

## Workgroup Consultation Response Proforma

### GC0137: Minimum Specification Required for Provision of GB Grid Forming (GBGF) Capability (formerly Virtual Synchronous Machine/VSM Capability)

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 [grid.code@nationalgrideso.com](mailto:grid.code@nationalgrideso.com) by 5pm on **30 April 2021**. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

If you have any queries on the content of this consultation, please contact Kavita Patel [Kavita.patel@nationalgrideso.com](mailto:Kavita.patel@nationalgrideso.com) or [grid.code@nationalgrideso.com](mailto:grid.code@nationalgrideso.com)

Respondent details	Please enter your details
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### For reference the Applicable Grid Code Objectives are:

- a) *To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity*
- b) *Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);*
- c) *Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;*
- d) *To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and*
- e) *To promote efficiency in the implementation and administration of the Grid Code arrangements*

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

Standard Workgroup Consultation questions		
1	Do you believe that the GC0144137 Original Proposal better facilitates the Applicable Objectives?	Yes
2	Do you support the proposed implementation approach?	This modification deals with new technology that the industry as a whole is only beginning to understand. It seems likely that the minimum specification may need to be revised in the near future, so the working group might give some thought how best to implement this modification now while recognising possible future changes.
3	Do you have any other comments?	<p>A specific issue that may need to be addressed in future revisions is the negative phase sequence impedance of converters and the effect on system unbalance, both in normal operating conditions and in response to faults or other disturbances. The proposed legal text is limited in what it says on this issue.</p> <p>The consultation document notes the requirement for models to be incorporated into the ESO's software for power system analysis. It may be useful to also note that those same models will be shared with other transmission licensees, and that additional modelling information may be requested through the Bilateral Agreement. It may also be necessary to share models and data with third parties, as already provided for in industry codes, so it may be useful to explore the level of confidentiality that may be attached to the data being requested.</p>
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	No

Modification Specific Workgroup Consultation questions		
5	Do you believe it is appropriate to specify GB Grid Forming as a non-mandatory requirement in the Grid Code and be accessed by future market arrangements rather than as a mandatory requirement?	Yes
6	Do you believe the current proposal is sufficiently flexible and facilitates a range of technologies? If not, please state why you feel this to be the case and what type of technologies have been excluded?	Yes
7	Do you believe the proposal will result in excessive equipment costs? This excludes development costs whilst recognising plant can be also be de-loaded?	No response
8	Do you believe the proposed Grid Code proposals sit better in the Planning Code, Connection Conditions / European Connection Conditions and Compliance Processes / European Compliance Processes bearing in mind the proposals are non-mandatory or do you think it would be better to have a new standalone section	These new requirements are likely to require revision and refinement in the near future as the industry comes to understand the implications and opportunities more fully. As such, a new standalone section may be better to allow further modification while minimising complex interaction with other parts of the Grid Code.
9	Do you support the approach of using the Grid Code to specify the minimum functional performance requirements and a GB Grid Forming Best Practice Guide to provide further details? If not please state your reasons for not doing so?	Yes. Future revisions seem likely and it will be easier to accomplish this in a Best Practice Guide. Details can be incorporated into Grid Code if appropriate once settled.

10	<p>The ESO do not believe that it is appropriate for traditional Synchronous Generators (GBGF-S) to meet some of the requirements – for example the submission of NFP Plots on the basis of their already proven features and the higher costs of submitting this data. Do you agree that this is a fair approach on the basis that it will only put costs up if they were mandated to do so? If not please state why you disagree.</p>	<p>It is preferable for all parties to face the same requirements, irrespective of technology type, to help ensure a fair and open market for services. This is a non-mandatory technical specification and there is no expectation of retrospective application to existing synchronous generators. The issue should be explored further in the proposed Expert Group.</p>
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