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NESO reply to consultation comments

Key comments in FRCR Policy Report

Q: You had a question regarding “a substantially uneven DC requirement” and how this interacts with the increased operational risk and cost.

A: You can see more articulated explanation in Chapter 6. "Uneven" in the context refers to the uneven profile of DC due to large volatility of the loss profile. For example, in order to secure BMU+VS event, the DC requirement could be extremely high for some Settlement Period (SP) or Electricity Forward Agreement (EFA) block, due to the high MW of the BMU+VS loss in that particular SP or EFA block, which introduces large uncertainty and volatility on the DC market. If the DC market is unstable / with large uncertainty, NESO is exposed to a higher risk that we might see large deficit after the day-ahead procurement. Given the within day / close to real-time frequency service market still under developing, if we are unable to secure sufficient Mandatory Frequency Response (MFR) to replace DC, we could be unable to secure the largest loss as required in the policy. In an extreme case, when the DC requirement is large and the market deficit is large after the auction, MFR is unable to contain a large loss due to its technical limitation, e.g. slow reaction.

Q: You asked if FRCR recommends holding additional DC-L and H or L only.

A: To clarify, the recommendation is to hold additional DC-L only.

Q: You commented and clarified the discussion of an independent audit of FRCR in November 2024 Panel meeting and the future opportunity to appoint an independent external party to conduct a full review of the methodology and analysis.

A: Thanks for clarifying this. We will update this in the final report. We will discuss this further in the Panel meeting. Also you are correct, the Panel wasn't involved in the ToR drafting but NESO made the decision and informed the Panel under tight delivery deadline.

Q: You questioned whether the v3 methodology release had been consulted upon.

A: To clarify, v3 methodology document has no material change from v2 and the changes only related streamlining to reflect current analysis. Therefore there was no consultation conducted. Also, to analysis with extended time horizon / forward looking

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view does not need change in the methodology. This is to answer one of your questions in the report.

Q: You had questions about if the impacts of a LFDD event being assessed. You also pointed out that NPg has proposed in the past that it would be good to model the risk of the frequency falling to less than 48.8 Hz such that and LFDD relay operation would be triggered hence a direct impact to the customers.

A: FRCR analysis is to quantify cost to avoid a LFDD event and hence the residual risks of such event occurs following applying the controls and the associated cost. Wider system impact after LFDD is triggered is out of FRCR scope. In FRCR report we mentioned on a high level, the operational effectiveness of LFDD relay based on previous events.

However, future FRCRs could consider the tolerance level, as required in the Grid Code, as the worst case scenario, and a review how best to model it.

Additional work would be required to review the LFDD tolerance setting (Grid Code CCA.5.11) which is out of FRCR.

Q: You asked for the relevance of OSR to FRCR.

A: FRCR focuses on frequency management security and recommended a national level minimum inertia requirement. Frequency control could have interactions with other operability requirements, for example, locational voltage, short circuit level requirements. Due to other operability requirements the overall system outturn inertia could be higher than the minimum that is recommended in FRCR policy. OSR is the publication discussing wider operability issues and requirements and explaining interactions between national inertia and other operability requirements. By mentioning OSR, FRCR diverts all other operability discussions out of FRCR document and consultation.

Q: You commented regarding the historical events that if the events occurred when the system inertia was at the minimum value how would the system have responded.

A: We have done some hypothetical analysis to review 2019, 2023 and 2025 simultaneous events and will include them in the final report.

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Q: You commented if we see the number of simultaneous events increasing and whether NESO has concerns.

A: From FRCR point of view, this is the first edition that we have calibrated the historical event occurrence and modelled them probabilistically, mainly due to the well-established GC0151 and GC0105 reporting mechanism. Due to its complexity nature of a simultaneous event, it is hard for us to comment the likelihood and root cause to predict future trend.

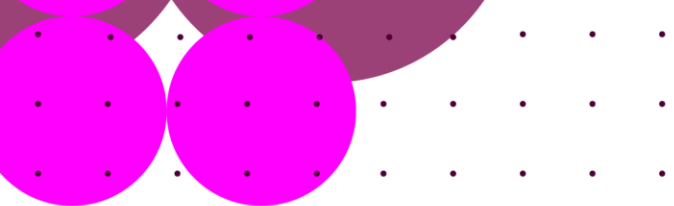
No	Questions	Comments	NESO Response
7	Do you agree that the FRCR 2025 has been prepared appropriately? Please elaborate...	<p>Generally, yes. The assurance work undertaken with Accenture has provided reassurance that the documented process has been followed, although it is unclear whether V2 or V3 of the FRCR methodology has been used.</p> <p>However, we are of the view that further work is required to review the methodology and the models used when developing the annual FRCR to ensure that there is a proper assessment of the risks of supplies to customers. We are mindful that the types of generation plant connected to distribution and transmission systems is changing from traditional rotating plant to inverter connected technology and hence the dynamics of the system are changing. We recognise that such systems are complex to model yet the consequences of modelling incorrectly or failing to take proper account of low probability high consequence events could have a material impact on customers.</p> <p>Hence, we recommend that consideration be given to undertaking a fundamental review of the methodology, involving NESO, stakeholders and academia including gathering worldwide operational experience.</p>	<ul style="list-style-type: none"> • Thanks for sharing the thoughts. Methodology v3 has no materialised change from v2. As indicated in the version control in Methodology v3 document, the update is to streamline relevant contents for FRCR 2025 and update to NESO report template. We will make sure the purpose of updating Methodology v3 is clear in FRCR 2025 main report. • We would agree FRCR methodology needs to be updated to reflect and better model the risks from fast changing power systems. We will consider wider industry engagement and run separate consultation for this.

8	Do you believe there has been sufficient industry engagement in preparing FRCR 2025? Please specify further suggestions.	<p>Generally, yes. The workshops were welcome and helpful in providing background to the FRCR. The format of the sessions, with questions being provided and responded to online, limited the extent to which they engaged with stakeholders.</p> <p>Perhaps for 2026 consideration could be given to holding a face to face workshop with the opportunity to raise questions. This should facilitate better stakeholder engagement.</p>	<ul style="list-style-type: none"> Thanks for the comments. We will consider other approaches when engaging with stakeholders.
9	Overall, do you agree that the FRCR 2025 represents the appropriate level of development in determining the way that the NESO will balance cost and risk in maintaining frequency security while operating the system at a reduced inertia down to 102 GVA.s? Please use the boxes below for the bullet points.	<p>Based on the information provided in the FRCR, probably, but the subject is complex, and we don't have a sufficiently robust understanding of the issues, underlying assumptions, methodology or the models themselves to be able to take an informed view.</p> <p>We have provided detailed comments and observations in the attached marked up version of FRCR 2025, which forms an integral part of our consultation response.</p>	<ul style="list-style-type: none"> Thank for the comments. Where the comments related to editorial points or points of clarification we have tried to incorporate these in the final version of the FRCR.
10	Do you agree with the recommendation to reduce minimum inertia requirement down to 102 GVA.s?	See our response to question 9.	
11	Do you agree with the recommendation to secure all BMU-only	See our response to question 9.	

	events (including consequential RoCoF)? If not, please explain why.		
12	Do you agree with the recommendation to procure additional DC-Low service provision by 200 MW ? If not, please explain why.	See our response to question 9.	
13	Do you have any other comments to the recommendations?	See our response to question 9.	
14	In your view, what should the future FRCR focus on?	We have provided detailed comments and observations in the attached marked up version of FRCR 2025, which forms an integral part of our consultation response.	
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?	<p>The issues addressed in the FRCR are complex and important; if they are not addressed properly there could be significant implications for GB customers arising from widespread power outages. As mentioned in FRCR 2025 consumers are not really affected by system frequency changes until they fall to 48.8HZ when the LFDD arrangements start to disconnect customer demand.</p> <p>Because of the criticality associated with the FRCR recommendations, it is important that they are subject to a robust review by a group that has sufficient time and expertise to take an informed view.</p>	<ul style="list-style-type: none"> Thanks for the comments. We will collate all the feedback through this consultation and discuss with the SQSS Panel and Ofgem.

		Irrespective of whether the requirement for NESO to produce a FRCR is in the SQSS or the ESO Licence, we are of the view that the analysis should be subject to a robust independent review. This would provide reassurance to Ofgem, as the ultimate decision maker, that the recommendations in the FRCR are appropriate to implement.	
16	If the obligation to produce the 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?	<p>The SQSS panel is an informed experienced group and can provide oversight irrespective of the governance arrangements.</p> <p>Some panel members have expressed concern in the past about the level of technical expertise required to make an informed decision. SQSS clause H18 recognises that the panel may need to 'seek appropriate advice and guidance' when developing a recommendation to Ofgem. If the SQSS panel continue to have an obligation to make a recommendation to Ofgem we believe that panel members should engage with independent organisations, and be provided with sufficient funding to undertake that activity.</p>	<ul style="list-style-type: none"> Thanks for the comments. We will collate all the feedback through this consultation and discuss with the SQSS Panel and Ofgem.
17	If your 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	<p>Pleased see our responses to questions 15 and 16.</p> <p>Whilst it is important that the agreed methodology is implemented properly, it is also important that the assumptions, methodology and models themselves are sufficiently robust.</p>	<ul style="list-style-type: none"> Thanks for sharing your thoughts with us. Based on the previous comments, we would like to seek wider industry engagement for FRCR to better model emerging new risks and develop new methodology that would help us better manage the risks. We will discuss with the SQSS Panel and Ofgem the requirement of running independent technical review of the

	should it be limited to confirming that the governance process has been followed correctly?		methodology development, implementation of the methodology and data input to the methodology.
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