

Workgroup Consultation Response Proforma**GC0156: Facilitating the Implementation of the Electricity System Restoration Standard**

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 by **5pm on 30 December 2022**. 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 Banke John-Okwesa banke.john-okwesa@nationalgrideso.com or grid.code@nationalgrideso.com

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I wish my response to be:

(Please mark the relevant box)

☒ Non-Confidential☐ Confidential

Note: A confidential response will be disclosed to the Authority in full but, unless agreed otherwise, will not be shared with the Panel or the industry and may therefore not influence the debate to the same extent as a non-confidential response.

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 using the tick boxes and text box spaces provided in the right-hand side of the table below.

Standard Workgroup Consultation questions		
1	Do you believe that the Original Proposal better facilitates the Applicable Objectives?	<p>Mark the Objectives which you believe each solution better facilitates:</p> <p>Original <input checked="" type="checkbox"/> A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D <input checked="" type="checkbox"/> E</p> <p>Click or tap here to enter text.</p>
2	Do you support the proposed implementation approach?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Click or tap here to enter text.</p>
3	Do you have any other comments?	<p>SP Renewables supports the implementation approach in principle; however, we do not think the changes in the grid code modification are complete and that further modifications will be required as the industry and ESO go through the process of implementing ESRS.</p>
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Click or tap here to enter text.</p>

Specific Workgroup Consultation questions		
5	Do you believe that a cost benefit analysis should be undertaken by the Workgroup and if yes what factors should be considered?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>SPR believe a cost benefit analysis will be necessary to assess the impact of standardised requirements across regions vs ESRS tender and market requirements being derived through regional studies and study of capabilities of types of generators based in different LJ RPs and DRZPs. We firmly believe that this study will highlight that NGESO's current one size fits all approach will have huge cost burdens on GB customers and will not guarantee system restoration in the case of a national power outage. CBA should also include cost to generators in designing or retrofitting plant for restoration services.</p> <p>The regional requirements for system restoration vary significantly and lack of system studies and/or understanding of the types of generators connected will</p>

		lead to procurement of services which are not fit for purpose.
6	Do you believe that parties obligated by GC0156 should have a cost recovery mechanism in place?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>Yes, beyond the original Grid Code, CUSC and distribution code obligations, any additional obligations placed through GC0156 should have a cost recovery mechanism in place. There also need to be additional market incentives to encourage more generators to participate in ESRS service.</p>
7	Do you think that the proposals are sufficient and cost effective to ensure that NGESO can meet its ESRS licence obligations? Please provide a rationale for your answer	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>SPR believe that although the proposals made under GC0156 cover significant grounds at the outset of implementation of GC0156, we do not believe that they are adequate for full implementation of the ESRS by 2026. As discussed above, we firmly believe there will be grid code changes required to distinguish between regional requirements and various capabilities of connected generation.</p>
8	Do you agree that all the costs associated with TO/DNO implementation of ESRS should be recovered through their respective price controls? If not, what funding mechanism do you favour?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9	The ESRS restoration target is expressed in terms of transmission demand rather than total demand (see Glossary and Definitions). Do you understand the implications of this, and are you happy with those implications?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>SPR would like to share the concerns of various stakeholders in the working group that transmission demand no longer represents the true demand of the system, as there is significant embedded generation and demand in the network. Also, the current definition may leave vulnerable consumers in various parts of the network with lower demand in outage for several days although all transmission demand will be met in principle.</p> <p>We urge NG ESO to reconsider this definition and as per our previous comments introduce the concept of regional and in case of larger regions localised demand which will be more appropriate and will result in more homogenous restoration, as compared to just meeting a percentage figure across the NETS.</p>

10	Do you think that there is a common understanding between stakeholders of the demand to be restored in GB required by ESRS?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11	Do you see any barriers for Network Operators and Users to deliver the changes proposed to implement the ESRS by December 2026?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>We believe that a greater degree of co-ordination is required between generators, ESO, TOs, DNOs and OFTOs. Especially with the changing landscape of system restoration and type of restoration providers detailed regional studies and plans need to be developed to minimise risks and ensure TOs, DNOs and OFTOs understand the differences in response between various connected assets during restoration and prepare for adequate contingencies and resilience.</p> <p>This includes but not limited to resilient and secure communication infrastructure to individual restoration providers, suitability of transmission and distribution network equipment to withstand transient conditions, trained personnel to understand differences in restoration response from a converter-based generation vs synchronous generation. We believe significant work, studies and training is required in close collaboration with generators to achieve a realistic restoration sequence in each LJRP and DRZP. We stress that detailed studies and practical experience is crucial as the restoration landscape will be significantly different to that in the past.</p>
12	Do you believe there are further changes to the network i.e. NETS and/or Distribution Network required to implement ESRS obligations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>See response to question 11.</p>
13	The Annex (pages 29 – 32) in the Future Networks subgroup report covers 2 scenarios where site supplies are lost up to 72 hours. Which of these 2 scenarios is the most realistic? (The full details of these scenarios can	<input checked="" type="checkbox"/> Scenario 1 <input checked="" type="checkbox"/> Scenario 2 <p>SPR believe this question is not framed correctly. Scenarios 1 and 2 are both realistic and refer to two different situations. One dealing with a simple trip of the windfarm, whereas Scenario 2 is a more detailed description of a national power</p>

	be found on pages 29 – 34 of the Future Networks subgroup report in Annex 4)	outage situation and the logistical and practical challenges that will be encountered. We believe the points and questions raised in Scenario 2 should be taken into careful consideration by NGESO to ensure contingencies, assurance processes and plans are in place to address most eventualities as highlighted in Scenario 2.
14	What are your views on the scope of the parties being impacted by the mandatory changes proposed as part of GC0156?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Fundamentally we agree with the need to maintain 72 hours resilience at sites. However, we strongly disagree with the position that it needs to apply to all transmission connected or large embedded sites, especially in terms of retrospectivity. As per our response to Q11, we believe NGESO should perform regional studies to determine which plants need to come back up to meet regional demand and only those plants should have 72hr resilience. Otherwise, the cost to consumers in terms of implementation of 72hr resilience by all CUSC parties will be unjustifiable, given there is no studies or cost assessment to justify this requirement.</p> <p>While specifically referring to the requirement, <i>“the generating site or storage site or interconnector site needs to either have or be capable of mobilising all required personnel and resources to site within the required timescales whilst all external electricity supplies are dead. This capability to start must be maintained for a period of at least 72 hours from the failure of the external electricity supplies.”</i> Given the large volume of connected generators on the network, we believe it is practically impossible to mobilise staff to sites given the significant logistical challenges that will ensure following a national power outage, as highlighted in detail in Scenario 2 of Q13</p> <p>Also, no changes should have been done to the Connection Conditions (CC) of the grid code as this implies retrospective requirements for all parties already involved in restoration.</p>
15	The GC0156 proposed solution 72 hrs resilience is expected to be applied retrospectively to existing CUSC parties. Do you agree with this retrospective	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>SPR believe that the 72hrs resilience retrospectivity as described in workgroup report section “All Generators required to provide Mandatory Services” will first require</p>

	application and if not, what is your rationale / view about this?	<p>a cost recovery mechanism, and second may well prove challenging to implement at certain sites based on their remoteness and physical and communication network accessibility and potentially adding cost to install new plant</p> <p>NGESO should perform a cost benefit analysis to determine if this is actually required at all sites or certain key sites within a LJRP or DRZP to maintain a stable island condition and meeting the required percentage of demand connection.</p>
16	Do you believe that cyber security requirements in accordance with the NIS standard are sufficient and as referenced in the proposed Grid Code drafting (available in Annex 6)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
17	Do you agree that the draft legal text is appropriate and sufficient to implement GC0156? If not please provide your suggestions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>SPR challenges that NGESO's draft legal text for GC0156 differs in some significant ways to the way current ESRS tenders are being executed. For example, the current ESRS tenders still refer to primary restoration service providers. However, there is no such term in the draft legal text. The obligations for a primary restoration service provider are hence not defined in the grid code.</p> <p>Similarly, it is not clear how the anchor generator in grid code which aims to achieve parity across all transmission and distribution network connected generators is reflected in the technical requirements of ESRS tenders.</p> <p>We believe as stated before that in order to ensure implement GC0156 this discrepancy should be addresses with utmost urgency.</p> <p>In addition, clause "<i>ECC.6.3.5.7 Generators in respect of OTSDUW Plant and Apparatus with a Completion Date on or after XXXX shall ensure their Plant and Apparatus is designed to include a System Restoration capability which would include but shall not be limited to the requirements of ECC.7.10 and ECC.7.11</i>". is making the</p>

		requirements mandatory and this could affect project in construction as these projects can be caught by the proposed modifications and affect CfD projects potentially affecting the end user.
18	Are there any barriers to new entrants to provide restoration services that are not covered in the GC0156 legal drafting?	<p>SPR believe there are still significant barriers to new entrants to provide restoration services. The barriers though posed through the ESRS tenders, do also put the burden on GC0156 to create alignment, as a fair tender process cannot be performed unless the grid code obligations are clear to all tender participants.</p> <p>We would like to highlight that neither GC0156 nor the ESRS tenders differentiate between, the different technical capabilities of converter based and synchronous generation for provision of restoration services.</p> <p>The inertia, SCL and reactive power requirements for “full restoration service” in ESRS tenders are based on capabilities of a synchronous generator not that of a wind generator and do not take in consideration the real values required for restoration of specific zones. The workgroup has this issue in numerous occasions to NG ESO.</p> <p>If NG ESO believes that is not the case, we kindly request to see evidence in the form of studies, industry feedback etc, that shows the following:</p> <ul style="list-style-type: none"> • that any wind generator regardless of its size can meet the inertia, SCL and reactive power requirements with its existing capabilities and installed plant, • and any wind generator of smaller size can meet the above-mentioned requirements. <p>We have proof that wind generator without meeting those large inertia, SCL and reactive power requirements can still restore the grid. Therefore, SPR is of the opinion that the current requirements pose significant barriers for wind and other converter-based generators.</p> <p>In order to address this within the Grid Code, SPR proposes that there is a separate anchor generator definition for converter-based technologies within GC0156 to allow for converter-based technologies to better align technical requirements within various ESRS tenders.</p>

19	Do you believe there should be further assurance activities in addition to those described in the proposed legal text within OC5? If yes, please state the activity and explain why?	<p>SPR believe that NGESO should perform additional assurance activities to ensure that the regional requirements in a LJRP and DRZP have been identified and the capabilities of the connected anchor and top-up generators are utilised in an optimal way.</p> <p>It is imperative that NGESO acknowledges the regional differences in system requirements and the need to better understand multiple generator type capabilities especially those of converter-based generation.</p> <p>Hence, we propose 3 additional requirements to be included in the assurance activities</p> <ol style="list-style-type: none"> 1. Regional power system studies to define regional ESRs requirements 2. Power system simulation with both RMS and EMT models (ref GC0141) of LJRPs and DRZPs to ensure successful restoration can be performed with the contracted anchor and top-up service providers taking into account various fault conditions
20	Do you think the right requirements have been identified for Network Operators in terms of Network design and operational capability as summarised in the consultation document and annex and as detailed in the proposed legal text in CC/ECC.6.4.6.3b and OC9?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>SPR would like to add that as per this requirement CAPEX and OPEX costs for any new communication data link, monitoring and operational metering requirement on the company to enable ESRs service should be recoverable via a suitable cost recovery mechanism.</p>
21	Due to comments received from some Workgroup members on Appendix 9 (technical requirements associated with restoration services) of the ECC draft legal text, the ESO has proposed that a separate subgroup should be established under the umbrella of GC0156 to develop a set of technical requirements associated with restoration services for	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>In our answers to Q11 and 19 we have raised concerns regarding</p> <ol style="list-style-type: none"> 1. how technical requirements in ESRs tenders pose significant barriers to new entrants especially converter-based generation 2. the discrepancies in definition of anchor generators and primary restoration service providers in ESRs tenders and GC0156

	inclusion in the Relevant Electrical Standards which would include appropriate experts from across the industry. Do you believe this is an appropriate way forward if not why?	We fully support establishing GC0156 subgroup, to address these concerns and the need for regional studies to establish realistic technical requirements for restoration service providers.
22	Are you aware that Anchor Plants may be expected to carry out a deadline line charge test and remote synchronisation test as described in OC5.7.2.2(h) / OC5.7.2.3(d)? If so, do you have a view on this test?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>Although SPR considers those tests are adequate, NGESO need to consider how synchronization will be achieved with a loaded Restoration provider i.e. requirement for synchroscopes or similar equipment. Who will be responsible for owning this equipment?</p> <p>In addition, for renewable restoration supplier there need to be a clear guidance on how the tests are expected to be carried out.</p>
23	The distributed restart legal text has been drafted on the basis that ESO will lead on the procurement of restoration services. Do you think this should move to DNO led in future? If yes, please explain why	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>We believe DNOs and TOs should play an active part in the restoration process, especially in performing regional restoration studies and establishing regional restoration requirements. They should also provide input into the technical feasibility of restoration from various connected generators, however we believe the overall process should be NG ESO led.</p>
24	The distributed restart legal text has been drafted on the basis that: i) there will be a connection agreement with the DNO that binds an embedded restoration service provider to the Distribution Code and ii) a tripartite agreement that binds the embedded restoration service provider to the relevant parts of the Grid and Distribution Codes. Do you see any difficulties with this proposed contractual arrangement?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>As discussed in our response Q14 and Q15. SPR believe that the 72hrs resilience retrospectivity as described in workgroup report section "All Generators required to provide Mandatory Services" will require a cost recovery mechanism, and may well prove challenging to implement at certain sites based on their remoteness and physical and communication network accessibility.</p> <p>We strongly disagree the position that it needs to apply to all transmission connected or large embedded sites, especially in terms of retrospectivity. We believe NGESO should perform regional studies to determine which plants need to come back up to meet regional demand and only those plants should have 72hr resilience.</p>

		Otherwise, the cost to consumers in terms of implementation of 72hr resilience by all CUSC parties will be unjustifiable, given there is no studies or cost assessment to justify this requirement.
25	<p>Do you believe it is appropriate to have a mains independence minimum resilience period of 24 hours as required by the NCER or 72 hours as a general GB standard for existing black start purposes as proposed with the GC0156 solution for Grid Code parties, BM parties, VLPs and restoration service providers?</p> <p>Do you agree with a retrospective application of this and if not, what is your suggestion / views about this?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>SPR strongly disagree with the retrospective application of this requirement as this could represent the installation of additional plant at an additional cost which could affect cost to the consumers.</p>
26	As a stakeholder, are there any implications of the proposed future requirements which are not clear?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Yes please refer to our answers to Q11 and Q19.</p>
27	Do you have any views on how the requirements should be implemented into the Grid Code bearing in mind the requirements of the ESRS are not enforceable until 31 December 2026?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>The requirements should be implemented within a grace period similarly done for the inclusion of RfG requirements back in 2016/2017 as this will allow existing projects under construction (particularly offshore wind and onshore) to decide if they can participate in tender to provide restoration services. SPR would like to highlight that once the stage of design freeze is reached in any project any subsequent changes will be costly to the developer and hence the consumer.</p>
28	Do you agree with Ofgem's proposed approach to the DNO ESR re-opener?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>SPR believe it is necessary to have this reopener to allow DNOs to plan and implement additional infrastructure to meet the ESRS requirements.</p>