders e.g. obligations relating to reporting of events under OC7.

A Workgroup member noted that reporting obligations by Network Operators to NESO are considered Business as Usual (BAU). The intention, for reporting events, is to distinguish these from non-BAU events using the proposed 'Space Weather Outcome Statement', which serves to alert NESO to incidents outside typical operations (and to share these space weather reports with the Met Office, Ofgem and DESNZ). If an event is later found to be unrelated to space weather or initially thought to be BAU, this mechanism still allows stakeholders to flag exceptions. The aim is to ensure specific space weather related events aren't overlooked in routine BAU notifications (from Network Operators to NESO) and are properly brought to DESNZ, Ofgem the Met Office, or NESO's attention.

Terms of Reference can be found in **Annex 02**.

Interactions

Interactions with the STC were previously noted on page 9 in the draft Legal Text discussion.

Workgroup consultation question 8: Do you believe it is appropriate to have a consequential modification in the STC to ensure TOs declare their asset capability during a space weather event in similar way to Network Operators?

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The Workgroup also discussed interactions with the Balancing and Settlement Code (BSC). A member explained that while the BSC governance process includes modifications and a change proposal process, the current understanding is that neither appears necessary for the BMRS reporting (of the proposed space weather notifications to be introduced by GC0183). This is because the required space weather related notification actions could be handled through the existing Electricity National Control Centre's (ENCC) BMRS update process. The Proposer noted ongoing discussions with Exelon, who currently agree with this assessment.

Workgroup consultation question 9: As currently drafted, there is no change to BCI, however, do you believe the changes as proposed in OC2 would have an impact on EBR Article 18 terms and conditions?

The GC0183 Workgroup recognised that there is likely to be an interaction between Grid Code modification G0183 and Grid Code modification GC0164 (Simplification of Operating OC2). It was recognised that as GC0183 had been granted urgency, it was likely to precede Grid Code Modification GC0164 in terms of timelines. In view of this, it was felt that GC0164 would need to take the GC0183 changes into account whilst also recognising that GC0164 changes the format and structure of OC2 quite substantially (compared to the draft legal text that GC0183 is modelled around). It was therefore felt that the GC0164 Workgroup would be in a better place to reflect the space weather changes (that would arise if GC0183 is approved) noting their experience in restructuring OC2.

Implementation

A member observed that, despite the urgency of this modification and expectations that such changes would typically be implemented within days, a 10 Business Day implementation period is necessary. This timeframe will enable obligated parties to adequately adjust their internal processes to comply with the requirements outlined in the proposal. Additionally, the NESO Grid Code SME indicated that ongoing internal investigations into IT systems may prompt further changes as a result of this modification.

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What is the solution?

Proposer's Original solution

Make an amendment to the Grid Code to obligate Generators, Interconnector Owners and Restoration Contractors to issue a 'Space Weather Outage Declaration' to NESO (and advise the market, via their Regulation for Energy Markets Integrity and Transparency (REMIT)/information submissions), setting out their anticipated availability during and after a severe space weather event, following a space weather notification being issued by NESO and posted on the BMRS.

What is in and out of scope?

The Proposal covers the specific challenge around knowledge of Generator and Interconnector Owner availability and intentions in order to facilitate system operation in a severe space weather event.

Any anticipated impacts (or any associated risks) of severe space weather on the wider energy system are out of scope of this modification.

Industry engagement and feedback

NESO have been engaging with industry over the last 12 months via the space weather subgroup and more recently via the 'Space Weather Industry Protocol' Workgroup on examining issues associated with space weather.

It was through discussions in this Workgroup that the risk to system stability was identified. This proposed Grid Code modification has been discussed in the SWIP Workgroup and received the full support of stakeholders including EDF, SSE Generation, National Grid Ventures, National Grid Electricity Distribution, Electricity Networks Association, Northern PowerGrid, NESO and DESNZ.

An outline of this proposal was presented to the July Grid Code Development Forum to gain stakeholder feedback.

In addition, NESO has provided space weather awareness updates to the Operational Transparency Forum, the latest of which was on 25 June 2025 ([PowerPoint Presentation slides 13-25](#)).

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Draft legal text

Amendments have currently been proposed to the following sections of the Grid Code:

- Glossary and Definitions
- Operating Code 2 (OC2)
- Operating Code 7 (OC7)

The draft legal text for this change can be found in **Annex 05**.

What is the impact of this change?

The proposal will obligate Generators, Interconnector Owners and Restoration Contractors³ to issue a ‘Space Weather Output Usable Declaration’ to NESO (and advise the market, via their REMIT / information submissions), setting out their anticipated availability during and after a severe space weather event, following a space weather Notification being issued by NESO. It is aimed at providing greater visibility for NESO of the operational status of key assets in the event of a severe space weather event. This will support NESO in managing scenarios that have the potential to lead to a shortfall in electricity supply or instability of the GB electricity system.

Network Operators⁴ may need to inform NESO via a ‘Space Weather Outcome Statement’ if their assets have experienced impacts as a result of space weather.

Original Proposer’s assessment against Code Objectives

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 The timely provision of critical operational information related to a space weather event will enable NESO to operate

³ TOs are not included because there are already established procedures for this process.

⁴ This may also extend to Transmission Owners if an STC change is raised in due course.

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	the system if this situation arises.
(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);	Positive Both NESO and market participants will be informed, in a timely manner, of the potential market situation if a space weather possible notification is issued.
(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;	Positive The modification aims to ensure that NESO, for potentially critical operational reasons, has timely visibility of the intended positions of Generators, Interconnector Owners and Restoration Contractors during a severe space weather event.
(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	Neutral
(v) To promote efficiency in the implementation and administration of the Grid Code arrangements	Neutral

* See *Electricity System Operator Licence*

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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	Positive It is aimed at providing greater visibility for NESO of the operational status of key assets in the event of a severe space weather event. This will support NESO in managing scenarios that have the potential to lead to a shortfall in electricity supply or instability of the GB electricity system.
Lower bills than would otherwise be the case	Neutral
Benefits for society as a whole	Neutral
Reduced environmental damage	Neutral
Improved quality of service	Neutral

When will this change take place?

Implementation date

10 Business Days following an Authority Decision. This period allows for internal process preparation and gives Users time to prepare and meet their obligations.

We are currently entering the most active period of solar activity in the 11-year cycle. This could last for 2–3 years, therefore, implementing this modification as soon as possible will reduce the risk to the GB energy system.

In addition, the intention is that the SWIP will be issued to relevant stakeholders in mid-late September. The Grid Code modification will sit alongside this protocol. By aligning the implementation of the Grid Code modification with the protocol 'go live' date this will provide greater clarity and certainty for relevant stakeholders and NESO.

Date decision required by

As soon as possible to mitigate the risk to security of supply.

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Implementation approach

Processes will need to be developed by NESO to assess the data submitted by Generators, Interconnector Owners and Restoration Contractors and for NESO to then provide the industry with updates. NESO will also need to make sure software systems are updated to reflect the proposed change.

Processes will also need to be developed to define how Generators, Interconnector Owners and Restoration Contractors will submit the required data to NESO.

Interactions

<input type="checkbox"/> CUSC	<input checked="" type="checkbox"/> BSC	<input type="checkbox"/> STC	<input type="checkbox"/> SQSS
<input type="checkbox"/> European Network Codes	<input type="checkbox"/> EBR Article 18 T&Cs ¹	<input checked="" type="checkbox"/> Other modifications	<input type="checkbox"/> Other

There may need to be changes to the BMRS processes due to space weather Notifications being published on the BMRS and additionally, there may be an interaction with Grid Code modification GC0164.

We are also considering whether an amendment to the STC will be required. However, this would be as a result of the 'Space Weather Industry Protocol' being issued rather than a consequence of this modification to the Grid Code.

How to respond

Standard Workgroup Consultation questions

1. Do you believe that the Original Proposal better facilitates the Applicable Objectives versus the current baseline?
2. Do you support the proposed implementation approach?
3. Do you have any other comments?
4. Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?
5. Does the draft legal text satisfy the intent of the modification?

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6. Do you agree with the Workgroup's assessment that the modification does not impact the European Electricity Balancing Regulation (EBR) Article 18 terms and conditions held within the Code?

Specific Workgroup Consultation questions

7. Do you believe that the proposed legal drafting currently developed for OC2 is best included in OC2 or should it be in BC1 bearing in mind the space weather timescales involved?
8. Do you believe it is appropriate to have a consequential modification in the STC to ensure TOs declare their asset capability during a space weather event in a similar way to Network Operators?
9. As currently drafted, there is no change to BC1, however, do you believe the changes as proposed in OC2 would have an impact on EBR Article 18 terms and conditions?

The Workgroup is seeking the views of Grid Code 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 grid.code@neso.energy using the response pro-forma which can be found on the [GC0183 modification page](#).

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.

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.

Public

Acronyms, key terms and reference material

Acronym / key term	Meaning
BAU	Business As Usual
BSC	Balancing and Settlement Code
BMRS	Balancing Mechanism Reporting Service
CNI	Critical National Infrastructure
CUSC	Connection and Use of System Code
CMEs	Coronal Mass Ejections
DESNZ	Department for Energy Security and Net Zero
DNOs	Distribution Network Operators
EBR	Electricity Balancing Regulation
EISO	Externally Interconnected System Operator
ENCC	Electricity National Control Centre
GB	Great Britain
GC	Grid Code
GICs	Geomagnetically Induced Currents
GPS	Global Positioning Satellite
NESO	National Energy System Operator
NETS	National Electricity Transmission System
OC2	Operating Code 2
OC7	Operating Code 7
REMIT	Regulation for Energy Markets Integrity and Transparency
SME	Subject Matter Expert
SQSS	Security and Quality of Supply Standards

Public

STC	System Operator Transmission Owner Code
SWIP	Space Weather Industry Protocol
ToR	Terms of Reference
TOs	Transmission Owners
T&Cs	Terms and Conditions

Annexes

Annex	Information
Annex 01	GC0183 Proposal Form
Annex 02	GC0183 Terms of Reference
Annex 03	GC0183 Urgency Letter
Annex 04	GC0183 Space Weather Generator and Interconnector Briefing
Annex 05	GC0183 Draft Legal Text
Annex 06	GC0183 Notification Process Flows