

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 21 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> <table border="1"> <tr> <td>Original</td> <td><input checked="" type="checkbox"/> A</td> <td><input checked="" type="checkbox"/> B</td> <td><input checked="" type="checkbox"/> C</td> <td><input checked="" type="checkbox"/> D</td> <td><input type="checkbox"/> E</td> </tr> </table> <p>Yes we believe the Original Proposal better facilitates Grid Code objectives A, B, C and D.</p> <p>Grid Code objective A is better facilitated as the proposal developed as part of this modification will help to restore the system as quickly as possible should a total or partial system shutdown occur and therefore is considered as efficient as the costs arising following a Shutdown can be very significant.</p> <p>Grid Code objective B is better facilitated as this proposal aims to encourage more providers to offer Restoration Services irrespective of being Transmission or Distribution Connected whilst also recognising the role these providers can play in respect of the Distributed Restart arrangements which are a key component of this modification. This is against the background of a decline in the number of traditional restoration service providers.</p> <p>Grid Code objective C is better facilitated as this proposal provides greater resilience and robustness following a total or partial shutdown and therefore enhances the security of the Transmission System.</p> <p>Of all the Grid Code objectives, this proposal is necessary to implement the Electricity System Restoration Standard which is a Licence Condition which becomes effective from 31 December 2026.</p>	Original	<input checked="" type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input checked="" type="checkbox"/> D	<input type="checkbox"/> E
Original	<input checked="" type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input checked="" type="checkbox"/> D	<input type="checkbox"/> E			
2	Do you support the proposed implementation approach?	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Yes – We recognise this modification builds on a number of recent Grid Code developments including Grid Forming (the ability of renewable plants to contribute to restoration), the introduction of the EU Emergency and Restoration Code whilst also introducing some fundamental new requirements. These requirements include (but are not limited to) Distributed Re-Start, the opportunity for Offshore Generation to contribute to Restoration, requirements on parties to have critical tools and facilities in place such that critical systems and assets can be controlled for up to 72 hours. All these requirements are against the background of greater testing and assurance activities. We believe this package of measures will enable the requirements of the Electricity System Restoration Standard to be met and we therefore support the implementation approach.</p>						

3	Do you have any other comments?	<p>As per question 2 above, we support the approach however having reviewed the legal text we believe the following additional items need to be included.</p> <ul style="list-style-type: none"> i) The legal text needs to include an annual assurance reporting programme through the Week 24 process. ii) The current legal drafting as provided for CC.6.4.5 and ECC.6.4.6 only provides for visibility of Distribution Restoration Zones. As part of the wider restoration process which the ESO are coordinating, it would be useful to have wider visibility of the DNO network other than the Distribution Restoration Zone. iii) An additional table needs to be included in the Control Telephony Standard. See Annex 1 at the bottom of this consultation response. iv) We have noticed a typographical error in OC5.7.2.6 where the reference to ECC.6.4.6.3(b) should be ECC.6.4.6.2(b) and there should also be reference to CC.6.4.5.2(b) as well. <p>We also think some further consideration needs to be given to the rules relating to the reconnection of Non-CUSC Parties and Non-Restoration Service Providers when site supplies are restored though it is possible this can be easily addressed through the desk top, assurance and modelling exercises undertaken through OC5.7.4</p>
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	<div> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> <div>Click or tap here to enter text.</div>

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?	<div> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No </div> <p>We would suggest a cost benefit analysis is undertaken if alternative solutions are raised and the benefits are then compared with the original solution. If no alternative is raised, we do not see the value of undertaking a cost benefit analysis on the basis that the original solution puts measures in place to satisfy the requirements of the Electricity System Restoration Standard whilst the baseline does not.</p>
6	Do you believe that parties obligated by GC0156 should	<div> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>

	have a cost recovery mechanism in place?	This issue is being addressed through CUSC Modification CMP398 and therefore we think this issue is best addressed through that modification. We do however believe it is appropriate that CUSC parties should have the necessary critical tools and facilities in place for mains independence for up to 72 hours in order to give the System the best possible chance of recovering from a Total or Partial Shutdown. Some plants will already have these facilities in place whilst other will not. There is a recognition that all plants need to be brought up to the same standard but the issue of compensation is best addressed through the CMP398 workgroup rather than Grid Code modification GC0156 which concentrates on technical and operational requirements.
7	<p>Do you think that the proposals are sufficient and cost effective to ensure that NGESO can meet its ESRS licence obligations?</p> <p>Please provide a rationale for your answer</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Yes – we believe the package of measures introduced through this modification together with those proposed through other Industry Code (CUSC, BSC and STC) modifications will provide sufficient to meet the requirements of the Electricity System Restoration Standard. Please also see our response to Question 2 above.</p>
8	<p>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?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Yes we believe this to be appropriate. The ESO already has funding for Ancillary Services which includes Restoration which is managed through the Price Control.</p> <p>We believe it is appropriate for Transmission Licensees to have the necessary funding to facilitate the wider role of restoration over and above what they already have to do today but this is set against the obligations they are already required to meet under the System Operator Transmission Owner Code (STC) in particular STC 06-1.</p> <p>For Distributed Re-Start there will be a requirement for Network Operators to facilitate Distribution Restoration Zones which will have a cost and we believe it is appropriate to use the price control mechanism for this purpose, noting this is not already a requirement unless a Network Operator participates in a Local Joint Restoration Zone Plan. We also think that it is appropriate to have tripartite contracts between the ESO, DNO's and Restoration Service Providers as part of the</p>

		funding arrangements. See response to question 23 and 24 below.
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>We fully understand the ESRS is with regard to Transmission System Demand as clarified by BEIS at the GC0156 meeting held on 18th August 2022. The issue has been clarified in the drafting of OC9.1.1 which refers to “National Demand” which is a defined term in the Grid Code Glossary and Definitions.</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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>Yes – As per our response to Question 9 above. We believe this issue is addressed in OC9.1.1 of the proposed drafting. It was also specifically addressed in the slides presented to stakeholders at the GC0156 webinar held on 7th December 2022 and at the GC0156 Workgroup meeting held on 18th August 2022.</p>
11	Do you see any barriers for Network Operators and Users to deliver the changes proposed to implement the ESRS by December 2026?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>For Network Operators there is no mandatory requirement to have Distribution Restoration Zone Plans in place. This is largely to cater for the situation where the network topology is not suitable or there are no Restoration Service Providers available in the required location. There may be other genuine reasons such as a Local Joint Restoration Plan is capable of connecting the same customers more quickly than a Distribution Restoration Zone Plan. We also note the difficulty of testing where customers are connected mid circuit to a Restoration Service Provider’s feeder. We do not however see these as insurmountable to supporting wider restoration where there is a desire to restore Customer’s supplies as soon as possible and noting that the Price Control is an appropriate vehicle to recompensate Network Operators to facilitate restoration.</p> <p>For User’s there may be issues for historic plant to achieve the necessary requirements, especially with regard to the 72 hours resilience period. For Onshore Generators, some will be able to achieve these requirements already, where others will not and CUSC Modification CMP398 is looking at this funding</p>

		<p>mechanism. There is however particular concern for i) Aggregators and ii) Offshore Generators connected to Offshore Transmission Networks. For Offshore Transmission, the System Operator Transmission Owner Code (STCP 06-1) explicitly excludes Offshore Transmission from participating in restoration so we think it would be appropriate for Aggregators and Offshore Generators to be caught by this requirement from 31 December 2026 rather than retrospectively though we do note as part of the survey undertaken by the ESO, that 22 of the 38 Offshore Wind Farms that responded to the survey already had 72 hour resilience in place.</p> <p>We also think some consideration needs to be given to the reconnection of Non-CUSC Parties and Non-Restoration Service Providers when site supplies are restored though this will probably be covered through the Assurance exercises in OC5.7.4 though this may need to be explicitly defined. Please see our response to Question 3 above.</p>
12	Do you believe there are further changes to the network i.e. NETS and/or Distribution Network required to implement ESRS obligations?	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>No other than the additional issues identified in Question 3 above. As part of this work, the findings of the subgroups and GC0156 Workgroup have been used to develop the legal text.</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 be found on pages 29 – 34 of the Future Networks subgroup report in Annex 4)	<p><input type="checkbox"/> Scenario 1 <input checked="" type="checkbox"/> Scenario 2</p> <p>We believe Scenario 2 is the most realistic. It is important that these issues are understood as they will form part of the wider assurance exercises and drills necessary so that in the event a System Shutdown event where to occur, well practised procedures are in place to ensure generating units are back up and running as soon as possible noting the importance to the benefit of the country. We welcome the work completed by the stakeholder who raised these issues.</p>
14	What are your views on the scope of the parties being impacted by the mandatory changes proposed as part of GC0156?	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>The ESRS is very well intentioned and it is every parties best interest to ensure the system is returned to normal operational conditions as soon as possible. We do acknowledge that some parties will be impacted on some of the proposed mandatory changes for which funding is</p>

		being discussed as part of the CMP398 workgroup. That said, without these additional proposed mandatory measures, this potentially defines the difference between a successful System Restoration in the allocated timeframes or a longer more protracted restoration which in itself would be extremely expensive not to mention the disruption caused. Whilst we do acknowledge some of the requirements may be costly to implement, we do not see this as a barrier to implementing them in the way envisaged. We also note that certain categories of User, such as Aggregators and Offshore Generators will need more time to ensure they can satisfy the compliance requirements and that retrospectivity may not be appropriate for these classes of User. That said, there is a potential conflict of this approach with the requirements of the EU Emergency and Restoration Code.
15	The GC0156 proposed solution 72 hrs resilience is expected to be applied retrospectively to existing CUSC parties. Do you agree with this retrospective application and if not, what is your rationale / view about this?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <p>We agree with the 72 hour resilience period which aligns with the requirements in Engineering Recommendation G91 and the GC0148 Consultation.</p> <p>We agree that in order for this to work it is necessary for CUSC Parties to also have this mains resilience period applied retrospectively. We would however note that for certain categories of CUSC party, notably Offshore Generators and Aggregators it would not be appropriate to apply these requirements retrospectively where the costs are either prohibitive or push parties away from the Balancing Mechanism. Please also see our response to question 14 above.</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 <p>Yes we believe this is appropriate based on the recommendations of the Communications subgroup.</p>
17	Do you agree that the draft legal text is appropriate and sufficient to implement GC0156? If not please provide your suggestions?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>Yes though we would note some minor changes need to be made in respect of i) the annual Assurance reporting activities, ii) the visibility of Network Operators Systems during a restoration period beyond just a restoration zone and iii) the addition of a new table in the Control Telephony Standard as highlighted in Appendix 1 at the</p>

		bottom of this response. These issues are also summarised in Question 3 above.
18	Are there any barriers to new entrants to provide restoration services that are not covered in the GC0156 legal drafting?	<p>Not as far as we are aware. We would note that the introduction of Distributed Re-Start does provide greater opportunity for small parties to provide Restoration Services who otherwise would not have been able to offer these services. This in itself will provide greater diversity and increased competition.</p> <p>We would note that we do not believe it is appropriate for existing Aggregators and existing Offshore Generators to be retrospectively caught by these requirements. Going forward however these requirements would apply to all new Aggregators and Offshore Generators from when the standard is implemented on 31 December 2026.</p> <p>We would note that there may however be issues for Non CUSC Parties and Non-Restoration Service Providers who fall under the remit of the Distribution Code to the wider restoration process.</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?	No other than the need to introduce an annual reporting process for assurance purposes as outlined in question 3 above. To be clear this is not to be confused with testing which is required every three years but rather a statement from parties on a yearly basis to confirm that they have the appropriate assurance measures in place.
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>Yes. The requirements included into the Grid Code legal text and supporting documentation have been developed from the recommendations of the subgroups and GC0156 workgroup. Other than those additional items identified in Question 3 above, we do not believe further requirements are necessary.</p> <p>We also think some consideration needs to how the DNO's deal with Generators who are Non-CUSC Parties and Non- Restoration Service Providers during a System Restoration though the detail of this would probably be conducted under the detail of Local Joint Restoration Plans and Distribution Restoration Zone Plans and assessed through the exercises undertaken through the obligations under OC5.7.4.</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 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <p>Yes we do believe this is an appropriate way forward for several reasons. As part of the GC0156 Workgroup it was initially proposed to include the technical requirements in the Tender documents into an Appendix in the Grid Code. As part of this process, it was realised that these requirements needed further assessment from specialists within the ESO and wider industry whilst also acknowledging that the current requirements are very fluid and changing on a frequent basis.</p> <p>As the technical requirements still require some re-evaluation, and also noting that the governance arrangements of the relevant electrical standards are much more flexible than the formal governance arrangements of the Grid Code itself, we believe this is a more appropriate method of defining the technical requirements whilst also permitting an easier route to formerly change them in the need arose.</p>
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>Yes. We would also note that these are already part of the current testing arrangements for Black Start Providers and therefore we agree that it is appropriate that they are explicitly included in the Grid Code drafting.</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>No – We think it is appropriate for a trilateral contract between the Restoration Service Provider, ESO and Network Operator. This on the basis that i) the ESO currently has the budget for restoration and hence it is easier to coordinate, ii) a trilateral contract makes it easier to include both Grid Code and Distribution Code requirements into one contract, iii) there is greater transparency for the restoration service provider and iv) there are six network operators (in addition to several Independent Network Operators) and only one ESO which provides greater consistency and will prevent regional scope creep in the longer term.</p>
24	The distributed restart legal text has been drafted on the	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

	<p>basis that:</p> <p>i) there will be a connection agreement with the DNO that binds an embedded restoration service provider to the Distribution Code and</p> <p>ii) a tripartite agreement that binds the embedded restoration service provider to the relevant parts of the Grid and Distribution Codes.</p> <p>Do you see any difficulties with this proposed contractual arrangement?</p>	<p>We believe these arrangements are appropriate based on our response to question 23.</p>
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>In order to satisfy the requirements of the Electricity System Restoration Standard, the ESO's study requirements are based on a 72 hour resilience period. We would be concerned if the resilience period was reduced to 24 hours as it would reduce System resilience and limit the ability of the ESO to satisfy the requirements of the ESRS.</p> <p>We believe retrospective application of the mains independence period is necessary to facilitate the requirement for critical tools and facilities. We think however that retrospectivity should not be applied to Virtual Lead Parties or Offshore Generation and Transmission Systems but please also see our response to question 14.</p>
26	<p>As a stakeholder, are there any implications of the proposed future requirements which are not clear?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>No</p>
27	<p>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>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>This is a complex issue. There are several ways this could be achieved. One approach is to have a mirrored version of the code which is available as soon as the code is approved by the Authority so it is clear to Stakeholders what the obligations are but the requirements do not become live until 31 December</p>

		<p>2026. This has complications so an alternative may be to place obligations on parties with applicable dates of 31 December 2026 and the remaining elements continue to apply. It is however complex as there is a mix of existing technical and operational requirements integrated into future requirements which are quite difficult to segregate. As ESO we are giving further thought as to how this issue can be mitigated.</p>
28	Do you agree with Ofgem's proposed approach to the DNO ESR re-opener?	<p><input type="checkbox"/>Yes <input type="checkbox"/>No</p> <p>This is an issue for DNO's. We do however believe that as many DNO's as possible should be able to offer Distributed Restoration Zones and in this regard they need a funding mechanism to be able to do so noting that it is a new requirement which is not currently funded.</p>

Appendix 1

	Control Point in GB		Control Point Outside GB	
	Staffed	Virtual	Staffed	Virtual
EU Code (24hrs) Min Standard: System Telephony using Dual SIP acceptable – provided it meets the 24hr requirement (SIP resilience is very close to MPLS resilience currently used for overseas Control Points)	Permitted at Embedded Medium Power Stations* or Embedded Small Power Stations* or where the aggregated Registered Capacity is less than 100MW. Not permitted for directly connected Power Stations	Permitted at Embedded Medium Power Stations* or Embedded Small Power Stations* or where the aggregated Registered Capacity is less than 100MW. Not permitted for directly connected Power Stations	Permitted at Embedded Medium Power Stations* or Embedded Small Power Stations* or where the aggregated Registered Capacity is less than 100MW. Not permitted for directly connected Power Stations	Permitted at Embedded Medium Power Stations* or Embedded Small Power Stations* or where the aggregated Registered Capacity is less than 100MW. Not permitted for directly connected Power Stations
Control Phone via MPLS with Public Telephony backup	Required for all directly connected Plant or at Large Embedded Power Stations or where the Aggregated Registered Capacity is 100MW or greater	Required for all directly connected Plant or at Large Embedded Power Stations or where the Aggregated Registered Capacity is 100MW or greater	Required for all directly connected Plant or at Large Embedded Power Stations or where the Aggregated Registered Capacity is 100MW or greater	Required for all directly connected Plant or at Large Embedded Power Stations or where the Aggregated Registered Capacity is 100MW or greater
GB Electricity Restoration (72hrs) Min Standard: Must use Control Telephony via OpTel with Openreach fibre circuit if required NOT via MPLS	Required	Required	NOT PERMITTED	NOT PERMITTED

* A Medium Power Station is a Power Station in England and Wales with a Registered Capacity of 50 MW or greater and less than 100MW

* A Large Power Station is a Power Station in England and Wales with a Registered Capacity of 100MW or greater, 30MW or greater in Scottish Power's Transmission Area and 10MW or above in Scottish Hydro Electricity's Transmission Area

NOTE – The definition of Small, Medium and Large Power Stations is currently under review as part of the GC0117 (Improving transparency and consistency of access arrangements across GB by the creation of a pan=GB commonality of Power Station requirements)

<https://www.nationalgrideso.com/industry-information/codes/grid-code-old/modifications/gc0117-improving-transparency-and>