

## 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:

- To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity*
- 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);*
- 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;*
- 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*
- 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 GC0141 Original	Yes

	Proposal better facilitates the Applicable Objectives?	
2	Do you support the proposed implementation approach?	Yes
3	Do you have any other comments?	Please see below.
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	No
<b>Modification Specific Workgroup Consultation questions</b>		
5	Do you believe it is appropriate 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?	<p>Yes, it is entirely appropriate that for generators this is non-mandatory.</p> <p>Given the development cost, timescales and scale of HVDC converter developments, it would be appropriate to consider whether this should be mandatory for HVDC schemes.</p>
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?	<p>Yes, however, as mentioned several times in the consultation, the capability of synchronous machines to provide "Phase jump power", inertia and damping power is well established. Although NGENO wish to be (and wish to be seen to be) technology neutral, this could impose additional costs on synchronous machines (including synchronous compensators). Instead of grid forming technology, the additional sections of the grid code should refer to grid forming inverter technology. If necessary, it may be appropriate to clarify the sections of the grid code which apply to synchronous machines, particularly for synchronous compensators.</p>
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?	<p>With grid forming inverter technology, we recognise the need to provide simulations and / or additional test results. However, it should be recognised that as confidence in this type of technology grows, the additional simulations / test results may no longer be required. In particular, hardware tests to verify simulations may no longer be required. Further, EMT simulations may no</p>

		<p>longer be required, RMS simulations may be adequate.</p> <p>The new sections of the grid code should be reviewed at a set time (e.g. 2 years) after introduction to ensure that these simulations / tests are not adding unnecessary costs.</p>
8	<p>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</p>	<p>Click or tap here to enter text.</p>