

GC0182 : Metering Polarity

Workgroup 9, 01 September 2026

Online Meeting via Teams

WELCOME

Agenda

Topics to be discussed	Lead
Introduction	Chair
Timeline	Chair
Action log review	All
Legal Text Review	NESO Representative
Review Terms of Reference	All
AOB	Chair
Next Steps • Workgroup Report Review • Workgroup Vote	Chair

Objectives and Timeline

Ren Walker– NESO Code Administrator

GC0182 Timeline

Milestone	Date	Milestone	Date
Modification presented to Panel	24/07/25	Code Administrator Consultation	06/10/26 - 06/11/26
Workgroup Nominations (15 business days)	29/07/25 - 18/08/25	Draft Final Modification Report (DFMR) issued to Panel (5 business days)	18/11/26
Workgroups 1, 2, 3, 4, 5 and 6	• 15/09/25 • 20/10/25 • 25/11/25 • 20/01/26 • 09/02/26 • 23/03/26	Panel undertake DFMR recommendation vote	26/11/26
Workgroup Consultation (21 business days)	13/04/26 - 12/05/26	Final Modification Report issued to Panel to check votes recorded correctly	01/12/26 - 08/12/26
Workgroups 7,8,9,and 10	• 07/07/26 • 23/07/26 • 06/08/26 • 01/09/26 • 07/09/26	Final Modification Report issued to Ofgem	09/12/26
Workgroup report issued to Panel	16/09/26	Ofgem decision needed by	TBC
Panel sign off that Workgroup Report has met its Terms of Reference	24/09/26	Implementation Date	TBC

Action Log

Ren Walker– NESO Code Administrator

Action Log Review

Action	Owner	Status
50) To investigate the appropriate approach and permissions for contacting affected parties about metering polarity issues, including how to communicate relevant guidance and potential impacts.	PP	Open The Workgroup clarified that the modification would apply prospectively to new connections only, and that wider industry communication would be issued through an open letter following approval. The Workgroup agreed for the action to remain open.
51) Clarification of Prospective vs Retrospective Application and Media Figures: Ensure the work group report and wider publication clearly state that the proposal is prospective only, not retrospective, and clarify the illustrative nature of the £100 million figure in light of recent media reports.	All	Open
52) Legal Text Review and Mutual Agreement Scenarios: Review and update the legal text to clarify scenarios requiring mutual agreement, including the use of terms such as "modification" and "upgrade", and ensure alignment with the correct definitions and obligations for GB and EC code users.	TG/HG	Open Updated Legal Text and Mutual Agreement Scenarios are provided and see section Legal Text Review for details.
53) Legal Text Terminology Consistency: Review the use of the term "operational metering equipment" in the legal text and the proposed standard, ensuring consistency and appropriateness in light of the discussion on whether signals originate from metering or measurement equipment.	TG/HG	Open Updated Legal Text is provided and see section Legal Text Review for details.

Action Log Review

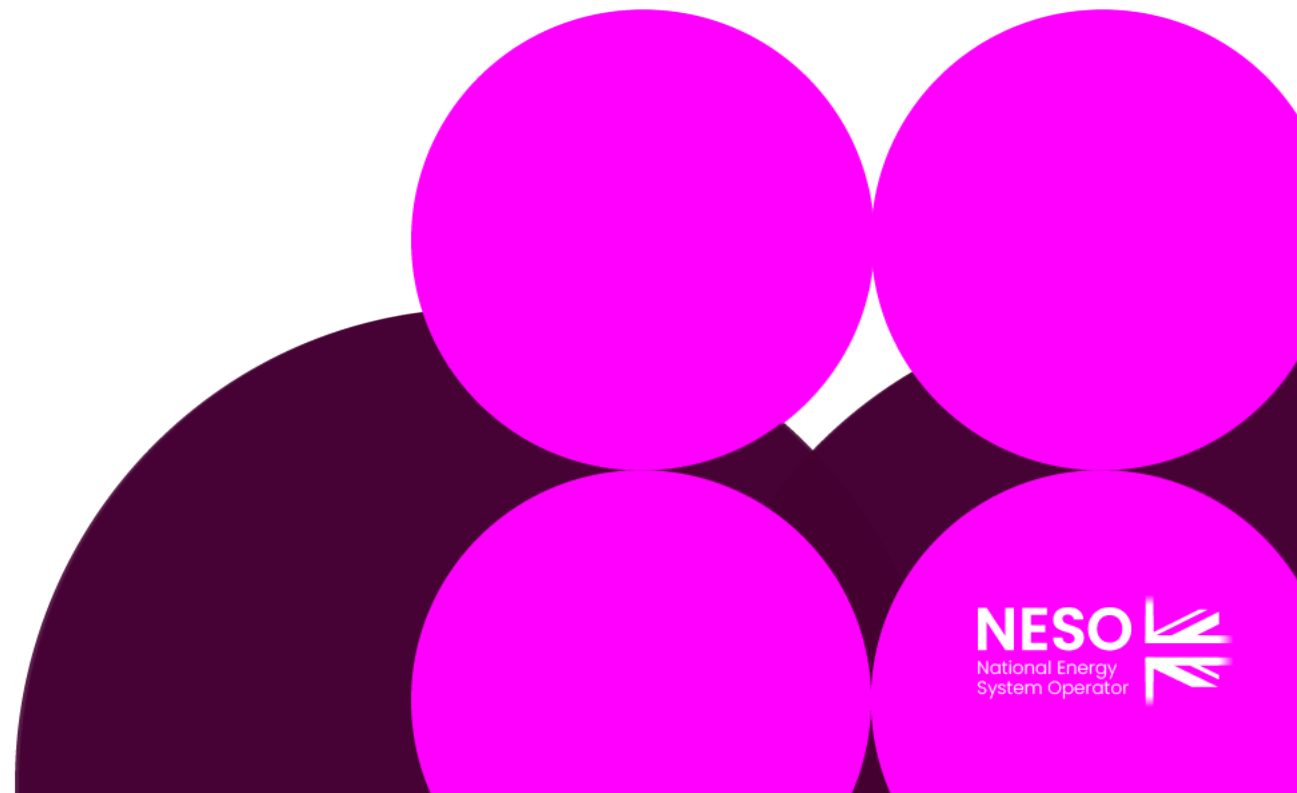
Action	Owner	Status
54) Inclusion of Metering Polarity Standard in Report Annex: Include the latest version of the metering polarity convention electrical standard as an annex to the work group report and code consultation documents for transparency.	TG/HG	Open The latest version of Metering Polarity Standard will be included in the workgroup report and code consultation document. Please refer to the GC0182 Collab Space and review the standard before finalisation. Electrical Standard
55) Clarification of Terms of Reference for Modification.	RW	Open - TS 3.24.70 Dynamic System Monitoring (DSM): specify the measurement range, accuracy of nominal input and resolution of nominal input for power measurement. No polarity of power measurement is mentioned. - TS 3.24.95 FREQUENCY RESPONSE MONITORING: specify the accuracy of power measurement. No polarity of power measurement is mentioned. - TS 3.24.71 Fault Recording: specify the accuracy and resolution for measurement - Distribution Restoration Zone Control System High Level Functional Requirements: specify DRZCS should include an interface to support power measurement at Restoration Contractor's User System Entry Point - RES-01-100 Relevant Electrical Standards for Plant, Equipment and Apparatus for connection to the SP Transmission System: specify term Equipment refers to Secondary elements of The Company system such as those for control, measurements, protection and auxiliary supplies. - NGTS 1: Rating and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Direct Connection to it. Issue 3 March 1999.

Action Log Review

Action	Owner	Status
54) Inclusion of Metering Polarity Standard in Report Annex: Include the latest version of the metering polarity convention electrical standard as an annex to the work group report and code consultation documents for transparency.	TG/HG	Open The latest version of Metering Polarity Standard will be included in the workgroup report and code consultation document. Please refer to the GC0182 Collab Space and review the standard before finalisation. Electrical Standard
55) Clarification of Terms of Reference for Modification.	RW	Open Propose to close following Workgroup meeting 9.

Questions from Workgroup 8

Thomas Goss– Proposer



Questions from WG8

NESO comments to NPG responses:

Q1: What will be the date to be used for actual implementation? Will it be 18 months, 540 days or 547 days?

[NESO] Once the approval date of GC0182 is known, the actual implementation date will be clearly written in the Grid Code in the format of Day Month Year and it will be 540 days from the approval date in principle but there could be flexibility if a few more extra days are added.

For example:

- Approval Date of GC0182: 1st January 2027
- Actual Implementation (Cut-Off) Date: 3rd July 2028 (549 days in between)

Questions from WG8

NESO comments to NPG responses:

Q2: Will a GB Code User automatically change to an EU Code User if there is a Modification?

[NESO] If the Modification is classified as a substantial modification, (as defined in the Grid Code Glossary and Definitions – i.e. major changes) the GB Code User may be required to change to an EU Code User. However, the installation or Modification of the Operational Metering equipment alone should not be considered as a substantial modification because there is no material changes to plant.

If a GB Code User enters a new Bilateral Agreement, as a result of a Substantial Modification with NESO, it will change to an EU Code User and be obligated to conform with the requirements laid out in the legal text for EU Code Users. The legal text for GB Code Users will only be relevant for installations or Modifications of Operational Metering equipment where there has not been a Substantial Modification and the User remains as a GB Code User.

Appendix B of [Guidance Notes for Co-location of Different Technologies](#) provides a list of example substantial Modifications

Example Details	Classified as Substantial Modification? If so because	Not classified as Substantial Modification? If so because
Existing 20-year-old station comprising synchronous generating units. Excitation and Governor systems to be replaced on a like for like basis	No	No material changes to performance – plant replaced with components of the same type and technology as when constructed.
Existing Power Station site – old Generating Unit to be replaced with new Gas Turbines	Yes – There is a material change to the plant – a brand-new unit is replacing the existing retired unit	N/A
A 100MW wind farm comprises 50 x 2MW turbines. The wind turbines are to be replaced by 20 x 5MW turbines.	Yes – The turbines, control systems and performance are all using new plant even though the Grid Connection assets may remain largely unchanged.	N/A

Questions from WG8

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If a GB Code User enters a new Bilateral Agreement, as a result of a Substantial Modification with NESO, it will change to an EU Code User and be obligated to conform with the requirements laid out in the legal text for EU Code Users. The legal text for GB Code Users will only be relevant for installations or Modifications of Operational Metering equipment where there has not been a Substantial Modification and the User remains as a GB Code User.

Appendix B of [Guidance Notes for Co-location of Different Technologies](#) provides a list of example substantial Modifications

Example Details	Classified as Substantial Modification? If so because	Not classified as Substantial Modification? If so because
Generator Transformer replaced at an existing thermal Power Station with a grey spare	No	Plant is using technology of the same type when the station was built.
Change of Generator Ownership – no change to plant	No	No material changes to plant

Questions from WG8

NESO comments to NPG responses:

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[NESO] If the Modification is classified as a substantial modification, (as defined in the Grid Code Glossary and Definitions – i.e. major changes) the GB Code User may be required to change to an EU Code User. However, the installation or Modification of the Operational Metering equipment alone should not be considered as a substantial modification because there is no material changes to plant.

If a GB Code User enters a new Bilateral Agreement, as a result of a Substantial Modification with NESO, it will change to an EU Code User and be obligated to conform with the requirements laid out in the legal text for EU Code Users.

The legal text for GB Code Users will only be relevant for installations or Modifications of Operational Metering equipment where there has not been a Substantial Modification and the User remains as a GB Code User.

Appendix B of [Guidance Notes for Co-location of Different Technologies](#) provides a list of example substantial Modifications

Example Details	Classified as Substantial Modification? If so because	Not classified as Substantial Modification? If so because
An existing wind farm adds additional new turbines	It's dependent on specifics of the project. If the existing Wind Turbines are not being modified, then the new turbines would need to be compliant with latest Grid Code requirements while the existing continue complying with applicable code version (e.g. GB Code in case of pre-RfG plants connected before EU Code cut-off timelines).	It's dependent on specifics of the project. The requirements are based on the module not each turbine. Additional issue is that if the wind farm is small and the additional turbines increase the size of the Power Station to Medium or Large which would probably come under the banner of a substantial modification. The new turbines would have to be compliant with respect to latest (EU Code) requirements.

Questions from WG8

NESO comments to NPG responses:

Q2: Will a GB Code User automatically change to an EU Code User if there is a Modification?

[NESO] If the Modification is classified as a substantial modification, (as defined in the Grid Code Glossary and Definitions – i.e. major changes) the GB Code User may be required to change to an EU Code User. However, the installation or Modification of the Operational Metering equipment alone should not be considered as a substantial modification because there is no material changes to plant.

If a GB Code User enters a new Bilateral Agreement, as a result of a Substantial Modification with NESO, it will change to an EU Code User and be obligated to conform with the requirements laid out in the legal text for EU Code Users. The legal text for GB Code Users will only be relevant for installations or Modifications of Operational Metering equipment where there has not been a Substantial Modification and the User remains as a GB Code User.

Appendix B of [Guidance Notes for Co-location of Different Technologies](#) provides a list of example substantial Modifications

Example Details	Classified as Substantial Modification? If so because	Not classified as Substantial Modification? If so because
Small Power Station replants with a new bigger unit	Yes – There is a material change to the plant – a brand-new unit is replacing the existing retired unit. The new units would be caught by the ECCs as the old plant has been replaced by brand new plant and therefore the full requirements of the ECC’s would apply.	N/A

Questions from WG8

NESO comments to NPG responses:

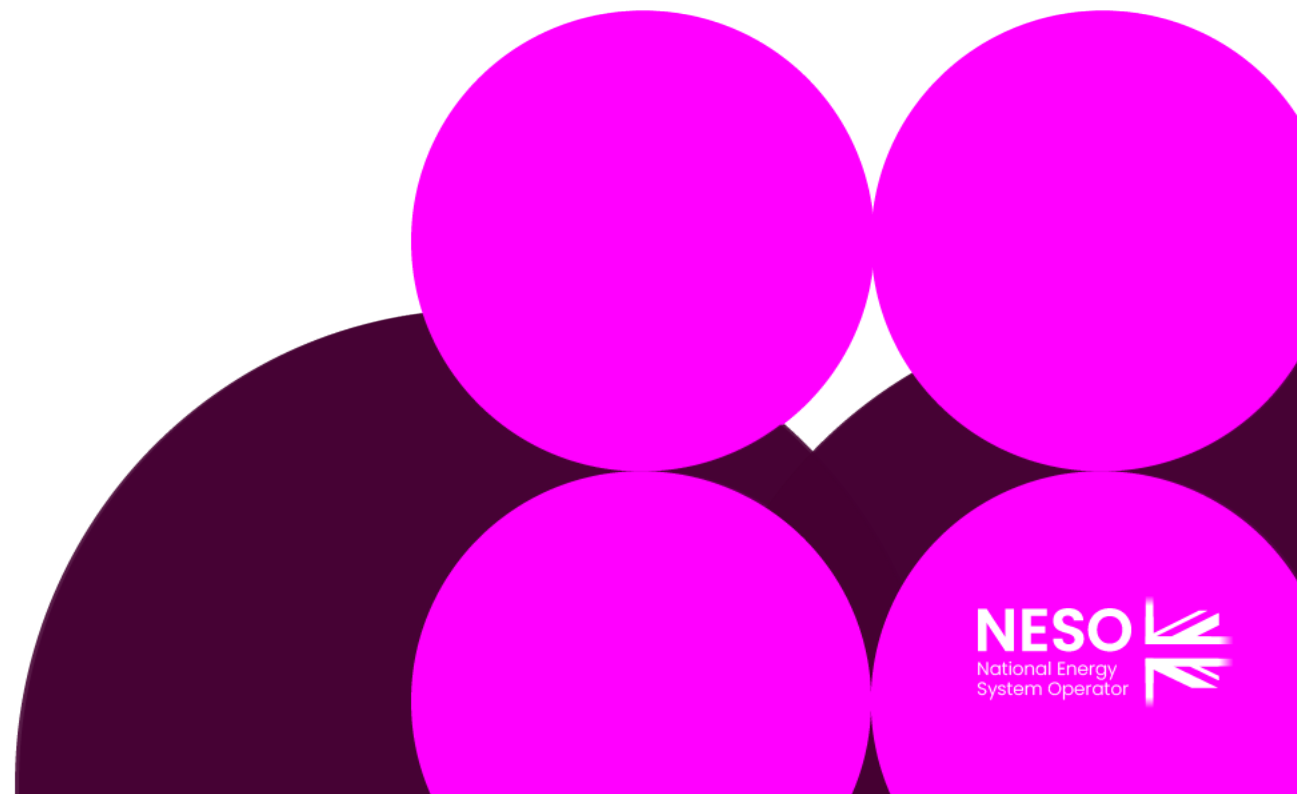
Q3: Are there any other TO ES's that might mention metering, in additional to TS.3.24.70 and TS.3.24.95?

[NESO]

- **TS 3.24.70** Dynamic System Monitoring (DSM): specify the measurement range, accuracy of nominal input and resolution of nominal input for power measurement. No polarity of power measurement is mentioned.
- **TS 3.24.95** FREQUENCY RESPONSE MONITORING: specify the accuracy of power measurement. No polarity of power measurement is mentioned.
- **TS 3.24.71** Fault Recording: specify the accuracy and resolution for measurement
- **Distribution Restoration Zone Control System High Level Functional Requirements:** specify DRZCS should include an interface to support power measurement at Restoration Contractor's User System Entry Point
- **TS 1 (RES)** Ratings and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Connections Points to it: specify the term **Equipment** refers to Secondary elements of The Company system such as those for control, measurements, protection and auxiliary supplies.
- **RES-01-100** Relevant Electrical Standards for Plant, Equipment and Apparatus for connection to the **SP Transmission System:** specify the term **Equipment** refers to Secondary elements of The Company system such as those for control, measurements, protection and auxiliary supplies.
- **NGTS 1 used by SHETL:** Rating and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Direct Connection to it: specify the term **Equipment** refers to Secondary elements of The Company system such as those for control, measurements, protection and auxiliary supplies.

Legal Text Review

Hao Guo– NESO Representative

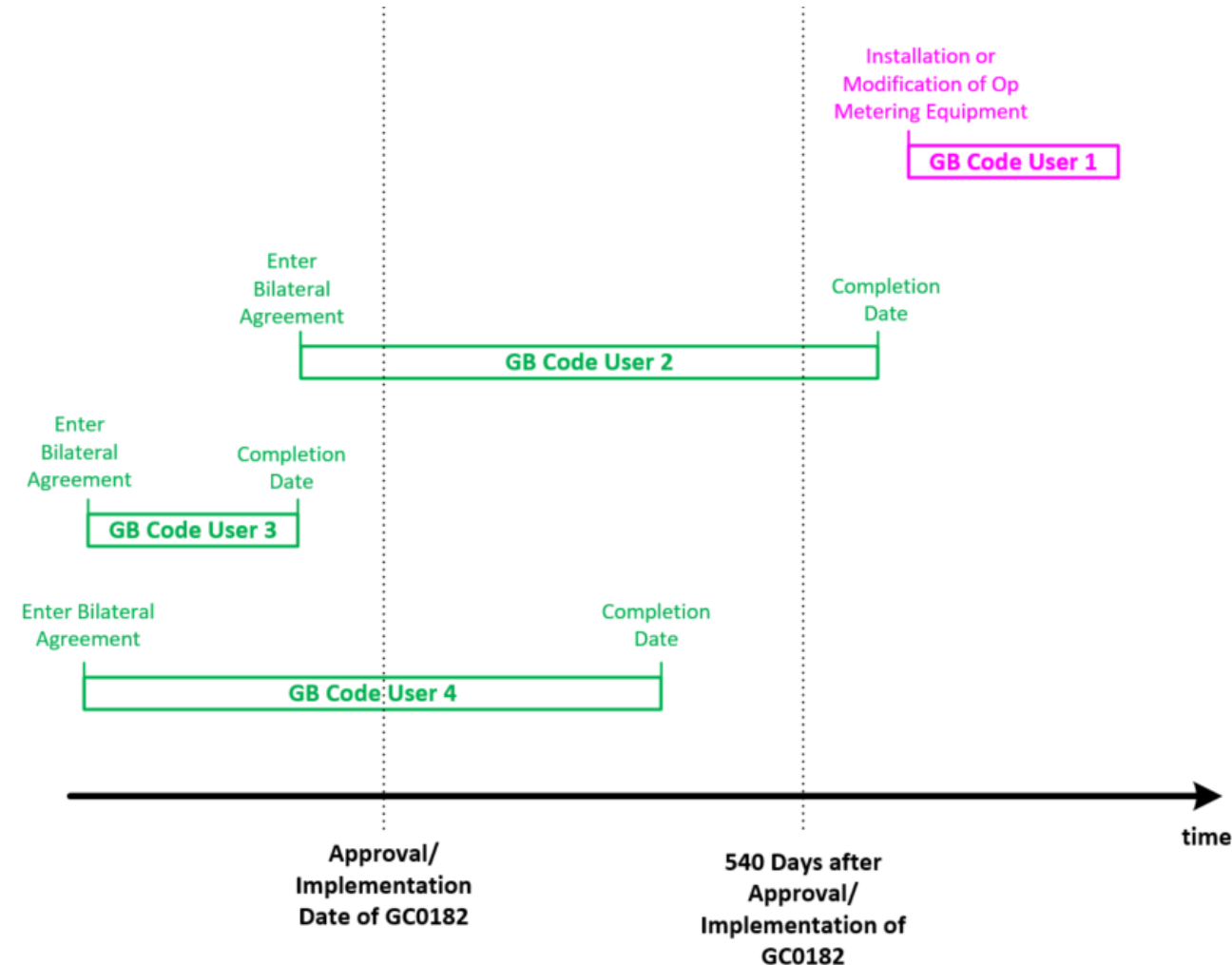


Legal Text – Updated as August 2026



Different Scenarios for GB Code User

- GB Code User 1: obligation to follow polarity standard
- GB Code User 2: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard
- GB Code User 3: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard
- GB Code User 4: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard



Legal Text – Updated as August 2026

CC.6.5.6(f)

GB Code Users shall ensure the **Active Power** and **Reactive Power** measurement signals from their **Plant** and **Apparatus** conforms to the Operational Metering Polarity Convention for Power Flow Data as provided for in the **Electrical Standards**, where the **GB Code User's** operational metering equipment as described in CC.6.5.6 is installed or subject to a **Modification** on or after DD/MM/YYYY (i.e. around 540 days after implementation of GC0182).

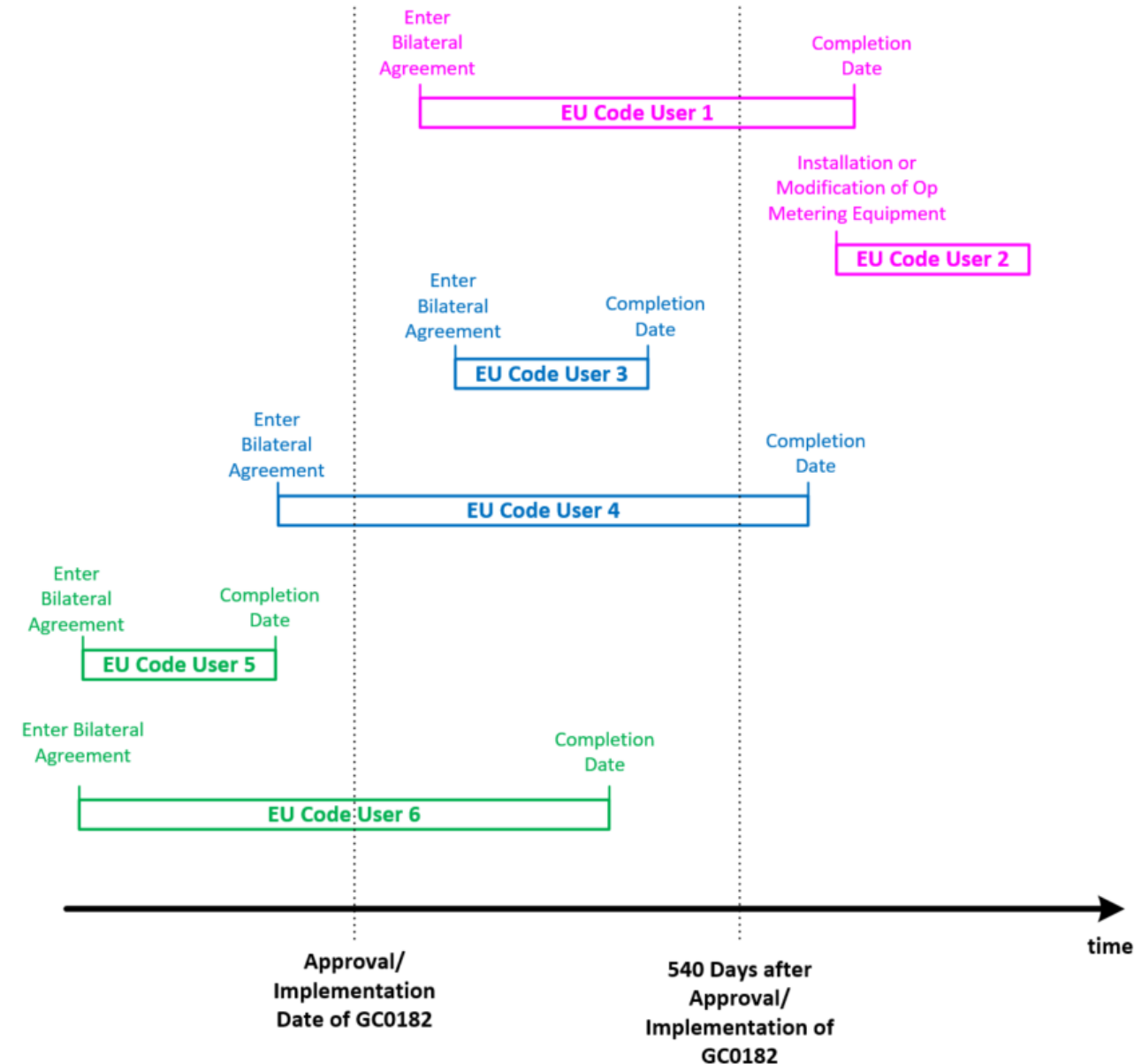
The **GB Code User** shall confirm they have provided the **Active Power** and **Reactive Power** measurement signals in accordance with the requirements of the **Bilateral Agreement**. The **Company** shall validate and check the **Active Power** and **Reactive Power** measurement signals provided.

In all other situations, **the Company** shall seek mutual agreement with **GB Code Users** to implement the requirement of the Operational Metering Polarity Convention for Power Flow Data as provided for in the **Electrical Standards**.

Legal Text – Updated as August 2026

Different Scenarios for EU Code User

- EU Code User 1: obligation to follow polarity standard
- EU Code User 2: obligation to follow polarity standard
- EU Code User 3: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard
- EU Code User 4: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard
- EU Code User 5: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard
- EU Code User 6: no obligation
 - User can choose to follow the guidance note, or
 - NESO shall seek mutual agreement with GB Code User if it is deemed the User should follow the standard



Legal Text – Updated as August 2026

ECC.6.5.6.4(f)

EU Code Users shall ensure the **Active Power** and **Reactive Power** measurement signals from their **Plant** and **Apparatus** conforms to the Operational Metering Polarity Convention for Power Flow Data as provided for in the **Electrical Standards**, where:

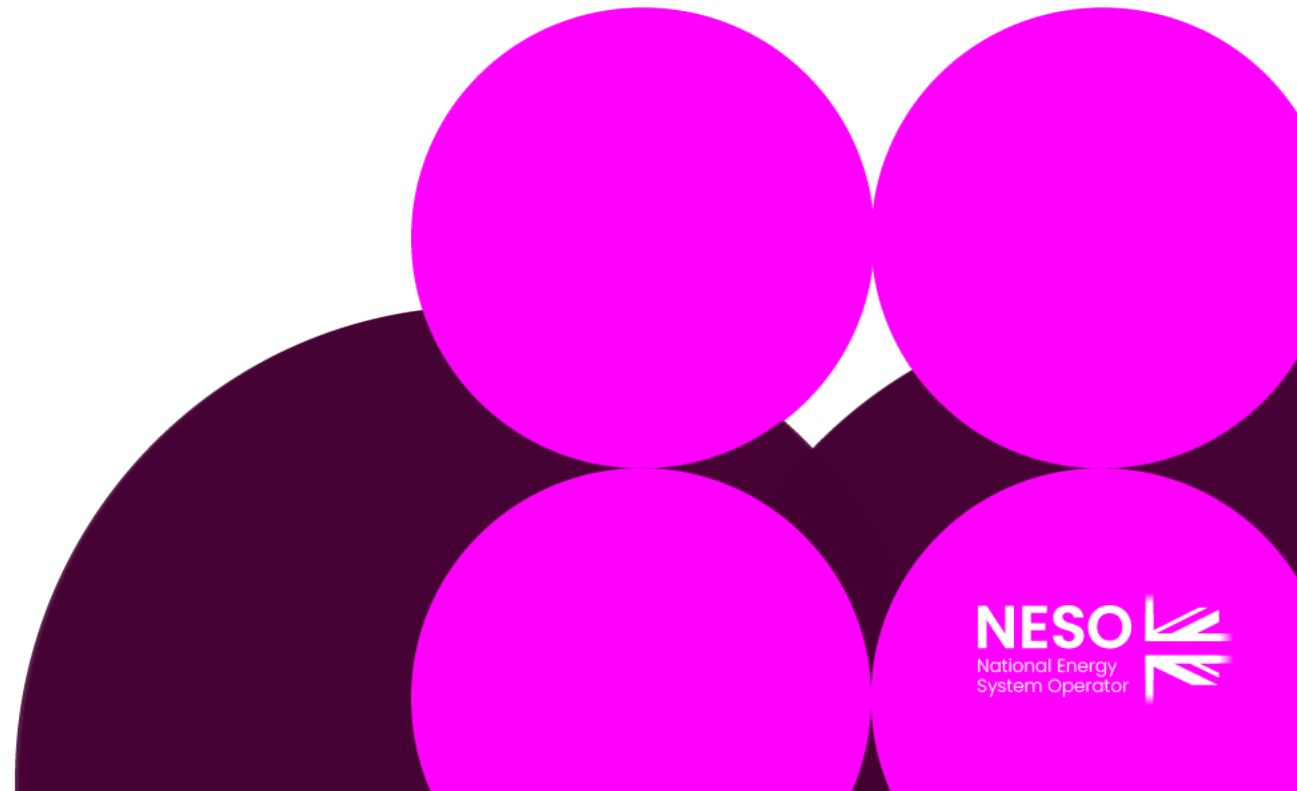
- i. The **EU Code User** enters into a **Bilateral Agreement** on or after DD/MM/YYYY (i.e. implementation of GC0182) and its **Plant** and **Apparatus** has a **Completion Date** on or after DD/MM/YYYY (i.e. around 540 days after implementation of GC0182); or
- ii. the **EU Code User's** operational metering equipment as described in ECC.6.5.6 is installed or subject to a **Modification** on or after DD/MM/YYYY (i.e. around 540 days after implementation of GC0182).

The **EU Code User** shall confirm they have provided the **Active Power** and **Reactive Power** measurement signals in accordance with the requirements of the **Bilateral Agreement**. The **Company** shall validate and check the **Active Power** and **Reactive Power** measurement signals provided.

In all other situations, the **Company** shall seek mutual agreement with **EU Code Users** to implement the requirement of the Operational Metering Polarity Convention for Power Flow Data as provided for in the **Electrical Standards**.

Review Terms of Reference

Ren Walker – NESO Code Administrator



GC0182 Terms of Reference

a) Implementation and costs;

b) Review draft legal text should it have been provided. If legal text is not submitted within the Grid Code Modification Proposal the Workgroup should be instructed to assist in the developing of the legal text;

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

d) Consider implications to sections linked to the Regulated Sections of the Grid Code

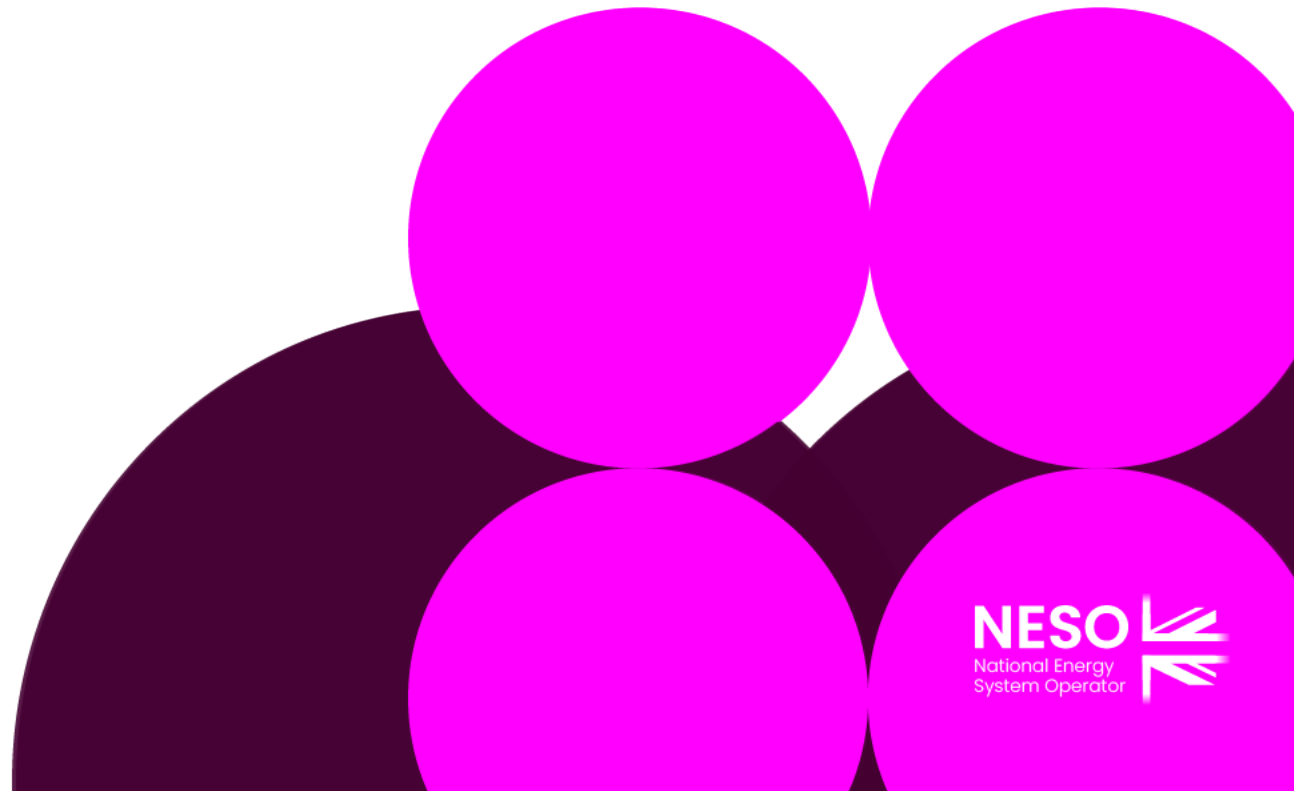
e) Consider the implementation arrangements of the new electrical standard considering Grid Code and BCA obligations.

f) Consider the alignment of the Governance processes for the modification and the Electrical Standard.

g) Consider clarity on Power Flow (Active vs Reactive).

Any Other Business

Ren Walker– NESO Code Administrator



AOB

Final Modification Report

- Should indicate that the numbers are illustrative and are trying to quantify the issue
- Clarify that NESO's actual costs are in the hundreds of thousands—not hundreds of millions; the £100m figure is illustrative and not a confirmed estimate of actual costs incurred.
- Demonstrate correct Case A vs. incorrect Case B/C for metering polarity using diagrams

Next Steps

Ren Walker– NESO Code Administrator

