Public

GC0181 – Enhance the Effectiveness of System Incidents Reporting

Workgroup Number 2 – 16 December 2025

Online Meeting via Teams

NESO
National Energy System Operator

WELCOME

NESO
National Energy System Operator

Agenda

Topics to be discussed	Lead
Welcome	Chair
Timeline and objectives	Chair
Actions	Chair
Iberian blackout impact	Proposer
Worldwide Reporting Practices	NESO SME
NESO data triage process	NESO SME
AOB	Chair
Next Steps	Chair

Expectations of a Workgroup Member

- Contribute to the discussion
- Be respectful of each other's opinions
- Language and Conduct to be consistent with the values of equality and diversity
- Do not share commercially sensitive information
- Be prepared - Review Papers and Reports ahead of meetings
- Complete actions in a timely manner
- Keep to agreed scope
- Email communications to/cc'ing the .box email

Your Roles

- Help refine/develop the solution(s)
- Bring forward alternatives as early as possible
- Vote on whether or not to proceed with requests for Alternatives
- Vote on whether the solution(s) better facilitate the Code Objectives

CM0181 Objectives and Timeline as at 08 December 2025

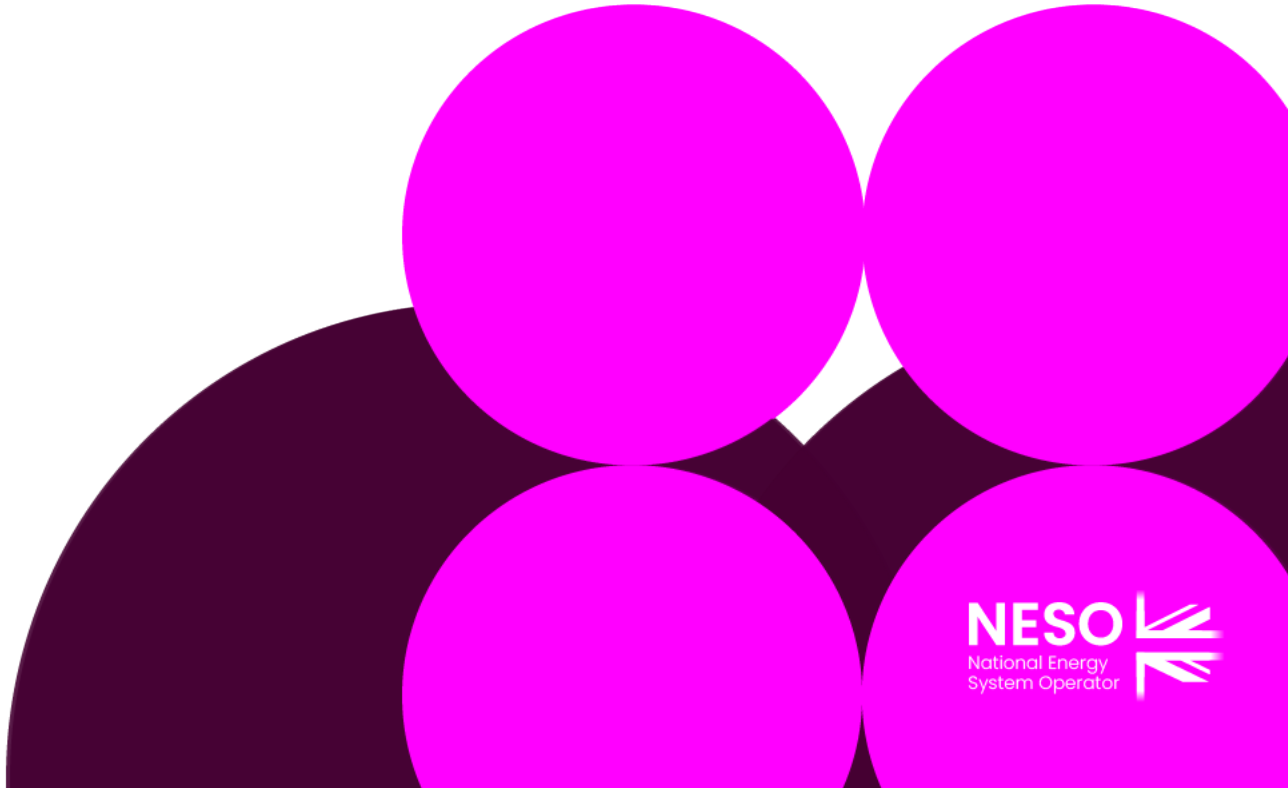
Timeline	Workgroups	Objectives
Workgroup 2	16 December 2025	
Workgroup 3	07 January 2026	Finalise Workgroup Consultation
Workgroup 4	23 January 2026	
Workgroup Consultation	30 January 2026 – 20 February 2026	
Workgroup 5	05 March 2026	Review Consultation feedback
Workgroup 6	25 March 2026	Finalise Report
Workgroup 7	08 April 2026	Agree ToR met /Workgroup Vote
Workgroup Report to Panel	15 April 2026	Panel sign off ToR
Post Workgroups		
Code Administrator Consultation	30 April 2026 – 01 June 2026	
Draft Final Modification to Panel	17 June 2026	
Final Modification to Ofgem	07 July 2026	
Implementation Date	10 Business Days after Authority Decision	

GC0181 Actions

Action Number	Workgroup Raised	Owner	Action	Comments	Due by	Status
1	WG1	JSC	Share the slides presented at Workgroup 1 with Workgroup members		28/11/2025	Closed
2	WG1	FK/ JSC	investigate reporting practices in other countries (Europe, US, etc.).	Included in slide pack	WG 2	Open
3	WG1	AU/FK	Review STC sections and confirm the license condition regarding NESO and the Energy Data Task Force		WG 2	Open
4	WG1	GW	Assess cost and workload implications for Transmission Owners (TOs) providing additional data.		WG 2	Open
5	WG1	FK/ JSC	Check NESO data triage process against Energy Data Taskforce guidelines.	Included in slide pack	WG 2	Open
6	WG1	FK/ GN	FK & JSC to provide ballpark estimate resource costs for weekly vs. monthly reporting and consider the Iberian blackout impact. GN to draft and share a benefits case	Included in slide pack	WG 2	Open
7	WG1	MB	Suggest thresholds for publishing larger incidents weekly and smaller ones monthly; NESO to consider if this mitigates workload concerns.	MB provided a sketch for NESO to consider	WG 2	Open
8	WG1	FK	Clarify what improvements are possible now, what would require more time, and how much better future data could be.		WG 2	Open

Iberian blackout impact

Guy Nicholson - Statkraft



Iberian blackout impact

Draft estimate of the cost-benefit for the GC0181 proposal:

The Iberian blackout cost has been estimated at around €1bn, but there are a considerable range of estimates. E.g.

Experts warn of €1 billion economic impact after Iberian Peninsula blackout | Caliber.Az
Spain could suffer over €4 billion in losses from historic blackout - Olive Press News Spain
The economic impact of the blackout in detail

- This compares to a Spanish GDP or about €4bn/day
- The blackout lasted typically for 10 hours.
- So, impact was approximately 50% of GDP during blackout.
- Spain benefitted from AC restoration from France as well as black start by power stations which helped speed the restoration.
- A GB blackout could be expected to last longer, as GB does not have any AC restoration options.
- UK GDP is ~ £8.2bn/day and 97% of that is GB GDP.
- Assuming a GB blackout lasted an average of 3 days and impacted 50% of GDP that would be a cost of ~£12bn.
- Assume that NESO have one person dedicated to producing current OC3.4 for 1 week per month with assume a total employee cost of £200k/annum, then the cost of this OC3.4 reporting is currently £50k/annum. Assume that making the report weekly becomes a full-time role, then the cost increase is £150k/annum.
- Therefore, if this work was carried out for 80,000 years it would cost the same as a blackout.
- So, if this work avoids a blackout every 80,000 years, the cost will equal the benefit.

* Data sourced via AI CoPilot with additional Google sanity checks.

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Iberian blackout impact

Operating an Intelligent, Real-Time Grid

26/28 Performance Objective

NESO will operate a flexible, and increasingly intelligent, electricity system, optimising transparent real-time decision-making and ensuring ongoing resilience of the energy system. Enhanced operational decision-making will be enabled through data, automation and future-ready digital tools. Operational capability will be transformed by maximising the benefit of digitalisation and ensuring the correct skillsets and processes are in place to manage increasing variability and complexity of the GB Power System.

How we measure success *Success Measures*	Carbon intensity of NESO actions	Forecasting accuracy
	Zero carbon operability	On-boarding time of market participants to engage with the balancing mechanism
	System availability and reliability	Customer trust index
	Dispatch efficiencies (skip rates)	System management and disturbances (frequency, voltage, inertia)

Extract taken from NESO Business Plan 1 Summary Document November 2025 noting that NESO has an objective to ensure ongoing resilience of the energy system, specifically disturbances relating to voltage, frequency and inertia. Note that GC0181 would support that objective.

Advance Questions

Slido code #OTF

Q: (06/11/2025) According to the ENTSO-E Report on the Iberian Blackout, the 76 Operational PMUs (Phasor Measurement Units) in Spain enabled the establishment of important facts in relation to events there. What access does NESO have to PMUs in GB, how many, when were they established and in what locations? Where is this data published? Does NESO have unfettered access to use and publish the data collected by these PMUs in GB? Can NESO provide any examples of PMU data used in the OTF?

A: NESO has access to all in-service PMUs across England, Scotland and Wales. The installation of PMUs and the build out of the associated infrastructure to collect and link PMU data across SO and TOs, has continued over the RIIO2 period. The infrastructure is now in place with all TOs, and the roll out of PMUs to all key areas continues, in close collaboration with TOs.

There are currently 73 PMUs in service, which are spread across applications such as FATE and Inertia. The level of NESO access and any rights to publish are determined by the System Operator Transmission Owner Code (STC), which is available here:

System Operator Transmission Owner Code (STC) | National Energy System Operator

NESO does not currently publish raw PMU data but will publish data that uses this raw PMU data as an input. Some examples of this are:

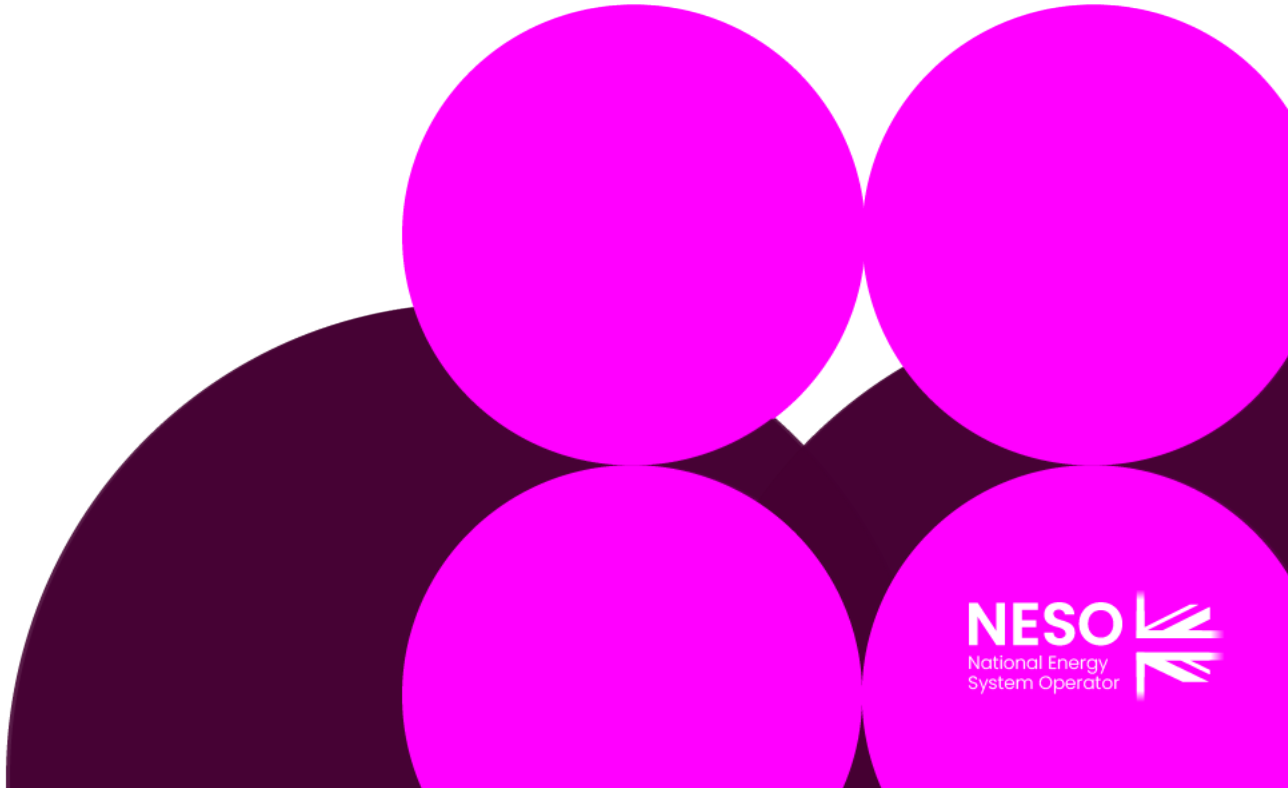
- Inertia data
- Frequency data

FATE – Frequency and Time Error

Taken from the NESO Operational Transparency Forum 03 December 2025

Worldwide Reporting Practices

Frank Kasibante - NESO



Other Code Documentation

UK

Grid Code, Section OC3
'…the frequency record at <=1 second intervals'
'data is collated, reviewed and processed in the subsequent two months for a reporting month.'
'…the frequency immediately before…', '…the frequency immediately after…'

Europe

European Commission Regulations, 2016/1447, Annex II
'Maximum admissible initial delay, t_1 = 0.5 seconds'

ENTSO-E, Emergency and Restoration, Article 14
'Within 30 days of the incident, the TSO shall prepare a report at least in English containing…'
'…frequency of neighbouring synchronous area…', '…within system frequency limits…'

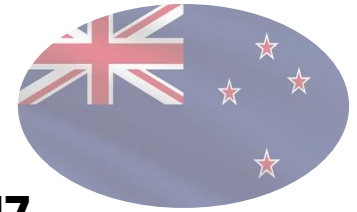
Other Code Documentation

Australia

National Electricity Rules, Chapter 4, 4.8.15

'A Registered Participant must provide the information requested by AEMO under clause 4.8.15(f) within 20 business days…'

'…to provide such information… as AEMO reasonably requires for the purposes of analysing or reporting on the incident.'



New Zealand

Electricity Industry Participation Code, Part 2, 2.17

'the Authority must specify the following information requirements: … the time and/or the frequency at which the participant must provide the information to the Authority'

Other Code Documentation

Japan

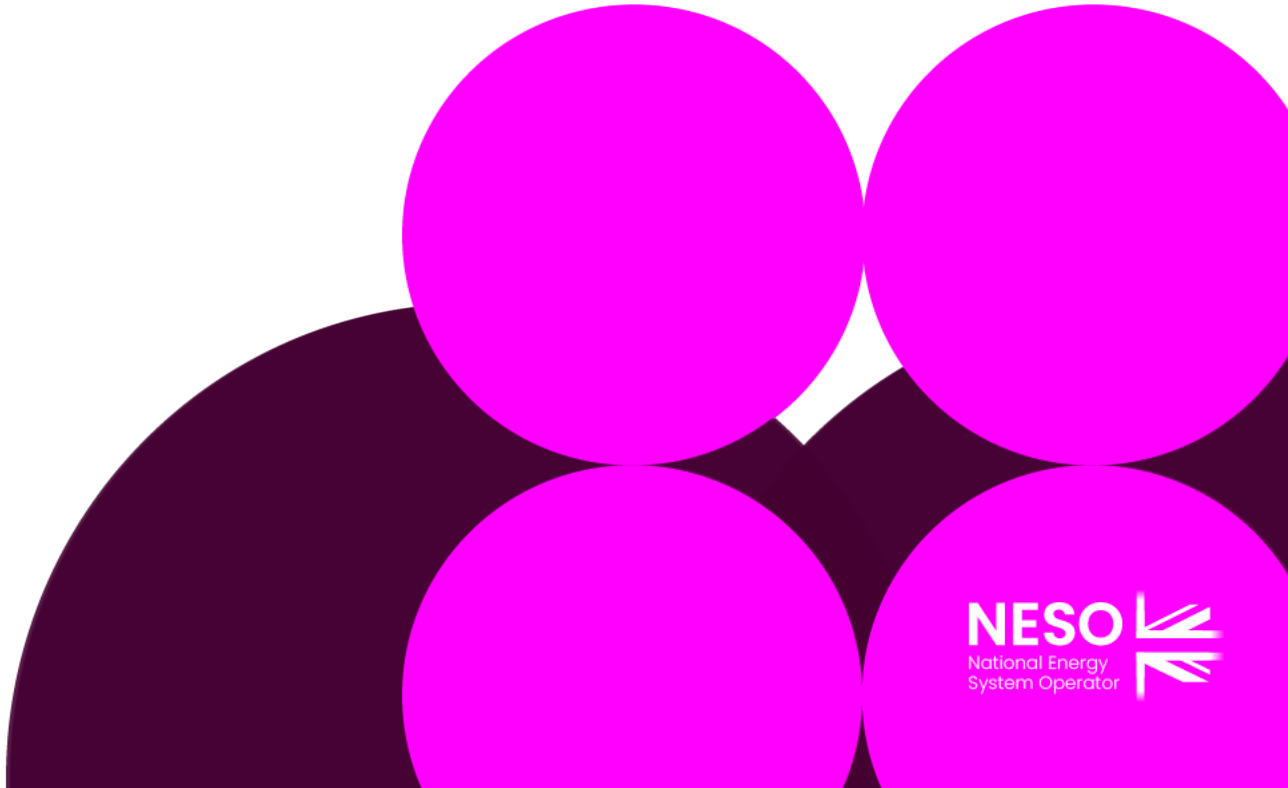
Operational Rules, Chapter 12, Appendix 12.1
'Current value of frequency: 30-second interval'
'Items of network information to be published by the Organization and the time of such disclosure'

North America

Reliability Standards, PRC-002-5, R11
'Data subject to Part 11.1 will be provided within 30 calendar days of a request unless an extension is granted by the requestor'

NESO data triage process

Frank Kasibante and Jesus Sanchez Cortes
NESO



Data Queries

This slide aims to address WG1 Action 05 on the data triage process and the Energy Data Taskforce

OFGEM Data Best Practice

'...Data Assets must be treated as Presumed Open which means that data must be made available for all people to use, unless the licensee responsible for handling the data provides specific evidence to show that the data should be withheld of its availability reduced...'

Data Ownership

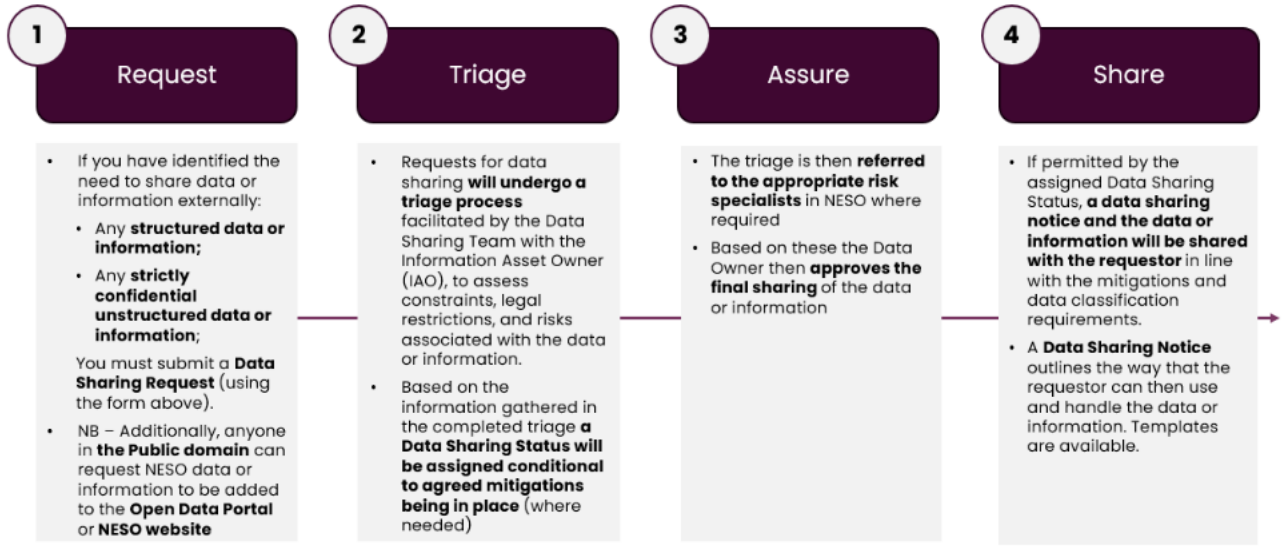
NESO: Own low resolution data currently used in incident reporting.

TOs: Sometimes own higher resolution data but not currently required for incident reporting.

Data Classification

NESO classifies any post-event and post-emergency analysis **confidential** unless the disclosure of information could put the energy resilience or energy security of the country at material risk in which case it is **strictly confidential**.

Data Triage Process



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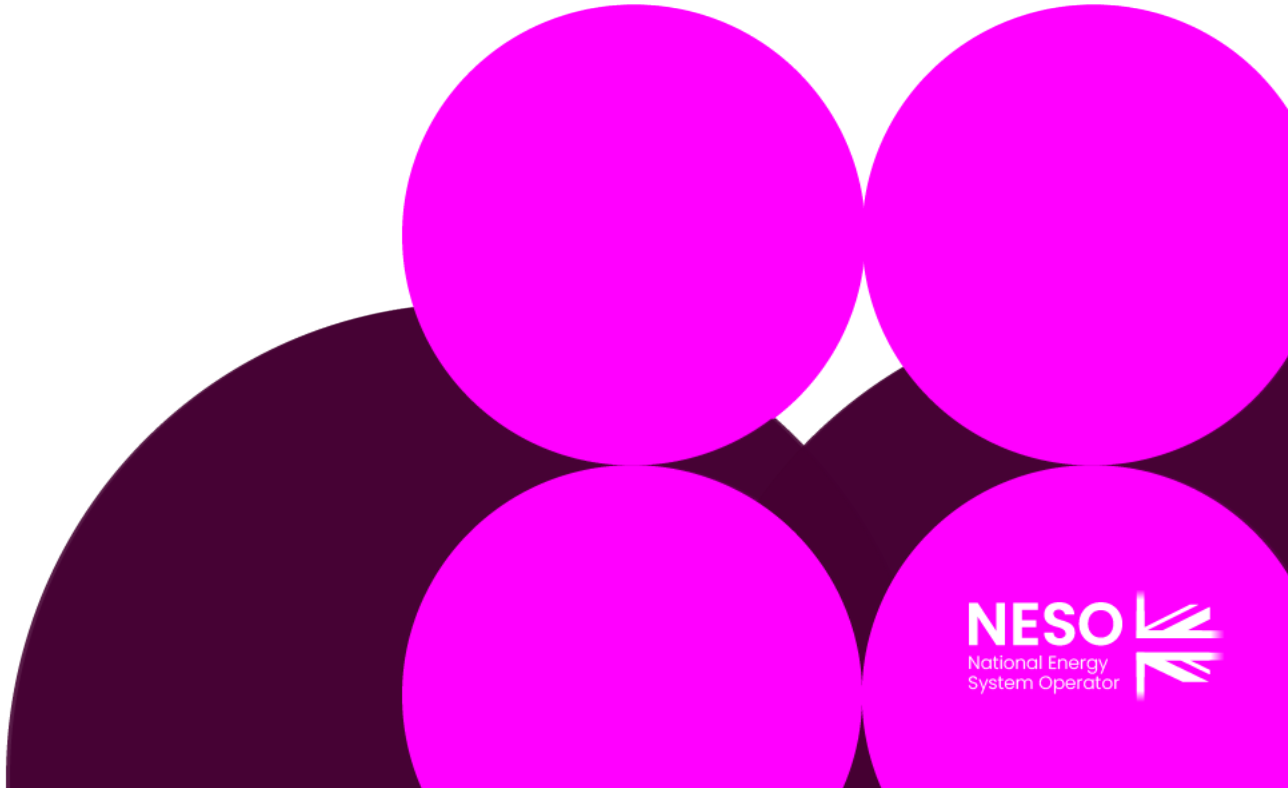
Any Other Business

Jess Rivalland – NESO Code Administrator



Next Steps

Jess Rivalland - NESO Code Administrator