FRCR Methodology Consultation Response Proforma

FRCR Methodology Consultation

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses to box.sqss@nationalgrideso.com by **5pm** on **Wednesday 13 January 2021**. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

If you have any queries on the content of this consultation, please contact Robert Wilson Robert.Wilson2@nationalgrideso.com or box.sqss@nationalgrideso.com

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Please express your views in the right-hand side of the table below, including your rationale.

FRCR Methodology Consultation questions		
1	Overall, do you agree that this methodology will allow the preparation of an appropriate FRCR? (as required by modification GSR027)	Yes. This is a complex area and we recognise that this methodology and the subsequent report will be the initial version. Industry understanding of the topic area and the scope of the methodology / report will evolve over time; as the methodology is applied it's inevitable that further issues and concerns will be raised that will need to be addressed in subsequent versions. There may be a need to review the methodology and its application sooner if the findings of the analysis results in recommendations that would materially change NGESOs current operational policy. In terms of the focus of the methodology, we suggest there should more emphasis on assessing the implications for customers affected by an event. For example an L3, (LFDD) event, depending on the severity of the frequency deviation can have a range of implications for customers. For example: • If the frequency only falls to a level very slightly

		under the 48.8Hz LFDD threshold (i.e. within the operating tolerance of the LFDD relays) such that only a small proportion the relays operate, the event would affect a proportion of the of the 5% of demand (approximately 1 million customers) associated with LFDD Stage 1 for a short period of time. • If the frequency falls to significantly less than the 48.8Hz LFDD threshold such that full Stage I LFDD or multiple LFDD stages operate, then the event would affect millions of customers probably for an extended period of time. The greater the number of customers affected and the longer the interruption time, the greater the societal, political and media interest and the societal tolerance threshold will be lower. Furthermore, the societal tolerability of such an event will depend on whether subsequent events affect the same group of customers. For example a 1 in 2 year LFDD event affecting 100,000 customers may be acceptable provided that any given group of 100,000 customers was only affected every tenth event (as they would see this as a 1 in 20 year event). Given that the focus of the FRCR is to ensure that an appropriate amount of customers' money is spent managing the supply risks to a level that is acceptable to society, it will be important for NGESO to provide information, possibly in the form of a briefing note, to explain the security implications arising from implementation of the FRCR to customers, particularly where they have been affected by an event.
2	To help structure comments, what is your feedback on the following sections of the methodology?	*Please use the boxes below for the bullet points in questions numbered 2a-2j*
2a	• Aim	We have the following comments on this section: • 4.1.1: We understand that the purpose of the FRCR is to provide information and recommendations so that the SQSS panel and the Authority (rather than NGESO) can establish the appropriate balance between reliability of supplies and cost. It is important that the FRCR

		presents the analysis and recommendations in a form that can be understood by stakeholders, the SQSS Panel and the Authority. • 4.1.2: Whilst one of the specific requirements of the FRCR is to define the parameters of Unacceptable Frequency Conditions (as defined in the SQSS) in terms of their magnitude, duration and frequency of occurrence, it is important that the FRCR relates Unacceptable Frequency Conditions to the impacts that are relevant to customers. For example customers will be more interested in frequency deviations that result in LFDD operation than those that 'just' result in the system frequency exceeding the current NGESO operational limits. • 4.1.3: We agree that it is important to engage industry stakeholders in the overall decision making process and to explain the methodology, analysis and recommendations as clearly as possible so that the risks and mitigations can be properly understood by stakeholders and decision makers; system risk is a specialist subject which is probably well understood by a small number of people in GB. It will be important to make sure that the various options and the recommended option in the FRCR report are sufficiently well explained so that it isn't simply accepted because it's 'too hard' for decision makers to challenge or propose alternatives. We would expect the FRCR to contain a range of reliability and cost options from which a recommendation is made. • 4.2: We agree that a key scope of the methodology is to facilitate transparency and recognise the current interest in Dynamic Containment and the Accelerated Loss of Mains Change program, however the development of the initial FRCR report provides an opportunity to take a bottom-up holistic overview of the most material system risks and more expensive mitigating actions as well as considering the possibilities for delivering 'quick win' improvements to existing policy and initiatives.
2b	• Impacts	We have the following comments on this section: • 5.1: The SQSS requires that the FRCR defines what is considered reasonable as being 'infrequent and tolerable' for each of the three characteristics of transient frequency deviations;

		the methodology needs to be clear as to how this tolerability will be established, i.e. how the tolerability of stakeholders who are affected by transient frequency disturbances will be assessed. This is important because it will focus expenditure on control actions on those deviations where there is customer intolerance. • 5.2: Given that this is the first FRCR report, we can appreciate that the three impacts H1, L1 and L2 relate to current practice which underpin the reliability of the system provided today, but the actual impact of these three impacts needs to be considered further as they appear to have a potential impact predominantly for NGESO and plant operators rather than directly for customers. Impact L3 (LFDD) clearly has implications for customers. It appears that there is some dependency between these impact levels e.g. a L2 impact (48.8 <Hz < 49.2) where the performance of plant is less certain, could lead to the loss of generation plant such that a L2 event evolves into one with a L3 (47.75 <Hz < 48.8) impact and results in the operation of LFDD relays. The methodology needs to be clear how such evolving events are considered.
2c	• Events and loss risks	We have the following comments on this section: • 6.1.1: It would be helpful to clarify that the six categories of loss risk are all those currently considered in the present NGESO policy, i.e. that the FRCR methodology covers all the credible loss risks rather than just a subset that are related to the risk arising from the inadvertent operation of LoM protection. • 6.1.2: It would be helpful to clarify that such transmission network losses are events that could lead to, for example a BMU or VS- only event, and are included in the assessment summarised in 6.1.1. • 6.2: This section explains that it is impractical to cater for the combined size of the largest loss, and that significant analysis is required to consider the impact of simultaneous losses. We appreciate this and recognise that simultaneous losses will be considered in future iterations of the FRCR. However, there may be some smaller individual events, that have a reasonably high likelihood of occurrence, which could occur simultaneously and have a greater impact than a

		single loss; how might these events be considered.
2d	• Controls	We have the following comments on this section: • 7.1: We understand that in the initial methodology there is a need to make some baseline assumptions, and basing these assumptions on existing NGESO policy seems reasonable, but there is a need to make sure that in doing so there are no implicit assumptions embedded in the existing NGESO policy that are material and may need to be challenged. • 7.2: The FRCR methodology includes consideration of the variations to the existing 'holding frequency response' and 'LoM loss size' controls, but not the other two controls, 'reducing BMU loss size' and 'increasing inertia'. It is not clear why variations to all four controls aren't included in the methodology. • 7.2: It would be helpful to clarify that two aspects of 'holding frequency' response are to be considered – dynamic containment and revised frequency limits for generation loss.
2e	• Metrics for reliability vs. cost	We have the following comments on this section: • 8.2: The FRCR methodology propose some metrics for consideration by industry and the Authority, but the process for agreeing the metrics is unclear as the FRCR methodology is only presented to the SQSS Panel rather an the Authority for 'approval'. Does there need to be agreement on the metrics before the methodology can be applied? • 8.2.1: The FRCR methodology suggests that "industry may choose to define an upper limit or guide on how often each impact could be accepted to occur". Presumably these events include LFDD events. The process for establishing such guidance is unclear even if the FRCR provides several costed options from which industry could choose. We do, however, agree that how often each impact is expected to occur is a relevant metric. • 8.2.2: We agree that it is important to include a metric for the cost of an avoided event, and believe that the means of evaluating such a cost, that properly assesses the wider societal impacts, is fraught with difficulties. It does appear that VoLL in its present from is not an acceptable metric. It may be that guidance is required from

		BEIS and Ofgem to seek their thoughts on the acceptable frequency of events such as the one that occurred on 9 August 2019. We do, however, agree that it is important to understand which events can be readily tolerated by stakeholders (e.g. frequency transient deviations between the operational and statutory frequency limits) and those which can't (e.g. multiple and extended LFDD events per year. • 8.2.3: Whilst the total cost of managing a portfolio of risks is important, as this is part of the high level 'value for money' assessment, it is also important to have some granularity of this overall figure so that there can be an assessment of whether there is value in mitigating against specific events or categories of events, but not others. Again the process by which industry (and stakeholders) could agree or provide guidance on the total cost of control actions, is unclear. We agree that the total control cost, broken down with some degree of granularity, is a reasonable metric.
2f	• Analysis - general approach and assumptions	We agree that it is reasonable to use historic time half hourly data to establish a baseline, as a basis for analysis and for making future projections.
2g	• Analysis - step-by-step	We have the following comments on this section: • 10.1: We recognise that this is a new area or work and that there is a need to establish a baseline for the assessment, however we do have some concerns with this approach; see our response to question 2d. • 10.2: Whilst 'Controls' have been discussed in the paper, 'Control Scenarios' haven't and further clarity here would be helpful. We understand that some of the detail that might be expected to be included in the FRCR methodology will be developed during the first application of the methodology, although such details should be included in future versions of the methodology. • 10.3: Further clarity on what the scenario considered actually is would be helpful; are these control scenarios or event scenarios. Is a scenario a specific event e.g. a BMU-only event at a specific historic half hour period to which one of a range of control combinations is applied? • 10.3.2.1: Is there a need to establish the system risk with none of the system controls applied as this would help establish the magnitude of the

		underlying risk and provide justification for the 'system wide' control actions.
2h	• Outputs	We have the following comments on this section: • 11.1.1: Section 10.3.4 provides an overview of the cost / risk assessment for each scenario, but it is unclear how the results of each scenario would be combined to produce information used to form the outputs in section 11 which appear to be total system based rather than scenario based. As mentioned previously it's unclear how the metrics for reliability and cost, and the tolerability limits associated with those metrics will be established via this consultation process. • 11.2: We would have expected that, in addition to a single recommendation, the FRCR methodology would output a range of options expressed in terms of the cost of control actions and the likelihood of the four defined impacts, so that the decision makers could set the recommended option in context and in relation to consumers tolerability to each of the defined impacts. We appreciate that is not straightforward to analyse, but the summary table in 11.2 only presents the probability of, for example an L3 event occurring, rather than the customer impact (i.e. how many customers would be off supply and for how long) when it does occur). For example: o If the frequency only falls to a level very slightly under the 48.8Hz LFDD threshold (i.e. within the operating tolerance of the LFDD relays) such that only a small proportion the relays operate, the event would affect a proportion of the of the 5% of demand (approximately 1 million customers) associated with LFDD Stage 1 for a short period of time. o If the frequency falls to significantly less than the 48.8Hz LFDD threshold such that full Stage I LFDD or multiple LFDD stages operate, then the event would affect millions of customers probably for an extended period of time. The tolerability of customers to these two events will be very different.
2i	• Future considerations	We agree that these are the types of issues that should be addressed in future iterations of the FRCR. In terms

		of direct implications for customers, focusing on the assessment of the probability of events triggering more than one LFDD stage should be prioritised.
2j	• Input and data sources	Click or tap here to enter text.
3	How well will this methodology address its three key aims?	*Please use the boxes below for the bullet points in questions numbered 3a-3c*
3a	• establish a clear, objective, transparent process for assessing reliability vs. cost to ensure the best outcome for consumers	The FRCR methodology and the FRCR itself will provide a step increase in the level of transparency compared to the existing arrangements, however this is a complex area that is likely to only be understood by a relatively small number of stakeholders and it is important that the analysis carried out is explained sufficiently simply and clearly so that the findings of the analysis actually increase the transparency in practice.
3b	• make the assessment of the risk from the inadvertent operation of Loss of Mains protection transparent	Subject to our response to question 3a, the analysis should provide more transparency on the risks arising from inadvertent LoM protection operation.
3c	• identify quick, short-term improvements for reliability vs. cost	We can see that the work should identify whether there are any ‘quick wins’ in the analysed scenarios.
4	Do you have any other comments?	This is a complex, significant and potentially material piece of work that is to be developed in a relatively short timescale and is therefore may not receive the level of peer group review that is probably deserved – at least in its initial iteration. This is probably reasonable if there are no significant changes to the current NGESO policy proposed in the recommendations; if the analysis recommends significant changes to current NGESO policy, the methodology and its application should probably be subject to further review before any significant changes are implemented.