

## 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 Proposal better facilitates the Applicable Objectives?	<p>Our overarching views on the modification are outlined in the below bullets. A more detailed response then follows.</p> <ul style="list-style-type: none"> <li>We are supportive of the Independent engineer role but believe he/she does not need to be from a third-party organisation.</li> </ul>

- We are supportive of the Compliance Repeat Plan, but repetitions with existing requirements (e.g. week 24 submission) should be avoided.
- Role and Responsibility should be allocated to Parties that are better placed to manage them and could avoid issues with confidentiality (for example, National Grid ESO).
- Studies and requirements should be defined as early as possible to ensure all parties are aware of what it should be achieved and met.
- Users need to make technology decisions much earlier than outlined in the detailed design, and the process for model exchange and objectives of the studies should be clearly agreed in advance.

We fully understand the importance of addressing the matters proposed in this modification and appreciate their complexity in ensuring the risks of events such as the one on 9<sup>th</sup> August 2019 are mitigated and reduced. We agree on the need to revise some areas of the Grid code and ensure that suitable models are provided by the Users to the ESO and pertinent studies and simulations are completed. We are also supportive of the need to ensure Users compliance is verified throughout the lifetime of a User 's assets.

However, we do not necessarily see the need for an independent review of compliance documentations as a step that will prevent issues caused by the connection of new Users. The alternative solution proposed by the Working group could provide the additional comfort that Ofgem/BEIS requires.

**We do agree with the fact that the items above meet the Applicable Objective (C)** and address most of the concerns from Ofgem and BEIS. However, we question the main goal of performing sub-synchronous torsional interaction (SSTI) and control interaction (CI) studies and if the current proposal is meeting this goal.

As stated, we view that the objective of these studies is to reduce the risk, and mitigate against, future events like that on 9<sup>th</sup> August.

One of the main items of contention in the working group discussions has been how to find the balance between the details of Users' models that can be provided, who can have access to them and the accuracy of the studies that can be performed with the available models. The less detailed the models, the more approximations need to be made for the simulations: the working group has focused the discussions in detailing what can be simplified if certain models are not available. We believe that the limitation is not in the models that

can be provided by Users, but how these models are shared, if confidentiality issues could arise and who should be using them.

If the problem is more commercial than technical, then the focus of this modification should be to resolve this issue on a commercial level and not compromise on accuracy. Otherwise the risk is that simulations are performed that are too simple and won't support the system in avoiding future problems. This can be done in many ways and should ensure that each responsibility is allocated to the best-placed party to take full control of it.

**In contrast, we don't believe that the proposal for the performance of the studies and simulations better facilitates Applicable Objective (D).**

The current proposal is effectively passing the responsibility to maintain a safe and efficient network from the ESO to the Users. Under the proposal, Users would be required to perform studies on a small or large portion of the transmission network near their connection point, without a detailed understanding of how the system is operated, and based on models from other Users on which the User has no detailed knowledge or visibility (for understandable reasons). We agree with the Proposer that it should not be responsibility of the ESO to design control settings on behalf of the Users: this responsibility should sit with the owner of the controllers.

However, it should be the responsibility of the ESO to ensure that a new connectee does not impose any risks to their network and provide the relevant information to the Users to ensure their system can be tuned correctly. We believe the ESO should set up an adequate process framework to facilitate this, which would be managed by the ESO. We think that roles and responsibilities should be outlined in the Grid Code and allocated to those that can better manage them. The current proposal does not cater for this, as it simply shifts the ESO responsibility to the Users – who do not have the combined overview required for this. This is therefore not an adequate solution.

This responsibility split – described in the previous paragraph between ESO and Users' activities – will also resolve the concerns of model and data sharing and reduce the need to simplify the studies: Users' models will only be shared with the ESO, thereby avoiding any conflict among suppliers and allowing such models to be as detailed as required.

The legal text in this consultation refers to the model sharing for Power Park Modules to be applicable from 1<sup>st</sup> April 2021 which in our view will not be practically possible due to the discussions and agreements to be made with the OEMs and potential delays

		<p>that this may cause to the ongoing compliance process. We propose that this date should be delayed to at least 12 months after this modification is approved by The Authority to make it a feasible solution.</p> <p>Ultimately, one aspect that has not been considered in the consultation is the timing for providing such models and the purpose of such simulations. The focus of this modification is on the compliance aspects related to SSTI and CI. However, Users may need to perform such studies at an earlier time (several years before completion date) to make design and technology decisions for their projects. Without certainty in the form of ESO's early engagement and acceptance for the connection of a project, it creates a risk to Users when taking design decisions. We believe this should also be addressed in the Grid Code, with definitions on how Users can be supported in taking design decision which will be compliant once the more detailed compliant studies are required.</p>
2	Do you support the proposed implementation approach?	We believe that some fundamental questions are still open, as presented in our response to question 1 and further in the specific questions below. Therefore, we do not support the approach until these items have been resolved.
3	Do you have any other comments?	Please refer to our comments below on the specific questions to this consultation
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	No, we don't intend to raise an alternate to this modification.
<b>Modification Specific Workgroup Consultation questions</b>		
<b>Independent Engineer</b>		
5	What should the Independent Engineer's deliverables be with respect to the outcome of the compliance process?	<p><b>We support the Alternative proposal regarding the independent engineer:</b> we believe that allowing the User to choose between various options – including internal resourcing for the role of Independent Engineer – will optimise costs and timing of the process and ensure that the risks and responsibility of compliance are correctly allocated within the User (who remain accountable for the entire process).</p> <p>We agree that the Independent Engineer should only review compliance reports (without performing any additional studies, unless otherwise agreed) that are part of the Users' UDFS submission and relate to simulations and tests. The scope should not be to review the entire design of User's assets and sign-off the entire Compliance Statement, which still lies with the User to sign off the Compliance Statement and User self-certification.</p>

		However, an issue with the alternative proposal relates to the ToR section “Access to all relevant meetings/ minutes/ discussions related to the compliance activities under review”. We don’t believe this is practical and, in any case, any specific compliance requirements outside the Grid Code should be captured in the BCA/ConsAg and not agreed during meetings. We therefore don’t see the need for all communications between Users and TO/SO to be provided to the Independent Engineer.
6	Should there be specific requirements on the retention of data for the User and/or the ESO?	We assume this refers to the data to be provided to the Independent Engineer for review by the User or the ESO. As stated above in item 5, all standard requirements should be specified in the Grid Code and project-specific ones tracked in the BCA / ConsAg. The Independent Engineer should review the compliance simulations and tests against such requirements, and we don’t see the need for specific requirements on data to be necessary, as the current compliance process is clear and transparent.
7	Should the detailed design stage be more clearly identified within the Grid Code?	Instead of “detailed design stage” when the independent engineer would join the project, we believe it’s better to link it to the commencement of Operational Notification and Compliance Checklist (ONCC) meetings when the “Independent Engineer” can be onboarded.
8	What stages of implementation would the industry believe are appropriate?	The independent engineer process should only be applicable for future projects and not for those currently phasing commissioning activities and that have already received EON, as this could cause disruptions and delays which a project cannot mitigate. We believe the implementation date should be at least 12 months after “The Authority” approves the modification.
9	Should the ESO be required to undertake the responsibilities associated with an independent engineer? Please outline your rationale.	Please refer to our detailed position in favour of the alternative proposal for the independent engineer. We believe that in principle, this role could also be covered by someone within the ESO organisation, in the same way as it could be someone within the User’s. In our view, the main scope of this review is to ensure that an additional “pair of eyes” performs an initial review of the compliance documents and we don’t believe it needs to be from a third-party organisation.
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, we agree that this should be fully specified and stated to ensure the scope of the Independent Engineer is clear.
11	Should there be a review of the	Yes, it could be worth reviewing the effectiveness of the Independent Engineer solution that is implemented within 2-3

	effectiveness of GC0141 post implementation and after the industry has experience of implementing?	years from approval, to ensure it is fit for purpose and delivers what expected. This review could be performed by the Grid Code Review Panel or by a sub-group formed by it. We propose such clause to be added in the Legal Text so that it is captured, and industry is aware of the review of these changes.
<b>Compliance Repeat Plan</b>		
12	What are your thoughts on the workgroup's discussions regarding compliance repeat plan? How would this work in regard to Independent Engineer Verification?	<p>In principle, we are supportive of the proposed approach and understand the reasons behind it. We agree with the proposed Grid Code changes and believe this would reduce the risks to the overall transmission system.</p> <p>We would however question why a new submission of Data Registration Code SPD and DPD data is required, considering that this is done anyway on a yearly basis as part of the Week 24 submission and especially if no changes have occurred. We see this additional submission as a duplication of existing requirements and therefore adds no benefit to the process.</p> <p>As no additional studies or tests are required for the Compliance Repeat Plan (unless agreed between Users and ESO due to changes to the User's system), we don't believe that the involvement of the Independent Engineer should be required as default.</p>
<b>Interaction - SSCI/SSTI</b>		
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?	<p>In our view, there should be consideration for the objective of performing these activities. The outlined objective should then determine the decision on which studies are required, and also set roles and responsibilities.</p> <p>We agree that screening studies would be a suitable approach to identify the critical parts of network and other User's Plant that need to be included in the detailed EMT studies. However, it is important to clearly specify the type of studies, which part(s) of the network model to be considered as a part of screening, and pass/fail criteria based on relevant international standards, technical working groups etc.</p> <p>To ensure the studies are successful and provide sufficient comfort for developers to continue with their design decision, those with the responsibility to perform these early studies should have full visibility and transparency of all necessary information and the ESO should take responsibility of the outcome based on the data that has been made available and its acceptance.</p>
14	Do you agree that the roles and	Yes, we do agree that roles and responsibility should be clearly stated in the Grid code with respect to SSTI and CI. We also



	<p>responsibilities associated with interaction studies should be detailed and clarified, and to what extent?</p>	<p>believe that the current overall wording in the current Grid code and the proposed modification do not reflect the exact splits.</p> <p>We acknowledge that a User should be responsible for their own assets and ensure their actions do not have a negative impact to the overall network. However, the User cannot be responsible for ensuring that the entire network operates safely, as the User does not have complete visibility of the way the system is operated and the variables that affect it. It is the responsibility of the ESO to operate the system in a safe, secure and economic manner, as the ESO has a complete view of the network, any changes to it and the changes of other Users.</p> <p>In addition, Users should ensure the design of their assets meet certain requirements at their Connection Point (Interface Point in case of Offshore Wind Farms) which are identified by the ESO. However, the User cannot be asked to perform the detailed level of network study surrounding their connection point, as only the ESO will be capable and knowledgeable on how the system is operated. This process should be staged during the development and design of a project and the results provided at the end of each stage should be accepted and signed-off by all parties involved, including User(s), TO and SO.</p> <p>We appreciate that this approach would require the ESO to allocate sufficient resources for this process (including studies, review and acceptance, coordination, change management, etc.), but if the goal of the proposal is to ensure that all relevant stability studies are performed to avoid issues in the network, then the overall responsibility should lie with the ESO, as per their license requirements.</p> <p>This would also address the problem of sharing models of different suppliers/Users among competitors: the models would only be shared and used by the ESO, which would avoid any concerns in terms of confidentiality and data disclosure.</p>
15	<p>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?</p> <p>Should these form part</p>	<p>Yes, we agree that a detailed definition of analysis types, and definitions of suitable analysis environments, ahead of the detailed design phase should be specified to ensure it is clear what needs to be provided and what the User's assets should be designed against.</p> <p>It needs to be clearly stated and defined how risks will be identified early (also to ensure Users can take design decisions with sufficient certainty) and ensure that later, more detailed studies will not result in outcome that will pose serious risks to a project.</p>

	of legal text or made available with the modification as guidance that may be separately updated from time to time	<p>The scope of studies needs to be clearly stated in the Grid Code and available for projects at any stage of their development. Projects need to design a system that is compliant with the Grid Code in their design phase, but they also need to perform earlier studies – for instance, the technology for connecting a project needs to be chosen and any impact on the network needs to be determined and made clear.</p> <p>We believe these definitions should be defined in the legal text (for instance as an appendix in ECC or ECP) and not in a guidance note: a guidance note is a document prepared and reviewed only by the ESO and we believe the definitions of studies and models will need to be clearly defined and properly consulted upon within the industry. See also our response to question 20</p>
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?	<p>Yes, we do agree that the roles and responsibilities should be clearly clarified and ensure each risk is allocated to those who can better manage it.</p> <p>Please also see our response to question14</p>
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 agree that screening studies such as small signal analysis would be beneficial to perform and should be clearly specified in this GC modification.</p> <p>We propose that relevant international standards and technical working groups are used as a reference in this case to ensure that external technical advancements for such studies are also followed in the GB industry. It is important to note that the scope of detailed EMT studies for SSTI/SSO should be determined, also keeping in mind the availability of the data of the other Users of the system.</p>



<b>RMS &amp; EMT Modelling Appendix 9</b>		
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?	<p>We agree that the confidentiality requirements could be different for a simplified RMS model and EMT model.</p> <p>However, based on our response to Question 14, we believe the ESO should undertake interoperability studies where multiple Users are involved to ensure safe, secure and economic operation. This approach would avoid issues around confidentiality. Under any special and unavoidable circumstances where the User is required to include the detailed EMT model of other Users, we believe the ESO should provide the necessary support to overcome any confidentiality issues and to perform necessary studies.</p>
19	As it currently stands, what is your view on the process by which detailed manufacturer EMT-type models are exchanged for necessary studies as part of project delivery?	<p>We think that the issue is not on the requirements for a User to submit sufficiently detailed models of their Plant – as this should be achievable – but on how the models will be used, by who and when (the model develops during the entire connection process as detailed data becomes available). The responsibility of compatibility across all models, the responsibility on keeping each model up to date, and the information regarding network operation should be defined.</p> <p>As discussed in our response, the most important aspect to consider is that each party's responsibility should be within their scope and their knowledge of the system. It cannot be a User's responsibility to ensure that the entire transmission network is operated safely and efficiently, as they lack the insight and understanding on how the system is operated – as well as how other User's designs and corresponding models develop over time.</p>
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?	<p>We believe the requirements should be set within the Grid Code either in the main PC sections or as a separate appendix. We don't believe a Guidance Note is a suitable solution to describe the details of the model as it is a document owned, prepared and published by the ESO alone and sits outside the regulatory framework and the Users are not normally notified of changes to the Guidance Notes as they would be informed of changes to the Grid Code. The nature of these models is very important for all parties involved in the process and it needs to be ensured that a correct level of review is performed when its details are defined.</p>
21	In terms of the requirement for existing users to provide sub-synchronous torsional data for existing plant	<p>We cannot comment on behalf of existing Users with synchronous generation with respect to how simple it is to provide this data, especially for older plants, as do not have experience of this.</p>

	that may be provided, do you see any issues in regard to the provision of this data?	<p>At a high-level, if the objective of this modification is to ensure that suitable, detailed studies can be performed to assess the stability of the Transmission network, also in light of its development and the amount of electronic-based devices to be connected in the next 10-20 years, then we believe that the need for such data is clear. Only the ESO can evaluate the level of approximation that can be accepted in modelling the transmission network when performing such studies: and if the shaft data are deemed necessary, then their submission should be made mandatory with a process to support Users in providing such data being setup.</p> <p>In any instance of where such data is not feasible to obtain from existing Users, such Users should be informed of the potential risk to their equipment they would need to bear, due to the issue of not being able to model their equipment accurately in the system level studies.</p>
22	Should responsibility for interoperability remain with the generator or the ESO, inclusive of interoperability studies such as control interactions and SSCI/SSTI studies? Please provide your reasoning.	<p>As discussed in our response to Question 14, we believe that the responsibility for interoperability should be split between various parties according to their scope. Users should be responsible for providing details of models and descriptions of their systems and ensure their systems are tuned to avoid any interoperability issues to the network.</p> <p>The ESO should be responsible for ensuring the network is operated safely and should therefore perform studies to assess the impact of new connectees to the system and support User's work in tuning their systems.</p> <p>The ESO is in a better position to perform SSTI/CI studies as they have access to all the required models, all the knowledge related to transmission system operation (which would be a credible load flow, credible contingency etc) and also have the responsibility of operating the system in a safe, secure and economic manner. As previously stated in our response, this would also resolve the issue of model sharing among Users and suppliers, and also the confidentiality issue.</p> <p>Users also need to have certainty of their designs. Therefore, in addition to the studies, it is also important that the ESO defines a clear framework and provides feedback to the User's allowing them to take design and investment decisions as early as necessary. This is a common practise for international TSO/ISO and suggest that the UK is also capable of following suit.</p>