

Public

Meeting Summary

Grid Code Development Forum – 02 July 2025

Date:	02/07/2025	Location:	MS Teams
Start:	09:00	End:	11:00

Participants

Attendee	Company	Attendee	Company
Claire Newton	NESO (Chair)	Mike Kay	P2Analysis
Antony Johnson	NESO(Presenter)	Lisa Waters	Waters Wye Associates
Frank Kasibante	NESO (Tech Sec)	Martin Aten	Uniper
Lizzie Timmins	Code Administrator (Presenter)	Chanura Wijeratne	Res Group
Tanmay Kadam	NESO (Presenter)	Catia Gomes	Code Administrator
Hao Guo	NESO (Presenter)	Helen Newman	NESO (Presenter)
Garth Graham	SSE Generation (Presenter)	Jill Wells	NESO (Presenter)
Philippa Banks	NESO (Presenter)	Steve Baker	NESO (Presenter)
John Fradley	NESO (Presenter)	Victor Mtembo	NESO
Jayaraman Ramachandran	NESO	Paul Youngman	Drax
Stuart McLarnon	NESO	Alan Creighton	Northern Powergrid
Eibhlin Norquoy	Community Energy	Nicola Barberis Negra	Orsted
Bukky Daniel	EDF Renewables	James Macauley	Ofgem

Public

Andrew Hemus	NESO	Ross Strachan	EDF Renewables
Harry Burns	EDF Renewables	Lewis Feldon	PSC Consulting
Julie Richmond	Scottish Power	Thomas Pownall	NESO
Kahraman Yumak	PSC Consulting	David Monkhouse	National Grid
Chibuike Ilomuanya	SSE	Rajiv Jha	NESO
Chris Harland	NAES	Rebecca Coan	NESO
Garry Cotter	Orsted	Nina Harrington	NGED
Andrew Larkins	Sygensys	Thomas West	NGED
Jamie Morgan-Wormald	NESO	Pritesh Patel	NESO
Tim Ellingham	RWE	Derryl Miranda	NatPower (UK)
Mohit Prajapati	EDF Renewables	Ruth Kemsley	Our Footprints
Graeme Vincent	SPEN	Devansh Gautam	PSC Consulting
Craig Scott	NAES	Elena Fry	NESO
Frank Martin	European Energy	Dan Nathan	N/A

Agenda and slides

A link to the Agenda and Presentations from the July GCDF can be found [here](#).

GCDF

Please note: These notes are produced as an accompaniment to the forum recording and slide pack presented and provide highlights only of discussion themes and possible next steps.

Meeting Opening – Claire Newton (Chair) & Frank Kasibante (GCDF Tech Sec), NESO

The meeting was opened with an overview of the agenda items that would be covered, noting that two of the items were requested after the original agenda was published. The chair noted the number of items on the agenda, and that we may need to move on in the interests of getting through all the items in the time.

Public

Presentation: New Industry Protocol for Space Weather – Helen Newman (NESO)/Garth Graham (SSE Generation)

The presenters outlined ongoing work with the space weather industry protocol, highlighting the potential risks of geomagnetically induced currents (GICs) on the electricity system and the need for a Grid Code modification to manage these risks.

They explained that space weather refers to environmental conditions in space that can affect some grid connected assets by causing rapid fluctuations in the Earth's magnetic field, leading to geomagnetically induced currents (GICs). They noted that the sun experiences 11-year solar cycles, with the current cycle's solar maximum reached in 2025, increasing the likelihood of solar storms and GICs.

Over the past 12 months, NESO and Industry stakeholders have worked together to understand the effects of space weather on the GB electricity system, leading to the drafting of the Space Weather Industry Protocol (SWIP).

The SWIP, hoped to be shared in September 2025, will provide guidelines for operational decision-making during severe space weather events, aiming to mitigate risks such as Generator and Interconnector behaviour changes.

Two possible routes for a Grid code Modification were proposed, namely;

- a) Physical Notifications (PNs) – requiring generators and interconnectors to notify NESO of their positions within hours of a space weather notification.
- b) Outage Declarations – to inform NESO of anticipated availability during and after space weather events.

Both are aimed at obliging Generators and Interconnectors to notify NESO of their positions during severe space weather events.

The presenters noted that the proposal had received support from stakeholders, including EDF, SSE Generation, National Grid Ventures, DESNZ, the ENA and NESO, indicating a strong consensus on the need for these modifications.

Public

They outlined the timeline noting that they expected for the modification to be raised as soon as possible, adding that an ad-hoc Grid Code Review Panel meeting would be requested for the week commencing 14 July 2025, and would seek approval by late August 2025.

Discussion themes / Feedback

Participants provided feedback and it included raising concerns about the rationale behind Generator positions, the timeline for the modification, and the need for public notifications.

One stakeholder questioned why Generators would change positions due to space weather, asking for historical context and clarification on the rationale behind such actions.

A second stakeholder noted that the makeup of electricity network and generation has changed quite a lot since this issue was last discussed. They wondered if the protocol would be released alongside modification as the release of the protocol would greatly help the modification.

A third stakeholder queried whether this work was taking place under the E3C (Energy Emergency Executive Committee).

A fourth one stressed the need for public notifications to ensure all impacted Generators, including Small Embedded Power Stations were made aware of space weather events and could take appropriate actions. They advised against making assumptions about who might be impacted, adding that all stakeholders should be notified probably via BMRS and warned that if PNs were used, data couldn't be sent in case of an EDT outage.

Another stakeholder raised concerns about the timeline for the modification, questioning the feasibility of completing the necessary analysis and work within the proposed timeframe.

The presenters welcomed the feedback and noted that;

1. Events of May 2024 (geomagnetic induced situation) brought about the realisation that effects of space weather depend on the geology of individual assets, location, design. It is possible that, having received a first warning 12–36 hours ahead, some Generators may wish to consider changing position upon receipt of the 2nd notification 20–60 mins ahead. They may wish to make assets unavailable to protect them. They need to inform the market (REMIT).
 2. The protocol was still in draft form. The essence of the protocol is what stakeholders would be doing and would be standalone document, not Grid Code related. The Grid Code modification wouldn't be applicable to all (potentially just large BMUs). The intent is that the protocol would be available at the same time as the modification was implemented.
 3. The intention was about information exchange between Generators and NESO and this would include making the notifications available via BMRS. It is not envisaged that analysis is required for the modification.
 4. There has been some involvement of the E3C. The informal working group that have been developing the proposal has included the DNO community, via the ENA.
-

Public

Presentation: Code Administrator Update – Lizzie Timmins, Code Administrator

The Code Administrator representative provided an update on new modifications, implementations, and consultations. Details can be found using the links below.

1. Code Administrator Consultations –
[GC0174: Review of obligations to provide EU Transparency Availability Data as specified in OC2.4.7](#) closes on 28 July 2025.
2. Implementations –
[GC0180: Corrections to the Grid Code following implementation of GC0175](#) was implemented on 11 June 2025.
3. Other – The Election Report for the [2025 Grid Code Review Panel Generator Election](#) has now been published.

Discussion themes / Feedback

Stakeholders provided no feedback on this item.

Presentation: Power Park Module (PPM) Reactive Power Provision Below Rated MW Output – John Fradley, NESO

A NESO representative shared a potential modification to the Grid Code regarding reactive power requirements for power park modules (PPMs) and HVDC systems, aiming to utilize modern plant capabilities more efficiently.

The presenter highlighted the challenges posed by the transition to an Inverter Based Resources (IBR) dominated network, including reduced synchronous generation and increased embedded generation, leading to potential voltage management issues.

The presenter explained the current Grid Code requirements for reactive power provision by PPMs and HVDC systems, noting limitations below rated power and the need for updates to reflect modern capabilities.

He proposed increasing the minimum requirements for reactive power provision below rated power, allowing operators to access additional reactive power capabilities and utilize assets more efficiently.

He also clarified that the proposed changes would be forward-looking, applying to future connections of PPMs and HVDC systems, without retrospective application to existing Plants.

Discussion themes / Feedback

Stakeholders provided feedback on the proposed modification, discussing the current capabilities of Generators, the impact on existing Plants, and the need for alignment with other Grid Code modifications. They:

Public

1. Questioned why NESO considered this to be a problem, noting that Generators can already declare their capabilities in their performance charts and mandatory services agreements.
2. Highlighted the challenges faced by wind farms with longer cables and lower megawatt export, which can impact their ability to provide reactive power at lower megawatts.
3. Emphasised the importance of aligning the proposed changes with RfG 2.0 to ensure harmonisation with European standards and avoid inconsistencies.
4. Raised concerns about the impact on existing Plants, questioning whether they would be aware of the issue and the potential costs of rectifying it.
5. Thought it was a good idea to make better use of reactive capability of Generators. They queried whether NESO is already making full use of the declared reactive capability.
6. Advised that it was important to check windfarms regarding the PQ curve for BESS systems.
7. Suggested that it would be worth thinking about extending to small and medium embedded Gen (Type C and D) since RfG 2.0 has changed in this area.
8. Advised that NESO should consider potential impacts on stakeholders who are procuring equipment now for items in 3–4 years' time and to keep industry informed on what will change.
9. Noted that it would be useful to consider alignment with other Grid Code modifications, e.g., GC0178 on Transient Over Voltage.
10. Noted an error in the title (it indicated just PPM but seems to impact HVDC). NESO was advised to ensure that the title was representative.

The NESO representative welcomed all the feedback and committed to consider it in its entirety.

Presentation: GC0166 Implementation preparation – Philippa Banks/Steve Baker, NESO

NESO presenters shared a brief background of Grid Code modification GC0166. They invited Industry participants to express interest in proof-of-concept testing for the new dynamic parameters introduced by GC0166, aimed at improving the economic dispatch of Electricity Storage Modules. They are seeking representative samples of different types of BM units within the limited duration asset criteria.

Participants would be asked to collect live data for an agreed 48-hour period and send it to NESO in a batch; this would be the GC0166 parameters plus other parameters. They would be used to test the optimizer and understand behaviour in balancing and scheduling time scales.

[Discussion themes / Feedback](#)

Public

A stakeholder suggested that they would like to push back on Ofgem's timeline to make a decision by October 2025, adding that it was 'extremely disappointing that it was taking so long'.

The presenters clarified that October was anticipated to be the worst-case scenario.

Presentation: Standardisation of Power Flow Metering Polarity when Sending Data to NESO – Pritesh Patel/Hao Guo, NESO

A follow-up presentation was given to provide further evidence and justification for introducing a unified metering polarity standard, following an earlier presentation given to GCDF in Q4 of 2024 and related feedback from industry stakeholders. The impact of incorrect polarity on system security and balancing costs, and the criticality of the issue was highlighted, as further evidence on this had been requested by industry stakeholders during the previous GCDF discussion.

The presenter explained that;

1. NESO has identified over 800 meters with incorrect polarity, accounting for approximately 3% of all metres, adding that incorrect polarity can significantly distort state estimation and impact system security.
2. There could be potential costs resulting from incorrect polarity, including underestimating and/or overestimating system response requirements, which could lead to insufficient reserve levels or unnecessary balancing costs.

The presenter proposed a unified polarity standard in the form of a diagram, which will be published as an Electrical Standard within the Grid Code. Such standard will be applicable to new connections initially, whilst legacy issues will be revisited later. The standard will be implemented in two stages:

1. Initially for new connections, and
2. Later revisiting and correcting the legacy issues, with the timeline and details yet to be agreed.

Discussion themes / Feedback

Stakeholders requested NESO to ensure the alignment with TO conventions, the impact on DNO-connected Generators, and the need for clarity in the drafting.

They also;

1. Sought to confirm whether NESO was having to spend £100m / yr and/or whether the issue posed a threat to system security.

Public

2. Queried whether the proposed standard will be applicable to distribution connected Generators. It will be important to clarify in the Grid Code if the standard will only be applicable to BMUs or embedded generation as well.
3. Queried whether the owners of the meters with incorrect polarity were aware and how stakeholders would know if they had this issue.
4. Noted that they did not think there was a risk this would be inadvertently applied to Distributed Generation (link to point 2 above).
5. Warned that polarity of reactive power is more confusing and would strongly recommend including reactive power when writing the standard.
6. Queried whether the proposed standard refers to revenue meters or operational metering and whether the proposed solutions would include putting minus sign in NESO systems.
7. Added that it was important to bear in mind certain BMUs are aggregated units.

The NESO representatives responded that;

1. The £100m estimated cost was based on previous experience by NESO and certain assumptions. It is difficult to quantify the actual cost.
2. The proposed standard will be applied to metering data sent to NESO regardless of who owns the meter and where the meter is located. NESO has no ways of examining / commenting on meters not sending data to NESO.
3. Stakeholders are made aware when NESO identifies incorrect polarity during ongoing operation. Stakeholders usually acknowledge the issue, but it could take a while for them to resolve the issue and incorrect meter polarity seemed a low priority for them. It costs the stakeholder to make the change and since they are not obliged to change, they may be reluctant to.
4. Reactive power has been considered as part of the solution development work, and the proposed standard involves polarity for both active and reactive power.
5. The focus is on operational metering. Putting a minus sign on NESO's end could pose difficulties for ongoing management, especially when stakeholders change the hardware configuration or make software updates on their end. It would become difficult to know where the changes came from. Therefore, it will be necessary to ensure the end-to-end setup is correct from the beginning. NESO is using work arounds to temporarily fix the legacy issues but in the long-term, there will be a need to fix the legacy issues, which will form the second phase of this work. When making local site or database changes remotely, any changes made here tend to revert back to the original state.

Presentation: Guidance Note for Co-located Sites

A presentation was shared regarding the publication of Revision Three (3) of the Guidance Notes for co-located sites, which includes new sections on modelling requirements and

Public

classification of BM units, as previously presented and discussed at GCDF. The major section changed was modelling requirements for co-located connections (page 12).

Discussion themes / Feedback

Stakeholders welcomed the update.

Presentation: EDT (Electronic Data Transfer) and EDL (Electronic Dispatch and Logging) Outage Discussion

NESO representatives provided an overview of the Grid Code requirements regarding EDT and EDL. They noted the disruption to EDT / EDL on Tuesday 24 June 2025 adding that a number of participants experienced disruption. They explained the Grid Code requirements for data communication facilities and invited feedback on the event to improve future resilience.

Discussion themes / Feedback

Stakeholder Feedback on EDT and EDL outages emphasised the need for a comprehensive review of the process and Grid Code and the involvement of the entire Industry, including Elexon, to address the issues highlighted by the outage.

Stakeholders noted;

1. That they were not expecting a full solution nor expecting to get a report from NESO at Operational Transparency Forum (OTF).
2. That this has highlighted to everyone the limitations of the current backup rules and lack of backup systems causing to NESO and parties a 'nightmare scenario'. An example was given of wind wanting to change position (PN) using CCGT, but both being unable to in this scenario.
3. That NESO can pick up the phone and provide Bid Offer Acceptances (BOAs) to parties, based on PNs.
4. That NESO could set up a special Grid Code group to walk through and review the rules about default data and communications, - to develop a code modification that is better reflective of current times.
5. They found some other parts of the Grid Code which seem to suggest other communications.
6. That the issue was much wider than just incorrect data issue but had an impact on the inability of parties to cover positions.
7. That they were supportive of an Issues Group rather than straight to code modification.
8. That consideration should be given to this issue falling under the auspices of the SQSS since it relates to resilience and emergency response.

Public

9. That Elexon should be included in any review of this process, since it had impacts on settlement (e.g., Generators that couldn't cover positions and picked up big imbalance costs when it was not their fault).
10. That there was need to review the Grid Code to identify issues for stakeholders to go through.

The NESO representatives advised that there was need to get to the bottom of the issue first but also committed to providing further updates on the event at future OTF meetings (later confirmed as 9th July).

AOB

There were issues for non-NESO participants using the chat facility on the Teams meeting. Stakeholders also gave feedback on an e-mailed link to the GCDF meeting invitation, rather than the current approach of downloading the meeting invites from the GCDF webpage. NESO will take this away to consider.

The Chair thanked the attendees and presenters for their contributions and closed the meeting.

The next GCDF will be held on the **06 August 2025** with the **25 July 2025 being the deadline for agenda items and presentations**.

Post Meeting Note

For further information regarding the Presentation on 'EDT (Electronic Data Transfer) and EDL (Electronic Dispatch and Logging) Outage' please follow the links below.

[Slides OTF 9 July 2025](#)

[Recording OTF 9 July 2025](#)

[OTF webpage](#)