

Decision

Frequency Risk and Control Report 2025 Authority Decision

Publication date:	28 May 2026
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The Authority¹ approves² the proposed changes to the Frequency Risk and Control Report 2025³. In accordance with Standard Condition E7 of Annex E - Electricity System Operator Licence Conditions⁴ and the National Electricity Transmission System Security and Quality of Supply Standard in force at the time, the Authority hereby directs that the recommendations of the FRCR 2025 be made.

¹ References to the “Authority”, “Ofgem”, “us”, “we” and “our” are used interchangeably in this document. The Authority refers to GEMA, the Gas and Electricity Markets Authority. The Office of Gas and Electricity Markets (Ofgem) supports GEMA in its day-to-day work. This decision is made by or on behalf of GEMA.

² This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

³ The FRCR 2025 is available on NESO’s website: [Frequency Risk and Control Report 2025 For Submission.pdf](#)

⁴ [Annex E - Electricity System Operator Licence Conditions](#)

Decision Frequency Risk and Control Report 2025 Authority Decision

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Contents

Executive summary.....	4
1. Introduction.....	5
2. The FRCR 2025	5
3. NESO Industry Consultation	7
4. SQSS Panel recommendation	7
5. Ofgem industry consultation	8
6. Independent consultant review	8
7. NESO supplementary report	9
8. Reasons for our decision	10
9. Decision notice	11

Executive summary

The Frequency Risk and Control Report (FRCR 2025) explores how the NESO can improve the way it manages the electricity system to keep it stable and reliable. The NESO's FRCR report details their approach to maintaining the electricity system's frequency, security and resilience in an economic and efficient manner.

This year, in the fifth iteration of the FRCR, the NESO set out the following policy recommendations for system operation to:

- lower the minimum system inertia requirement
- continue to ensure the system can manage Power Station failures without causing major frequency changes by holding appropriate backup power capabilities
- further increase these backup power capabilities, to manage large frequency changes, using fast-acting solutions such as battery storage

The NESO asserts that these changes will make the system more economic and efficient whilst maintaining network safety and reliability. Ofgem, acting on behalf of consumers, in our role as the independent energy regulator, is required to approve changes to the FRCR.

Following our analysis of the FRCR 2025, evidence from the FRCR supporting documents, our consideration of the industry consultation responses, our independent consultant review and NESO's supplementary report, we approve the implementation of the FRCR 2025 policy.

1. Introduction

The Frequency Risk and Control Report (FRCR) is an annual report that was introduced to the SQSS in 2020 following the 9 August 2019 frequency event that affected over one million customers. The FRCR sets out how NESO assesses and manages frequency risks across Great Britain's transmission network, and defines what frequency risks the network is secured against.

The FRCR is developed by NESO and publicly consulted on before the SQSS Panel vote on a recommendation to send the proposal to us for decision. We have approved the first four editions of the FRCR, including the 2023 edition which recommended to reduce minimum system inertia from 140 GVA.s to 120 GVA.s. Last years' FRCR recommends a further minimum inertia reduction to 102 GVA.s, resulting in a cost saving of approximately £96m over the year.

Upon completion of the FRCR 2025 analysis, NESO launched an industry consultation on 3 March 2025, receiving seven responses before closing on 7 April 2025, with the final report submitted on 16 May 2025. Given limited engagement and the significance of concerns raised, we conducted a further consultation from 18 August to 12 September 2025, receiving 15 responses on both the FRCR 2025 and broader system operability issues. We then commissioned Professor Keith Bell to assess the robustness of the methodology, after which we requested additional information from NESO on 12 December 2025. This request lead to a supplementary report provided by NESO on 31 March 2026, with the outcome of this process captured in this decision letter and the published supplementary report.

2. The FRCR 2025

The fifth edition of the FRCR (FRCR 2025) concentrates on three main areas of frequency management: reviewing the minimum system inertia requirement policy, assessing the costs and benefits of reducing inertia beyond current policy and holding additional reserve response controls. The focus of the FRCR is to set the optimal balance between risk and cost, ensuring the GB system is effectively and appropriately protected from frequency events for the following year. The FRCR aims to improve transparency across industry and stakeholders, setting out clear and objective criteria by which NESO balances risk and cost to ensure the efficient security of supply for end consumers. The FRCR 2025 focuses on reducing the minimum inertia requirement and using frequency response controls to further reduce residual risks to provide better value for consumers.

Decision Frequency Risk and Control Report 2025 Authority Decision

At the current minimum inertia level of 120 GVA.s, NESO operates the system so that the risk of frequency dropping below 49.2 Hz (calculated by NESO) is 1 in 7.3 years. NESO's operational experience of power infeed losses since 9 August 2019 (including simultaneous losses) have shown the approach to be acceptable, with fast acting response services successfully enabling a reduction in the minimum level of system inertia. Furthermore, with the current 120 GVA.s minimum inertia policy, NESO has calculated that a total saving of £258m has been achieved in moving from 140 GVA.s to 120 GVA.s.⁵

The FRCR 2025 recommendation is to:

- reduce the minimum inertia requirement from 120 GVA.s to 102 GVA.s.
- secure all Balancing Mechanism Unit (BMU-only) events to keep resulting frequency deviations within 49.2 Hz and 50.5 Hz, as per existing policy.
- do not apply additional controls to secure all BMU + Vector Shift (VS) and simultaneous events, as per existing policy.⁶
- procure an additional 200 MW of Dynamic Containment (DC-Low)⁷ to increase system security and grow the market.

The FRCR 2025 findings show the costs (£170m) and potential savings (up to £96m per year) as estimated by NESO across the different minimum inertia requirements when fully mitigating all BMU-only infeed and outfeed loss risks. The cost of securing BMU-only risks is shown as well as the additional cost of securing BMU+VS (outage), BMU+VS (intact) and simultaneous events in the last four years' FRCR reports. Holding additional DC-Low also yields the same level of risk mitigation of 49.2 Hz events at 102 GVA.s as was present at 120 GVA.s without the additional DC-Low.

Using frequency services (DC-Low) is an effective tool for managing frequency risks. The cost savings achieved by reducing the need for inertia machines are significantly greater than the cost increases associated with DC-Low increases.

Furthermore, NESO's recommendation is that procuring system wide controls for BMU-only events continues to present the best cost-risk balance. Considering the high cost-

⁵ The balancing cost savings from reducing the inertia requirements used counterfactual calculations to estimate costs if the minimum inertia remained at 140 GVA.s. [Frequency Risk and Control Report 2025 For Submission.pdf](#)

⁶ Current policy of securing all BMU-only events still presents the best value according to NESO. NESO concludes that securing against all BMU+VS and simultaneous events would double the spend on DC-Low and require a significant increase in DC-Low capacity. This is not currently available and would put the current market under significant pressure and increase operational risk. Therefore, NESO does not see value in changing the current policy relating to securing all BMU+VS and simultaneous events as it does not provide value for consumers.

⁷ Dynamic Containment (DC) Low is a frequency response service which responds to under-frequency events in the electrical transmission system.

Decision Frequency Risk and Control Report 2025 Authority Decision

effectiveness of DC-Low, NESO recommends procuring an additional 200 MW and this could be used to further address a subset of risks beyond BMU-only events (BMU+VS and simultaneous events) and improve overall system security. This also further reduces the the risk of frequency dropping below 49.2 Hz from 1 in 7.3 years to 1 in 23 years. NESO asserts that procuring an additional 200 MW of DC-Low represents the optimal balance between cost and residual system risk.

3. NESO Industry Consultation

NESO consulted on the FRCR 2025 from 3 March 2025 to 7 April 2025, receiving seven responses. NESO acknowledged all comments to the consultation and offered the opportunity to arrange follow-up meetings with relevant specialists to address their concerns regarding the FRCR 2025 consultation responses.

During the consultation, there were concerns raised regarding the 102 GVA.s policy recommendation relating to regional inertia and Rate of Change of Frequency (RoCoF) management. Requests were made for NESO to undertake further exploration of Sub-Synchronous Oscillation (SSO) events, lower inertia operations, and a more comprehensive review and validation of assumptions, methodologies, and models. NESO asserts these are out of the FRCR's immediate scope and NESO has initiated the work with industry, through the Grid Forming Control expert group and other workstreams, to tackle the issues in the longer term. NESO will continue monitoring and analysing regional operability issues following system events, and introduce mitigations as needed. Concerns with the BMU-only event and additional 200 MW DC-Low response holding were addressed following the post consultation engagement.

4. SQSS Panel recommendation

The SQSS Panel voted by majority to recommend the FRCR 2025 and methodology be submitted to the Authority for approval on 16 May 2025. Of the seven votes, four were supportive of the recommendations with respect to minimum inertia levels and increased DC-Low provision. Three SQSS Panel members abstained from voting.

We note the reasons given for the abstentions following further engagement by NESO with the panel members. We also note the commitments made by NESO to improve the FRCR transparency and engagement.

5. Ofgem industry consultation

We consulted⁸ on the FRCR 2025 from 18 August 2025 to 12 September 2025, receiving 15 responses. Views from stakeholders were requested on the FRCR 2025 and on wider system operability concerns. Around a third of respondents were in favour of the policy being adopted, with reference to the increasing maturity of fast-acting response services and the cost savings for consumers of adopting a lower minimum inertia threshold. Respondents who raised concerns on NESO's approach, cited various recent system events and a desire for improved transparency from NESO regarding system incident reporting⁹ and modelling fidelity.

A common theme raised by respondents was the speed at which NESO has proposed to move to 102 GVA.s, allocating a five-week period for the reduction from 120 GVA.s to 102 GVA.s to take place. Broader concerns regarding NESO's overall strategy of securing the network against frequency deviations were raised and NESO was encouraged to consider these alongside the existing scope in future FRCRs.

6. Independent consultant review

To aid our deliberations, from October 2025 to January 2026, Professor Keith Bell was commissioned to review the FRCR 2025 taking into consideration whether its methodology is sufficiently comprehensive and robust in managing frequency-related risks. This included evaluating the quality of modelling, data, and assumptions underpinning its recommendations, and assessing NESO's evidence that system frequency can be maintained under credible power infeed losses with 102 GVA.s of inertia and fast frequency response. Our request also included obtaining a view on NESO's claim of a 1 in 23 year risk of extreme frequency events and if other risks have been overlooked. Further improvements were also to be explored, such as assessing the impact of DC-Low on minimum system inertia requirements and any additional comments or observations to help inform our decision.

In this independent report, it states that 'the evidence in support of the assertion that reduction in system inertia would not unduly increase system risk is mostly centred on a reasonable set of factors but is not presented sufficiently clearly to give stakeholders confidence in the level of risk to which the system is being exposed.'

The report also recommends that the FRCR 2025 documentation be revised and re-published to provide clearer evidence of simulation validation and greater

⁸ [Frequency Risk and Control Report 2025 consultation.pdf](#)

⁹ [GC0181: Enhance the Effectiveness of System Incidents Reporting | National Energy System Operator](#)

Decision Frequency Risk and Control Report 2025 Authority Decision

transparency in the estimation of probabilities and system parameters, particularly where conservative assumptions have been applied. Finally, the report calls for robust evidence on the effectiveness of DC-Low under a wide range of system conditions, to demonstrate its reliability in maintaining system stability.

Looking beyond the immediate FRCR 2025 revision, the report recommends a comprehensive strengthening of frequency risk management by NESO. It calls for an updated review of Low Frequency Demand Disconnection (LFDD) to cover frequency risks, timely implementation of performance improvements, and investigations into generator, interconnector, and storage compliance with Grid Code ride-through requirements. Lessons from international system failures, particularly the Iberian Peninsula system collapse, should be captured, while NESO must ensure reliable real-time measurement of power flows and accurate data on distributed generation and storage.

The report also highlights the need for better access to operational data for system modellers, improvements in SQSS governance and clarity of licence framing. Deeper analysis of emerging risks such as low-voltage induced frequency deviation, phase angle jumps, and market-related behaviours linked to smart tariffs and Contracts for Difference (CfDs) are also recommended. Finally, it stresses the importance of managing risks from large load disconnections and reconnections and leading a sector-wide discussion on what constitutes acceptable versus unacceptable risk.

7. NESO supplementary report

On 12 December 2025, we issued our decision not to approve the FRCR 2025.¹⁰ We required NESO revise the FRCR 2025 and re-submit it to us for decision by 31 March 2026. NESO's supplementary report, which accompanies this publication, sets out further justification for the FRCR 2025 policy recommendations. The report provides:

- clearer evidence of simulation validation and greater transparency in the estimation of probabilities
- further evidence around the assumptions, methodologies and modelling parameters supporting the quantitative analysis underpinning the policy recommendations
- a review of the DC-Low market

¹⁰ [FRCR-2025-Authority-Decision.pdf](#)

Decision Frequency Risk and Control Report 2025 Authority Decision

- a revised implementation plan for inertia reduction. NESO retain their recommendation to reduce inertia in stages to 110 GVA.s and then 102 GVA.s, however, propose to extend the duration of trialling lower inertia from 5 to a minimum of 10 weeks, and have set out success criteria to review the impact prior to further reducing inertia (down to 102 GVA.s)
- a detailed outline of the scope of the FRCR 2026. We note that following our decision to waive the requirement for an FRCR 2026, NESO will proceed directly to produce the FRCR 2027¹¹. NESO intends (in FRCR 2027) to distinguish between near-term, quantifiable risks and longer-term emerging considerations
- NESO's intent to review future FRCR governance arrangements within the standard SQSS governance framework

NESO presented this report to the SQSS panel on 29 April 2026, where no objections were raised.

8. Reasons for our decision

Following our analysis of the FRCR 2025, evidence from the FRCR supporting documents, our consideration of the industry consultation responses, our independent consultant review and NESO's supplementary report, we approve the implementation of the FRCR 2025 policy.

Overall, we consider the FRCR 2025 has met the criteria by which NESO balances cost and risk of frequency deviations (above 50.5 Hz, or below 49.5 Hz, 49.2 Hz and 48.8 Hz). The FRCR 2025 assesses the risk of a discrete list of single events, and a statistical summary of simultaneous events, leading to frequency deviations, and the cost of a mix of options available to NESO to prevent, or reduce the likelihood of, such frequency deviations from occurring. The analysis set out in the supplementary report sufficiently articulates the assumptions underpinning the FRCR 2025 policy recommendations. We therefore consider that the implementation of FRCR 2025 is sufficiently detailed to allow us to determine its impact on the interest of consumers.

¹¹ [SQSS FRCR 2026 Authority Decision.pdf](#)

Decision Frequency Risk and Control Report 2025 Authority Decision

We also note the proposed amendments to the terms and conditions of the Static Firm Frequency Response (SFFR) service.¹² NESO is confident that, from the mix of procured SFFR and DC-Low, that the statutory requirement of recovering frequency to 49.5 Hz within 1 minute is achievable with a 49.65 Hz SFFR trigger, even with potentially faster falling frequency under a lighter inertia system.

9. Decision notice

In accordance with Standard Condition E7 of Annex E - Electricity System Operator Licence Conditions¹³ and the National Electricity Transmission System Security and Quality of Supply Standard in force at the time, the Authority hereby directs that the recommendations of the FRCR 2025 be made.

Shilen Shah

Head of Strategic Planning, Codes and Standards

Signed on behalf of the Authority and authorised for that purpose

¹² [Amendments to the Terms and Conditions related to Balancing for Static Firm Frequency Response Service \(SFFR\) | Ofgem](#)

¹³ [Annex E - Electricity System Operator Licence Conditions](#)