

## Workgroup Consultation Response Proforma

### GC0141: Compliance Processes and Modelling amendments following 9th August Power Disruption

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 March 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 Joseph Henry [Joseph.henry@nationalgrideso.com](mailto:Joseph.henry@nationalgrideso.com) or [grid.code@nationalgrideso.com](mailto:grid.code@nationalgrideso.com)

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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	Original as opposed to? Can you please clarify the main differences?

	Proposal better facilitates the Applicable Objectives?	
2	Do you support the proposed implementation approach?	No, because is not clear to what extent this applies retroactively to existing plant or after main plant contracts have been signed. There are other aspects that require clarification in order to be supportive of the implementation.
3	Do you have any other comments?	Thank you for your hard work on what is a very complex modification proposal! Should we ask a more fundamental question and state why do we have this problem and others don't? Is it due to the effort to allow competition in ownership of offshore connections which means generators have to plan/design/build these HVDC connections for offshore wind farms which in other countries are being done in a coordinated manner by TSOs? How is the complexity definition/boundary managed to avoid placing unnecessary burden on connections that are less complex?
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	What should the Independent Engineer's deliverables be with respect to the outcome of the compliance process?	<p>SPR considers that the role of independent engineer is not required. This should be covered within the obligations of NGESO. A number of questions arise in relation to this role:</p> <ul style="list-style-type: none"> <li>• What makes an independent engineer qualified/competent for the role?</li> <li>• Who regulates the activities of the independent engineer?</li> <li>• What are the liabilities of the independent engineer, would these be passed to the User?</li> </ul> <p>More clarity is required around what defect the introduction of IE is meant to address. What is the issue? Not enough ESO resource or perceived inadequate expertise on the generator side? It should be recognised that the self-certification approach has its limitations when the customer isn't provided with suitable information to assess the compliance of their connection. Since the NGESO is the custodian of this commercially/intellectual property sensitive information, should NGESO take a more active role</p>

		to assess and police this type of interoperability concerns that require access to detailed models? The generator can pay for multiple Independent Engineers to check the simulation studies, but this approach won't add a meaningful layer of check/security, as the assessment is only as good as the models used as input.
6	Should there be specific requirements on the retention of data for the User and/or the ESO?	SPR believes that a specific requirement for retention of data will be difficult to implement. It is not clear what the concern/intention is here. If this requirement is related to NGESO using data and models provided by any Users outside the purposes stated in the GB Grid Code/BCA, then this requirement should be informed by those most affected, which probably are OEMs. SPR anticipates that such requirement will need the negotiation of complex multipartite NDAs.
7	Should the detailed design stage be more clearly identified within the Grid Code?	Yes, SPR believe the process for the provision of data and models should be clearly stated rather than left vague. There's currently a discrepancy between the approach of different TOs. An example, TOs in Scotland provide information and limits in the BCA earlier than TO in England and Wales, to enable the User to perform simulation studies and identify potential concerns earlier in the design, these concerns have direct cost and delay implications on a project. Having clear format and milestones for provision of data will ensure we learn from recent projects that experienced complications when requirements weren't clearly identified early in the design process.
8	What stages of implementation would the industry believe are appropriate?	The implementation date shall be agreed in similar fashion as the changes done under RfG to the GB Grid Code where a date was agreed that avoided affecting a number of projects under development with the introduction of new Grid Code requirements midway project execution. SPR would like to highlight that currently there is a government CfD auction and implementing the changes prior to the CfD deadline will affect the cost of the projects. SPR believe that a grace period shall be included in the implementation of these new changes to the GB Grid Code. SPR would like to ensure that none of the new proposed changes to the GB Grid Code in GC0141 will be applied retroactively
9	Should the ESO be required to undertake the responsibilities associated with an independent engineer?	Yes, the ESO shall be required to undertake the responsibilities associated with an independent engineer. The technical expertise is already within the ESO to fulfil the responsibilities of the independent engineer and this will likely do not

	Please outline your rationale.	interfere with the progress of complex projects as having a third party independent engineer will require more bureaucracy than the one that already exists just dealing with the ESO. Also, as stated in response to Q5, it is more efficient for the ESO, since is meant to have visibility of the 'big picture', to assess interoperability concerns in clusters with multiple customer connections. In addition, SPR agree that the ESO shouldn't recommend tuning of controllers, but it should flag potential unwanted interactions following screening assessment which employs accurate/suitable models of all those Users that form part of the cluster and nearby area of concern. This could be done by resourcing the ESO adequately. In a cluster with multiple connections in close proximity, a large number of iterative studies will have to be performed every time one of the Users introduces a change which in turn may trigger changes to protection and control modes of others.
10	Should there be greater definition be given to "substantial modification" given that the self-certification process places the onerous on the User to make these decisions?	Yes. The definition should also make it clear what the intention is and how a modification should be assessed. While changing a transformer may be perceived to be more substantial modification than a firmware update, the latter may have a larger impact on the overall performance of the connection.
11	Should there be a review of the effectiveness of GC0141 post implementation and after the industry has experience of implementing?	Yes, SPR think this would be a prudent approach, the process is expected to be very complex without a clear view on how is going to work, hence difficult to anticipate future complications. There will be multiple parties involved, customers at various stages in their design process with different contract agreements with their manufacturers which could make provision/exchange of data challenging. The review of the effectiveness shall be done within a defined timescale otherwise is likely to be forgotten.
12	What are your thoughts on the workgroup's discussions regarding compliance repeat plan? How would this work in regard to Independent Engineer Verification?	NGESO need to make the merits of this approach clearer, so it is not seen as an additional unnecessary burden. SPR agree with the intention and there's no doubt on the necessity of the ESO to always know (be able to perform simulations in planning and real time timescales) how a connection to NETS will behave under conditions ESO has to consider, if we are to avoid events similar to 9 <sup>th</sup> August. However, isn't this already covered by ECC.6.2.2.6, if the User complies with this GC section, it shouldn't be a case where changes are implemented without ESO

		<p>knowing. Is this compliance repeat and additional layer of verification?</p> <p>SPR does not agree with the independent engineer role hence compliance repeat plan shall not be reviewed by an independent engineer. Please refer to response to question 5.</p>
13	Do you believe that screening processes should be applied ahead of detailed dynamic EMT simulation, and if so, do you believe data exchange should support that?	Yes, and the screening should employ a conservative approach to err on the side of caution to avoid overly optimistic inputs prevent genuine issues from being identified at time domain with detailed EMT models stage.
14	Do you agree that the roles and responsibilities associated with interaction studies should be detailed and clarified, and to what extent?	Yes, SPR agrees, from all the changes proposed in this GC modification, the clear split of responsibilities imposes probably the greatest risk to the customers. There are responsibilities placed upon the User, but there's a risk not enough or adequate information/data is provided to enable the Users to discharge these responsibilities. As highlighted during the workgroup discussions, Users tend to discharge some of the GB Grid Code requirements through the OEMs. The timing when this information/data is made available to feed into simulation studies is also an important element.
15	Do you agree that improved definitions of the types of analysis and definitions suitable analysis environments ahead of the detailed design phase provides useful clarity and minimised project disruption in delivering the principles of this grid code change? Should these form part of legal text or made available with the modification as guidance that may be separately updated from time to time	Yes, clear guidance is key to avoid both similar event from occurring and unnecessary cost implications/connection time delays for projects due to ambiguous requirements.

16	Do you agree that clarifying roles and responsibility in the management of interaction studies assists more clearly defining the analysis needs of each party, minimising confusion, unnecessary overlap and cost in the design phase?	Yes.
17	Do you agree that small signal analysis supporting the screening of interaction cases should be clearly specified within this grid code change, to better focus the range of EMT studies being discussed, and within the context of existing SSTI and SSO analysis better inform assessment of risks and the need for detailed dynamic simulation which includes shaft data for SSTI?	<p>We'd also propose a clear definition and description of what is meant and expected to be assessed for SSR, SSTI, SSCI. These assessments should be specific to a connection where there is possibility of these types of interactions and not be generalised to every User connection. There should be clear requirements for a User on what they are expected to assess in order to ensure Grid Compliance. It feels like these terms are used interchangeably and could lead to confusion, unnecessary cost to study something that isn't applicable for the connection. For example, some of these terms refer to conditions that involve series compensation, NGESO/NGET should clarify what the User is required to check if not in proximity to such plant/equipment.</p> <p>Yes, small signal analysis should be one of the screening methods used (along unit interaction factors, harmonic impedance scans, perturbation analysis) to inform requirement and narrow down cases for full time domain analysis using detailed models.</p>
18	What is your view on the separation of the simplified RMS model and EMT model when it comes to confidentiality, distribution and the protection of IP?	This is probably an OEMs concern, although some are already involved in the working group, some sort of formal survey should be carried out to understand if there are any issues to deliver against this requirement. Then there may be a generator concern, if next door neighbour (which may also be a competitor in a CfD auction) can gain sensitive information on the design from the models and accompanying information.
19	As it currently stands, what is your view on the process by which detailed manufacturer EMT-type models are	The workgroup should carry out an OEM survey to gauge the appetite of manufacturers to provide such detailed models. Depending on the outcome, the requirement for these models should be clearly stated in the GC. If this is left ambiguous/ open to



	exchanged for necessary studies as part of project delivery?	interpretation, as a developer, we're seeing it as a major risk, as we'll find it difficult to insert a requirement early enough in the plant supply contracts without being able to refer to a clear and specific GC section asking for it. Manufacturers will be reluctant to provide detailed EMT models due to intellectual property concerns, ESO and manufacturers must find a compromise between the level of encryption and how representative of plant behaviour these models should/can be. SPR suggested that as current practice any exchange of detailed models between NGESO and manufacturers should be covered by an NDA between the two parties involved in the exchange of models.
20	Are sections PCA.9.8 and PC.A.9.9 better suited to a guidance document and or should they be included, at least partly, within the legal text? Are there any specific concerns with respect to requirements set out within those sections?	SPR would prefer for this to be part of the main GC document and become a clear set of requirements rather than guidance. Since there's a need for multiple developers using plant and equipment from various manufacturers to coordinate. While flexibility is appreciated, there's also important to have a clear and common interpretation of what is required, all involved must provide data and information in the same format and agreed level of detail.
21	In terms of the requirement for existing users to provide sub-synchronous torsional data for existing plant that may be provided, do you see any issues in regard to the provision of this data?	SPR believes that for very old plants this data is difficult to obtain. The following questions should be answered before considering requesting such data: <ul style="list-style-type: none"> <li>• What is the cost of obtaining such data from the OEM?</li> <li>• What is the proposed approach if such data isn't available?</li> <li>• Who is paying for this data to be made available? If this is for the User to cover, how is this dealt with when future Users will benefit from the same data?</li> <li>• What is the process when a conventional thermal generator changes stages in their turbine, are all these SSR/SSTI simulation studies performed again, how is the cost covered?</li> </ul>
22	Should responsibility for interoperability remain with the generator or the ESO,	Responsibility for interoperability should sit with the ESO, the generator does not have visibility of the wider network and cannot employ a whole system approach, neither will have access to information and

	<p>inclusive of interoperability studies such as control interactions and SSCI/SSTI studies? Please provide your reasoning.</p>	<p>models required to ensure it can comply with this requirement. In the case of offshore wind farm connections via HVDC, the HVDC part of the connection which will dominate the interaction with NETS will be transferred to an OFTO, this will make it challenging for a generator to still be responsible for the entire lifetime of the connection.</p>
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