

Public

SQSS Panel

Tuesday, 28 April 2026

Microsoft Teams

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WELCOME

Purpose of Panel & Duties of Panel Members

4.2 Functions of the Panel

4.2.1 The **Panel** shall consider all reasonable requests to modify the **SQSS**. Such requests may be made by any of the **Members**, the **Authority** or any relevant interested person. **SQSS** Modification Proposals shall be raised via the **Secretary**.

4.2.2 The functions of the **Panel** shall be to:

4.2.2.1 keep the **SQSS** and its working under review;

4.2.2.2 evaluate and administrate modifications to the **SQSS** in accordance with procedures set out in the **Governance Framework**;

4.2.2.3 keep the **Governance Framework** and its working under review;

4.2.2.4 publish recommendations to modify the **SQSS** and the reasons for the recommendations;

4.2.2.5 recommend to the **Authority** any modifications of the **SQSS**; and

4.2.2.6 the **Panel** shall endeavour at all times to perform its functions:

- (a) in an efficient, economical and expeditious manner, taking account of the complexity, importance and urgency of a particular modification to the **SQSS**; and
- (b) with a view to ensuring the **SQSS** facilitates achievement of its objectives.

Approval of Panel Minutes

Minutes from the meeting held on 24 March 2026 to go to May Panel

Action Log

Action number	Panel Raised	Owner	Action	Status
40.8	March 2024	AJ/ GG	NESO to report on progress of GC0117 and if an SQSS modification is required, when this will be raised.	Open. Pending until GC0117 solution is approved/ rejected by Ofgem
42	September 2024	PD/AG	AG to talk to Ofgem Lawyers for clarification of "Company" / Code references within licence/code. PD to confirm.	Open
46	October 2025	CW	Provide clarity on the status of the FRCR process and its alignment with Ofgem's consultation.	Open
48	March 2026	ALL	Review the updated GSR036 Proposal, legal text, case studies and provide comments	Open
49	March 2026	SMC	Organise and run an informal SQSS housekeeping / formatting workshop for GSR037 prior to modification going straight to CAC. Date TBC	Open

Action Log

Action number	Panel Raised	Owner	Action	Status
50	March 2026	CF/CN	Circulate Frequency Risk and Control Report (FRCR) 2025 supplementary evidence to SQSS Panel alongside Ofgem submission. NESO to prepare material for discussion on future FRCR governance and panel voting role at future SQSS meetings.	Open
51	March 2026	Chair	Schedule and run a special SQSS panel (late April) to review FRCR evidence and hold a formal vote. As well as a review of the governance for FRCR.	Open

Authority Decisions and Update

No decisions have been received

The Authority's publication on decisions can be found on their website below:

<https://www.ofgem.gov.uk/publications/code-modificationmodification-proposals-ofgem-decision-expected-publication-dates-timetable>

Any other business

- FRCR Report
- FRCR Governance

FRCR Governance Options

FRCR Governance Options

Background

FRCR Governance – 2025 Consultation
feedback

Options considered

Background

- **November 2024:** the SQSS Panel discussed the need for external assurance of FRCR 2025 due to concerns over the technical complexity of the work.
- **January 2025:** NESO proposed an integrated technical assurance approach using Accenture to perform an independent review. NESO suggested other FRCR governance routes could be used without requiring approval of SQSS Panel Members. This was consulted on during the FRCR 2025 cycle (see next slide).
- **For FRCR 2025,** the review used NESO prepared test criteria of the end-to-end FRCR report process, with oversight provided by NESO's functionally independent Engineering Assurance Team. The FRCR team hosted industry events and delivered presentations to SQSS Panel at key milestones during the process.
- **This approach was implemented** to minimise any delay to the FRCR 2025 timeline and provide greater transparency to stakeholders.
- **May 2025:** FRCR 2025 recommendations were presented to the SQSS Panel for the approval of the final submission to the Authority.
- **SQSS Panel members collectively** acknowledged NESO for its enhanced engagement and transparency during the FRCR 2025 review cycle.
- **However,** 3 of 7 Panel members still chose to abstain from a vote on FRCR 2025's suitability for final submission to the Authority.
- **Reasons for the abstentions** stemmed from the complexity of the FRCR work and the specific knowledge required.
- **In response,** NESO will work with the SQSS Panel to explore governance options for future iterations of FRCR.
- **The following** provides possible governance options and considerations for each.

FRCR Governance – 2025 Consultation feedback

Question 15: Do you foresee any issues that may arise from moving the obligation to produce the FRCR to a NESO License Condition rather than an Annex to the NETS SQSS?

The majority of respondents express concerns about transferring the obligation to produce the FRCR to a NESO License Condition. While some do not foresee immediate issues, they emphasise the importance of maintaining robust scrutiny and governance. There is a general consensus that any changes should not diminish industry oversight or the quality of recommendations.

Question 16: If the obligation to produce FRCR and the governance rules surrounding that process are moved to NESO's License, do you believe that the NETS SQSS Panel should continue to provide oversight?

Most responses support the continued oversight of the FRCR by the NETS SQSS Panel, even if the obligation moves to NESO's License.

Question 17: If you answer to Question 16 is "Yes" to what extent should this oversight be? For example, should it include technically assessing the recommendations and approving/rejecting it, or should it be limited to confirming that the governance process and methodology has been followed correctly?

Regarding the extent of oversight, the responses vary. Some suggest that oversight should include a thorough technical assessment of the recommendations, while others highlight the need for a balance between detailed technical assessments and confirming adherence to governance processes. There is a shared belief that oversight should ensure the effectiveness of the FRCR process and adapt to transitional changes in the power system.

Option 1

Appoint an independent specialist to conduct a comprehensive technical review of the FRCR model in future FRCR cycles.

Pros:

- Maintains existing approach to FRCR governance.
- Ensures scrutiny of technical content of FRCR by an independent party with the requisite technical understanding.
- No Code changes required.

Cons:

- SQSS Panel ultimately still solely responsible for approving FRCR is ready for final submission, noting that they are approving the process rather than confirming the analysis.
- Difficulty finding a qualified organisation to carry this out.
- Wider industry may still not trust the outputs where NESO has appointed the independent specialist.
- Need to consider how this would be funded.

Option 2

Establish an ongoing relationship with another TSO to conduct a comprehensive technical review of the FRCR model in future FRCR cycles.

Pros:

- Maintains existing approach to FRCR governance.
- Ensures scrutiny of technical content of FRCR by an independent party with the requisite technical understanding.
- Greater assurance to wider industry that the technical review is carried out by an organisation with the necessary knowledge with nothing to gain from supporting the NESO view.
- No Code changes required.

Cons:

- SQSS Panel ultimately still solely responsible for approving FRCR is ready for final submission.
- Need to establish this relationship formally (although could be pitched as mutually beneficial if NESO provides similar scrutiny to their outputs).

Option 3

SQSS Panel approves the process has been followed, but a separate industry supported technical panel approves the technical content.

Pros:

- SQSS Panel still involved and can focus on the process aspects only.
- The new technical panel can be made up of industry stakeholders with a strong understanding of the technical content.

Cons:

- Additional governance processes to create.
- A new body to set up and ensure the adequacy of for the role.
- Risk of additional time added to the process with more steps to complete to submit the final FRCR.
- Code changes required.
- Need to consider potential cost / funding implications.
- Time and resource to implement.

Option 4

Remove FRCR from SQSS Panel remit and create a new independent governance structure.

Pros:

- Removes obligation from SQSS Panel reps.
- Possible to create a more streamlined process for governance.
- A new panel can be made up of industry stakeholders with a strong understanding of the technical content.

Cons:

- Additional governance processes to create.
- A new body to set up and ensure the adequacy of the role.
- Possible further industry scrutiny issues due to removal from the SQSS and the use of a new unproven process.
- Code changes required.
- Need to consider potential cost / funding implications.
- Time and resource to implement.

Option 5

Place an obligation on NESO to produce the FRCR through a licence requirement.

Pros:

- Removes obligation from SQSS Panel reps.
- No new formal governance route to create.

Cons:

- Possible further industry scrutiny issues due to removal from SQSS remit.
- Code changes required.
- Time and resource to implement.

Other Options

Combinations of previously highlighted options could be considered where compatible.

FRCR 2025 Supplementary Report: Summary for SQSS Panel

Overview of key findings and
recommendations for panel

Background and Purpose

The FRCR 2025 Recommendations

Frequency Risk and Control Report (FRCR) 2025 is the fifth edition of the FRCR which proposed the following recommendations to maintain operational frequency security in a cost effective and carbon minimising manner:

- Reduce the minimum inertia requirement from 120 GVA.s to 102 GVA.s,
- Continue securing all BMU-only risks without applying additional actions to mitigate all BMU + Vector Shift or simultaneous events, and
- Procure an additional 200 MW of Dynamic Containment Low (DC-Low) to further reduce residual risks.

Their application should leave a residual risk of :

- a 1-in-23-year occurrence of a 49.2 Hz event
- a 1-in-30-year occurrence of a 48.8 Hz event

Background and Purpose

Ofgem's response to FRCR 2025

- FRCR 2025 was submitted to Ofgem in May 2025 and consulted on with industry, with concerns raised about transparency and implementation timescales.
- Ofgem subsequently commissioned an independent review by Professor Keith Bell from the University of Strathclyde

Ofgem Decision

Ofgem did not approve FRCR 2025 and issued a decision requesting additional information.

Purpose

This supplementary report responds directly to those requests by providing further evidence, clarification, and assurance.

Ofgem requested additional information in the following areas:

1. Clearer evidence of simulation validation and greater transparency in the estimation of probabilities.
2. More detailed information on modelling parameters and assumptions.
3. A review of the Dynamic Containment Low (DC-Low) market.
4. A revised implementation plan for inertia reduction.
5. A detailed outline of the scope of FRCR 2026.

FRCR 2025 Supplementary Report

FRCR 2025 Supplementary report

Section 1: Technical assurance

1. Clearer evidence of simulation validation and greater transparency in the estimation of probabilities.
2. More detailed information on modelling parameters and assumptions.

Section 2: Consideration in delivery of Dynamic Response services

3. A review of the Dynamic Containment Low (DC-Low) market.

Section 4: Expanded implementation plan for minimum inertia transition

4. A revised implementation plan for inertia reduction.

Section 6: Future plans

5. A detailed outline of the scope of FRCR 2026.

Policy Recommendations Reassurance

Rationale for FRCR 2025 Inertia and DC Low Recommendations

- Comparative assessment shows that reducing minimum inertia to 102 GVA.s does not materially increase residual frequency risk compared with 120 GVA.s.
- Residual risks at key thresholds (49.5 Hz, 49.2 Hz, 48.8 Hz) remain broadly unchanged across inertia options.
- Procuring an additional 200 MW of DC-Low materially reduces 49.2 Hz risk at modest additional cost.

In summary: The recommended FRCR 2025 policy maintains security while improving overall cost efficiency

Residual Risks	140 GVA.s	120 GVA.s	110 GVA.s	102 GVA.s
49.5 Hz event	2.84 times per year	2.85 times per year	2.85 times per year	2.85 times per year
49.2 Hz event	1-in-7.40 years	1-in-7.28 years	1-in-7.25 years	1-in-7.24 years
48.8 Hz event	1-in-26.09 years	1-in-25.89 years	1-in-25.83 years	1-in-25.83 years
50.5 Hz event	1-in-78.96 years	1-in-78.99 years	1-in-79.04 years	1-in-79.06 years
Total annual costs	£524m	£266m	£198m	£170m

Minimum inertia policy assessment

Residual Risks	BMU-only (baseline policy)	100 MW additional DC-Low (FRCR 2024 policy)	200 MW additional DC-Low	300 MW additional DC-Low
49.5 Hz event	2.85 times per year	2.56 times per year	1.85 times per year	0.5 times per year
49.2 Hz event	1-in-7 years	1-in-13 years	1-in-23 years	1-in-28 years
48.8 Hz event	1-in-26 years	1-in-29 years	1-in-30 years	1-in-31 years
Extra annual costs	£0	£1.61m	£3.23m	£4.84m

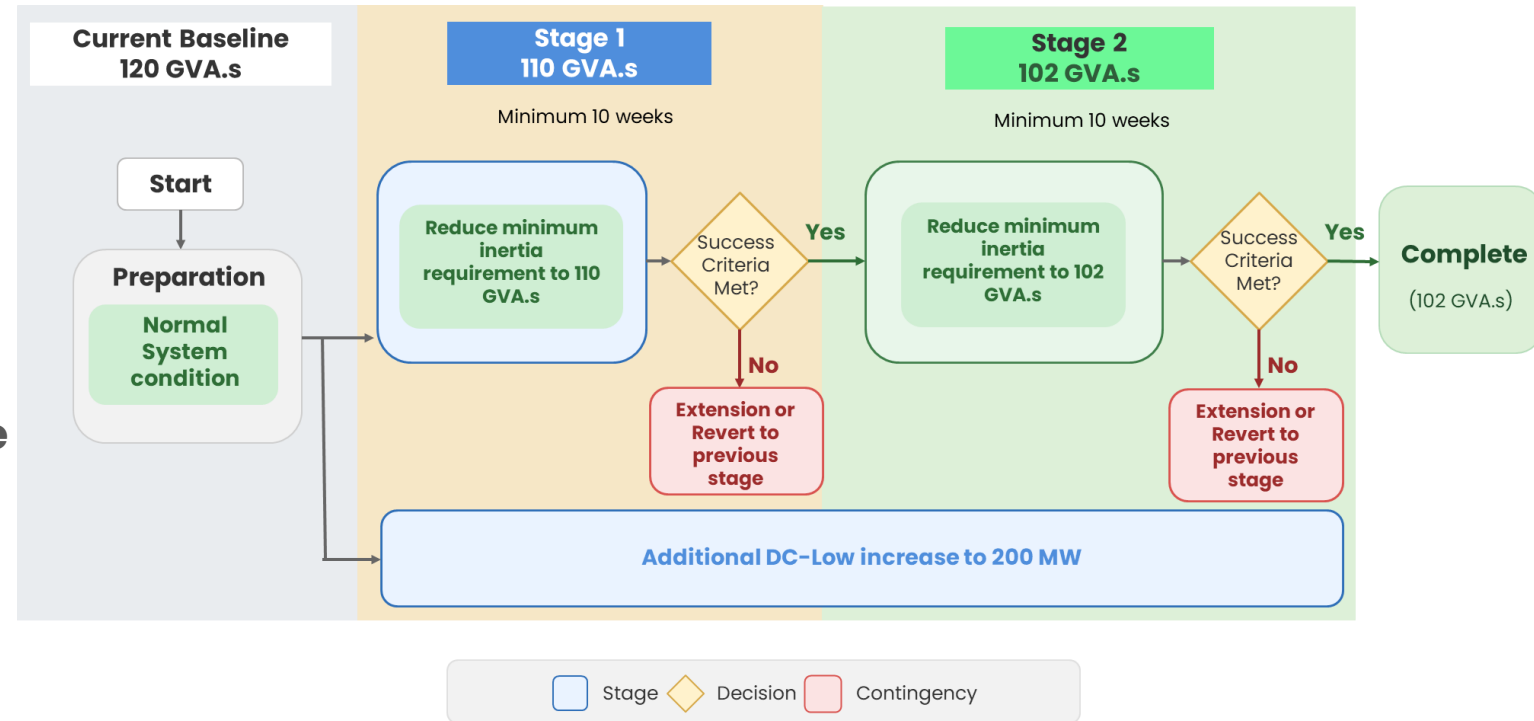
Cost vs risk with additional DC-Low response for 49.2 Hz event at 102 GVA.s

Revised implementation plan for minimum inertia reduction

Updated inertia reduction plan introduces a stage-gate approach and increases observation periods at each stage

Success metrics to be met before progressing from stage 1 – stage 2:

- Frequency performance
- Event-based Assessments
- Review of unexpected observations
- Operational Hours requirements
- DC market response



- Stage 1: Lower the minimum inertia requirement to **110 GVA.s** and observe for a minimum of 10 weeks.
- Stage 2: Further reduce the requirement to **102 GVA.s** and observe for a minimum of 10 weeks.

FRCR 2027 scope and governance

As of April 2026, FRCR governance remains set out in SQSS Appendix H with SQSS Panel oversight.

Updates to the formal governance of the FRCR is beyond the remit of the NESO, and we await the SQSS' decision on the structure of governance for subsequent FRCR submissions.

Ofgem has suspended the requirement to produce FRCR 2026, allowing a refocus on a revised FRCR 2027.

NESO has begun preliminary discussion on a scope review for the FRCR 2027 and beyond, gathering risk assessment requirements and methodological review needs from across NESO. This exercise is expected to continue through Q1 of FY 2026–2027, with new a new methodology presented for consultation soon thereafter.

Summary of Keith Bell's Report to Ofgem

Strengths of FRCR methodology	Short-comings of FRCR methodology (per Bell)	Bell's recommendation(s) addressing the short-coming
<ul style="list-style-type: none"> • Sound, principles-based framework balancing risk and cost • Clear conceptual definition of risk • Recognition that fast frequency response can substitute for inertia • Conservative assumptions were applied where data are limited • Coherent cost comparison of different frequency control options was provided • Use of single-bus frequency modelling as a fast, tractable tool for analysis • There is an explicit link between FRCR policy and SQSS • The report acknowledges the use of LFDD as the ultimate defense layer 	<ul style="list-style-type: none"> • Evidence is not presented clearly enough to give stakeholders confidence in the level of frequency risk being accepted 	<ul style="list-style-type: none"> • Revise and re-publish FRCR 2025, improving clarity of evidence, explicitly stating assumptions and their impacts
	<ul style="list-style-type: none"> • Insufficient validation of simulations against a wide range of real system events 	<ul style="list-style-type: none"> • Include explicit evidence of simulation validation in the FRCR and supporting documents
	<ul style="list-style-type: none"> • Probabilities of events are hard to verify, including claims on simultaneous / consequential events 	<ul style="list-style-type: none"> • Improve transparency in estimation of probabilities and enable independent scrutiny via clearer data and assumptions (Inability to confirm "1-in-23-year")
	<ul style="list-style-type: none"> • Effectiveness and reliability of Dynamic Containment not adequately evidenced 	<ul style="list-style-type: none"> • Publish evidence on the effectiveness and reliability of Dynamic Containment across a wide range of system conditions
	<ul style="list-style-type: none"> • Conservative assumptions are not clearly identified, justified, or stress-tested, reducing credibility 	<ul style="list-style-type: none"> • Explicitly document where conservative assumptions are made, why, and their impact, and test sensitivities
	<ul style="list-style-type: none"> • Demand-side inertia treated too simplistically, with a single assumed value across operating conditions 	<ul style="list-style-type: none"> • Investigate variability of demand-side inertia and improve underlying data and modelling access
	<ul style="list-style-type: none"> • Single-bus model hides regional effects, including local ROCOF, vector shift, and spatial protection responses 	<ul style="list-style-type: none"> • Supplement single-bus analysis with better spatial evidence, improve access to operational data, and investigate regional sensitivities
	<ul style="list-style-type: none"> • Inadequate treatment of ROCOF/vector-shift-driven DG tripping, especially under network faults 	<ul style="list-style-type: none"> • Investigate ride-through performance and improve Grid Code compliance, with better data on DG size, location and protection settings
	<ul style="list-style-type: none"> • Ambiguity between FRCR and SQSS obligations, especially what events must be secured and what "unacceptable frequency" means 	<ul style="list-style-type: none"> • Improve clarity of license and SQSS framing so obligations and exceptions are unambiguous
	<ul style="list-style-type: none"> • Fitness for purpose of LFDD under low-inertia, high-DG conditions not demonstrated 	<ul style="list-style-type: none"> • Conduct and publish a sector-wide LFDD review, covering future conditions and high-frequency risks
	<ul style="list-style-type: none"> • Emerging risks (e.g. low-voltage-induced frequency deviation, SSO, correlated events) not fully addressed 	<ul style="list-style-type: none"> • Investigate LV-induced frequency deviation, phase-angle jumps, SSO, and correlated loss mechanisms

**Addressed in the FRCR
2025 Supplemental report**

Activities ahead of the next Panel Meeting

Modification Proposal Deadline for November Panel	06 May 2026
Papers Day	13 May 2026
Panel Meeting	27 May 2026 Teams

Close

Teri Puddefoot
Chair, SQSS Panel