GSR027:

Review of the NETS SQSS Criteria for Frequency Control that drive reserve, response and inertia holding on the GB electricity system

Workgroup Consultation

Webinar

23rd Sept 2020 10:00-11:00

Meeting Number: 130 349 9628
https://uknationalgrid.webex.com/uknationalgrid/j.php?MTID=m3d34801b8b62f4d69966f8c81026fcc7

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Summary of the Proposals Being Consulted On

- Legal text changes in the SQSS that will:
  - Amend the definition of ‘Unacceptable Frequency Conditions’ to reference the Frequency Risk and Control Report (FRCR) that will set out the contingencies that the ESO will cover operationally
  - Provide standing to the FRCR and the FRCR methodology that will be used to produce this
  - Clarify that consequential losses of distributed energy resources associated with any event will be included in FRCR considerations.
- Text to set out the process that will be followed for the production, consultation on and approval of the both the FRCR methodology and FRCR itself.
- An indicative draft methodology (approval of this will not be sought as part of the submission of GSR027)

Timeline for GSR027

Milestone	Date	Milestone	Date
Workgroup Nominations (15 working days)	29 April 2020 to 21 May 2020	Panel sign off that Workgroup Report has met its Terms of Reference	21 October 2020
Workgroup 1 (Introductions, understand the Modification and proposed solution and confirmation on Terms of Reference	8 July 2020	Code Administrator Consultation (10 Working Days)	23 October 2020 to 6 November 2020
Workgroup 2 (Develop details of solution - a) housed where? b) review draft methodology and c) review proposed changes to SQSS legal text)	28 July 2020 (9.30 - 12.30)	Draft Final Modification Report (DFMR) issued to Panel (5 Working Days)	10 November 2020
Workgroup 3	4 September 2020 (9.30 -12.30)	Panel undertake DFMR recommendation vote	18 November 2020
Workgroup 4	11 September 2020	Final Modification Report issued to Panel to check votes recorded correctly (1 Working Day)	19 November 2020
Workgroup Consultation (10 working days)	16 September to 30 September 2020	Final Modification Report issued to Ofgem	23 November 2020
Workgroup 5 - Assess Workgroup Consultation Responses and agree legal text	7 October 2020	Ofgem decision	TBC
Workgroup 6 – Workgroup Vote	8 October 2020	Implementation Date	TBC
Workgroup report issued to Panel	13 October 2020		

SQSS Review Requirements – Actions Arising from 9 Aug Event

E3C final report:

Action 5: The ESO, in consultation with industry, should undertake a review of the SQSS requirements for holding reserve, response and system inertia. This review should consider:

- the explicit impacts of distributed generation on the required level of security;
- whether it is appropriate to provide flexibility in the requirements for securing against risk events with a very low likelihood, for example on a cost/risk basis; and
- the costs and benefits of requiring the availability of additional reserves to secure against the risk of simultaneous loss events.

Timing: The ESO should put forward modification proposals to the SQSS by April 2020.

Ofgem final report:

5.7. *Action (1):* The ESO, in consultation with the industry, should undertake a review of the SQSS requirements for holding reserve, response and system inertia.

5.7.1. This review should consider:

- the explicit impacts of distributed generation on the required level of security
- whether it is appropriate to provide flexibility in the requirements for securing against risk events with a very low likelihood, for example on a cost/risk basis
- the costs and benefits of requiring the availability of additional reserves to secure against the risk of simultaneous loss events

5.7.2. The ESO, as the party required to operate to the standard, should carry out this review and raise modification proposals to the SQSS Panel by April 2020. This would provide the appropriate channels for industry scrutiny and transparency, and for an ultimate Ofgem decision on any required changes to the standard

Aims

Engagement:

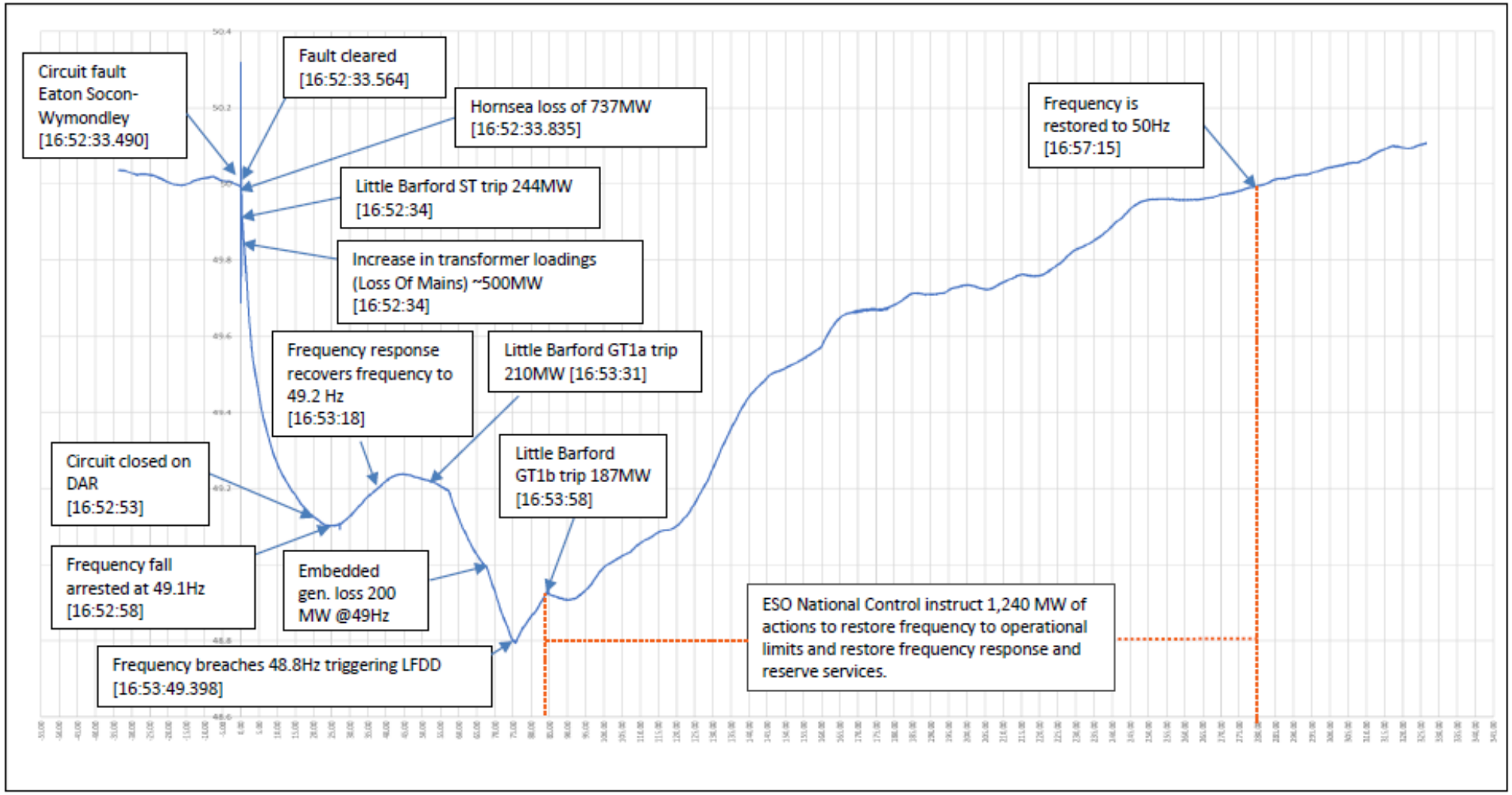
- The SQSS criteria for frequency performance were implemented to provide a defined level of security with an expected level of cost. Changing the SQSS to reflect additional risks will impact that balance. In raising any modification that balance must be considered with a wider audience to ensure the right outcomes for industry and the consumer.
- Presented draft proposals at meetings of Grid Code, SQSS and BSC Panels plus March Grid Code Development Forum

Challenges:

- The modification must be explicit in its treatment of Distributed energy resources (DER) and simultaneous losses
- The current SQSS framework is specific in some but not all areas and optimisation is carried out by the ESO in a broader context: any modification must also improve transparency
- The conventional way of changing the SQSS relies on a single Cost Benefit Analysis for future implementation. Known changes that we need to take account of are;
    - o Decreasing system inertia countered by ESO stability pathfinder delivery;
    - o Faster acting response products changing the operating envelope;
    - o Reduction in the potential size of DER losses as the Accelerated Loss of Mains Change Programme delivers
- In a changing environment it would be preferable to be able to adjust the parameters or process needed to achieve the desired balance of cost and risk with greater agility than the code modification process allows.

9th Aug background - Frequency trace

Figure 2 – Annotated Frequency Trace of the Event



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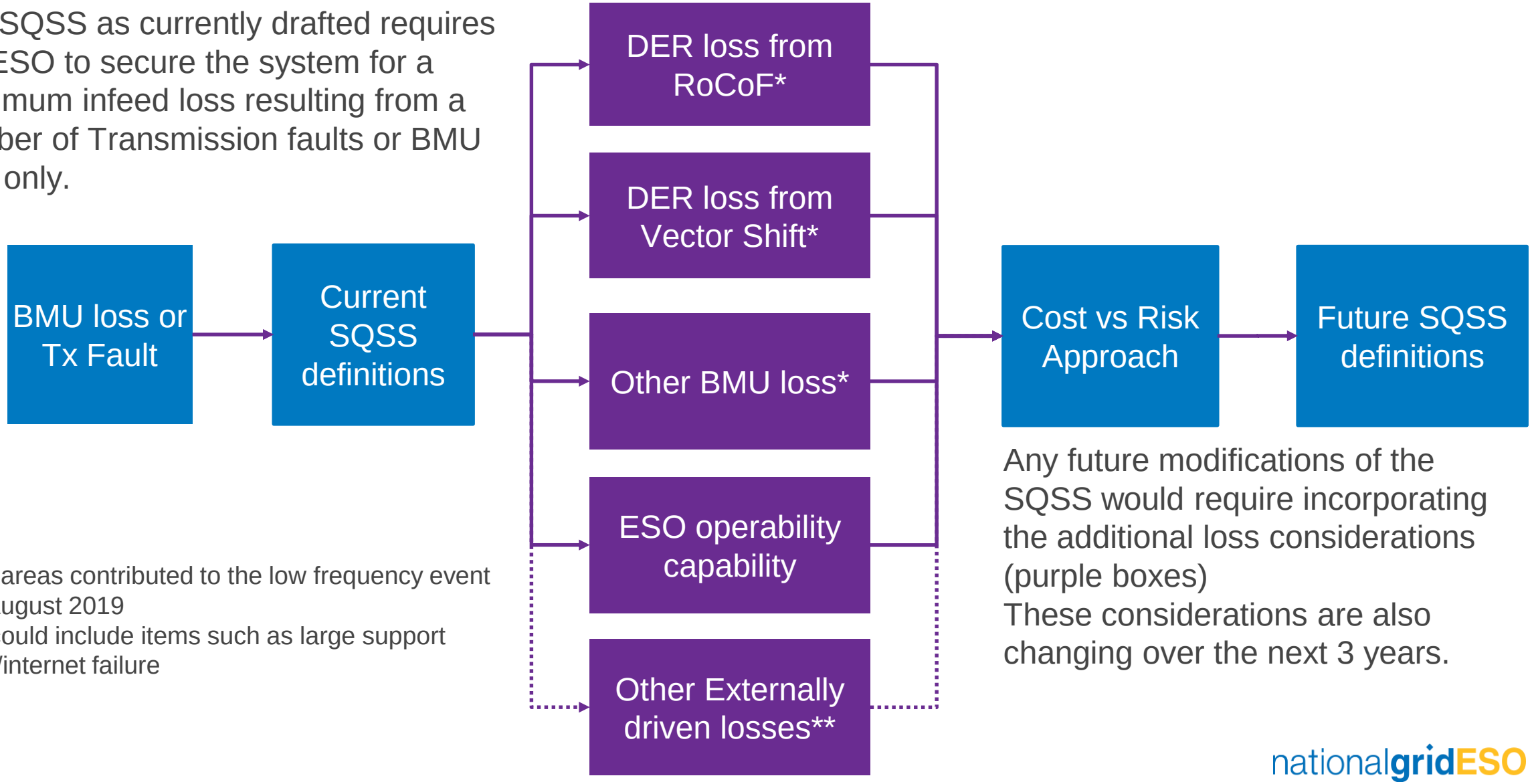
9th Aug background - Total infeed losses

Generation Unit	Infeed Loss	Cumulative Infeed Loss
Little Barford ST1C	244 MW	244 MW
Hornsea Offshore Windfarm	737 MW	981 MW
Estimated, Embedded generation infeed loss due to Vector Shift Loss of Mains Protection	150 MW	1,131 MW
Estimated, Embedded generation infeed loss due to RoCoF Loss of Mains Protection	350 MW	1,481 MW
Little Barford GT1A	210 MW	1,691 MW
Little Barford GT1B	187 MW	1,878 MW

Table 2 – Table of cumulative infeed losses

Factors Affecting Infeed Loss

The SQSS as currently drafted requires the ESO to secure the system for a maximum infeed loss resulting from a number of Transmission faults or BMU trips only.



Any future modifications of the SQSS would require incorporating the additional loss considerations (purple boxes)
These considerations are also changing over the next 3 years.

* These areas contributed to the low frequency event on 9th August 2019
** This could include items such as large support network/internet failure

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Proposed Solution

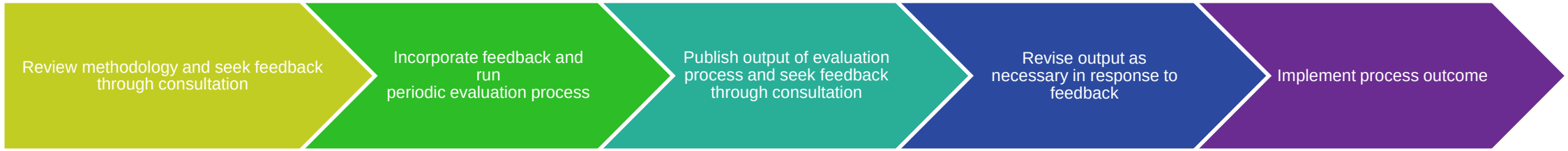
1) The development of a methodology framework, in accordance with an agreed process and which is regularly reviewed and updated by consultation, that:

a. describes the method and parameters used to determine the circumstances for which unacceptable frequency conditions should not occur; and

b. clearly states what these conditions are;

2) The implementation of a regular process, led by the ESO, which is described in the methodology, and has an output which is appropriately transparent and agreed through a defined process (eg by a specifically convened committee or by a body such as the Authority); and

3) Changes to the SQSS to reference the methodology, to define or supplement the process and to address any inconsistencies.



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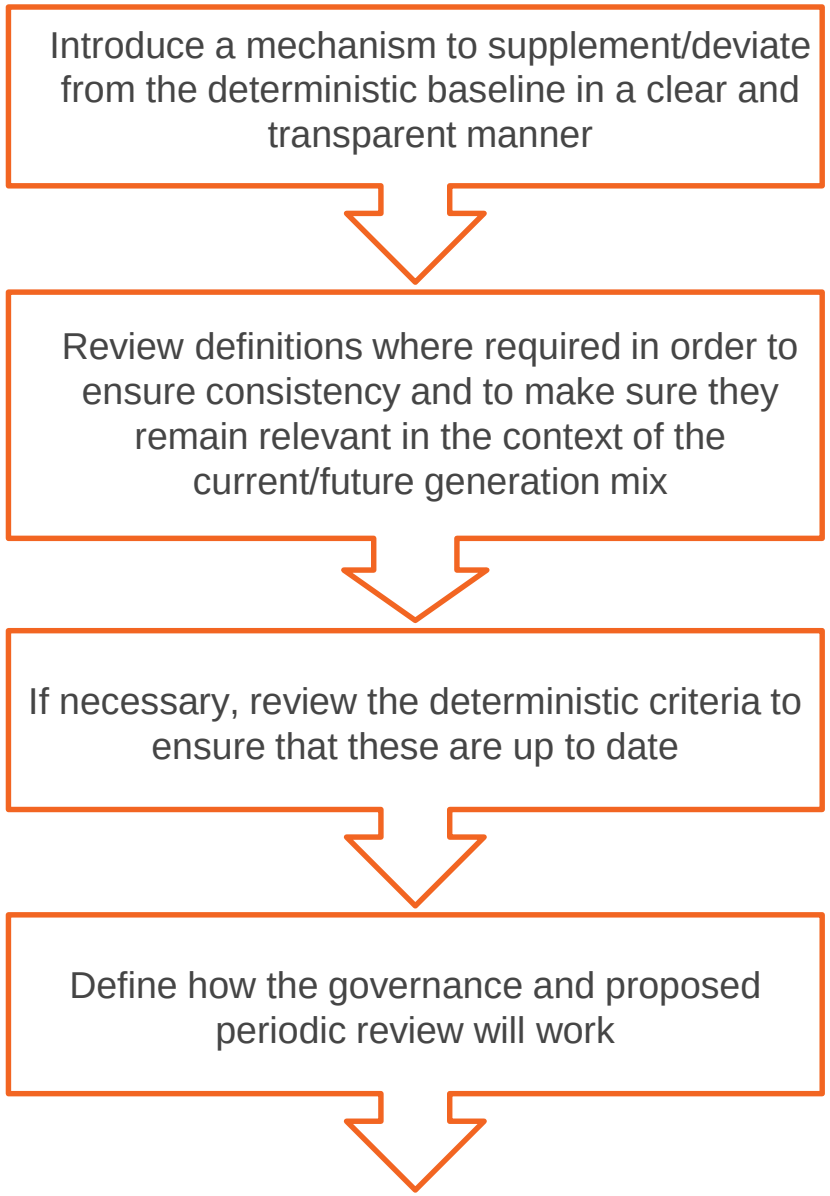
Summary of the intent of the proposal



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Consultation Questions

Standard Workgroup Consultation questions:

1. Do you believe that GSR027 Original solution better facilitates the SQSS Objectives?
2. Do you support the proposed implementation approach?
3. Do you have any other comments?
4. Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?

Specific Workgroup Consultation questions:

5. Do you agree with the proposed SQSS legal text?. Please provide the rationale for your response.
6. Do you agree with the proposed Governance framework text? Please provide the rationale for your response.
7. The vast majority of the Workgroup believe that the Governance framework should be housed within an Annex to the SQSS. The Workgroup have also considered other options, namely within Licence Conditions or the Grid Code. Do you agree with the Workgroup's conclusions? Please provide the rationale for your response.
8. The ESO's illustrative FRCR methodology articulates the risks and impacts to be assessed in version 1 of the FRCR. Section 8 sets out what could be considered in future versions. Do you agree with the ESO's conclusions on what will covered in version 1 and future versions? Please provide the rationale for your response.
9. Section 10 of the illustrative FRCR Methodology sets out the input data the ESO believe is required to produce the FRCR. Do you agree that this is suitable? Do you have any thoughts on how the data to remove ESO's working assumptions may be gathered?
10. The Workgroup have proposed 2 options for which body the 'FRCR Approver' would be. Do you agree and which is your preference? Please provide the rationale for your response.

Location of FRCR ‘Process’ Text – Pros/Cons

Issue	Location of text		
	Licence Condition	Annex to SQSS	Grid Code
Overall principle	Aligns with NOA approach – the NOA process and capacity market are similar in style	The SQSS is a standard not a code and does not have defined governance rules or ownership by a licensee.	Could start to bring SQSS into Grid Code
Status of ‘standard’		The requirement on licensees is to comply with the SQSS (and being the version as quoted in the licence which therefore needs updating to implement any change).	Recognised code with clear governance processes and licensee ownership
Number of locations for documentation	Fragmented	All in one place	Fragmented – and adds another code into this
Ofgem direction	Easier for Ofgem to maintain control if they wish; and is more in line with other direct requirements on a licensee	Ofgem could direct a change to any code, although a little less obvious how this would work with the SQSS	Ofgem could direct any changes required
Transparency	A licence change would require a consultation and hence be transparent - but might lack visibility to wider stakeholders	Putting text in the SQSS is more transparent to stakeholders and follows a recognised process	Recognised process for any changes
Governance for subsequent changes	Would need further licence changes	Could be done using industry code modification processes	Could be done using industry code modification processes
Complexity	Would need Ofgem to progress a more complex licence change including consultation on this. Would need coordination to approve the SQSS change referring to the methodology simultaneously.	Approved with a single Ofgem decision (although any change to the SQSS still needs a simple licence change to update the version and then take effect)	Still need to change SQSS and therefore licence to reference the process so multiple decisions required
Timescales	There would need to be a consultation on a licence change anyway to implement a new version of the SQSS but likely to take longer as more complex.	Likely to be quicker even though updating the SQSS still needs a licence change	Possibly quicker although with coordination issues