

Workgroup Consultation Response Proforma**GC0147: Last resort disconnection of Embedded Generation – enduring solution**

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 **27 November 2020**. 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 **Nisar Ahmed**, Nisar.Ahmed@nationalgrideso.com or grid.code@nationalgrideso.com

Respondent details	Please enter your details
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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 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 GC0147 Original Proposal better facilitates the Applicable Grid Code Objectives?	<p>It is clearly preferable to have an enduring set of arrangements incorporated in the code rather than to rely on the interim measure longer than is necessary.</p> <p>Although Covid is expected to be relatively short term, the pressures that could lead to this being needed will remain, given ever increasing penetration of variable generation on the grid. Since the power to disconnect already exists in the code, it is important that the circumstances under which it can be used, the manner in which it will be applied and arrangements for compensation are codified.</p>
2	Do you support the proposed implementation approach?	<p>Detailed points are made below, but our concerns around these proposals centre on three areas:</p> <ol style="list-style-type: none"> 1) The need for compensation to affected generators 2) Instructions should be issued so that nationally non-synchronous generation will be disconnected before other generation (see our response to question 12) 3) Insufficient consideration has been given to environmental and safety risks arising from synchronous generation at landfill gas and AD sites. These should be disconnected later than other sites, regardless of whether there is significant demand at the site.
3	Do you have any other comments?	No.
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	No.
Specific GC0147 Workgroup Consultation questions		
5	How can it be ensured that all reasonable commercial alternatives have been pursued first before emergency instructions	<p>This requirement needs to be clearly stated in the changes – although for this to be of comfort to generators, there must also be confidence that commercial alternatives of sufficient scale will be developed. If the ODFM had not been introduced over the summer, it is likely that the interim</p>

	are used as a last resort?	<p>modification made by GC0143 would have been used.</p> <p>The best way of ensuring this happens in practice is for there to be both a commercial compensation package for impacted generators and an NG-ESO penalty for when GC0147 is used. This will ensure the ESO is incentivised to put in place the necessary commercial balancing levers and meaning that GC0147 will only ever be used in an extreme and unforeseen situation.</p>
6	Are there any further alternatives to emergency disconnection that have not been considered?	Not that we are aware of.
7	In terms of possible safety implications of disconnection, are there any specific risks in relation to this solution? What is the additional risk?	<p>More attention needs to be given to these impacts. The only mention of them in the proposal is that ‘this risk would not be unique to GC0147... and is an inherent issue with operating any equipment that it must have safe shutdown mechanisms’ (page 12).</p> <p>Although this is broadly true, the circumstances in which this might happen ordinarily are likely to be for a short time period only and would not be expected to affect multiple sites in a given region simultaneously. Sites must take a view on appropriate risk management, and it does not follow that it is acceptable for these risks to be increased without careful consideration.</p> <p>We would like to highlight concerns around the environmental risks at landfill gas and biogas (AD) sites. These concerns are not so much about the safe operation of the electrical generation equipment, but on the implications for gas management at the sites when they are no longer able to import power from the grid. At these sites, gas production will continue even when the power is cut off.</p> <p>Both landfill and biogas sites are unlikely to be able to operate their flares in the event of being disconnected from the grid, increasingly the likelihood of gas being vented to atmosphere.</p>

	<p>Although biogas sites can reduce their gas production, it takes many hours for a change in feeding rates to affect gas production – and any change to the feeding regime of the digesters can affect its stability adversely. If gas continues to be produced and not used, it will escape from pressure relief valves – causing, as a minimum, nuisance from odour to workers and local receptors.</p> <p>If biogas sites cannot keep their digester temperatures high enough or operate pasteurisation units as required under Animal By-Products regulations they may not be able to feed waste into the digesters, creating further environmental impacts from waste already at the site or in transit.</p> <p>Similarly, landfill gas sites are likely to leak methane and other gases to the atmosphere and surrounding ground if the gas is not actively extracted regularly. Risks to sensitive receptors are site specific, but without continuous extraction the migration of landfill gas can pose a significant risk. Whilst operators currently manage loss of power on a priority basis, resourcing this is based on the current level of risk and not on the basis of the potential for multiple sites within a region being simultaneously disconnected.</p> <p>Relatively few landfill and biogas sites have back up generation permanently installed as this is not economically viable or needed based on the historical risk profile. Instead, most sites have contractual arrangements in place for a temporary generator to be supplied to their site within a given period of it being called upon.</p> <p>In the event that this disconnection is instructed (especially in equal 50MW blocks per DNO as proposed) it is likely that several similar sites in a given area would be disconnected simultaneously, increasing the risk that suppliers of temporary generators would not be able to meet all their commitments in respect of equipment and the qualified engineers needed to resource this.</p> <p>In addition, out of hours engineering cover for companies operating multiple sites will struggle to</p>
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		<p>meet the demand if several sites need attention at the same time.</p> <p>Given the progressive closure of landfill sites in recent years as waste is diverted to other treatment technologies, more and more sites are unmanned in the working day as well as out of hours. This means that operations are more reliant on remote engineering resources, which is likely to lead to further delays and risk where plants need to be safely re-energised following any outage.</p>
8	How should embedded generators that are not participants in the balancing mechanism be compensated for emergency control actions including disconnection? Is it your opinion that they should be compensated?	<p>They should be compensated, regardless of whether or not this is required under the Clean Energy Package. Not only is this a point of fairness, but it acts as a further guarantee that the system operator will avoid instructing disconnection unless absolutely necessary.</p> <p>We note the references on page 10 of the consultation document to the Balancing Mechanism, and the implication that if uncertainty around the impact of this modification prompts more sites to join the BM, that would be welcome. We would highlight that it currently makes little sense for many generators affected by these proposals to join the mechanism, as the nature of their processes is to produce and burn gas continuously.</p>
9	What mechanism could compensation be achieved by?	We are agnostic with regard to the mechanism used.
10	Would modifications to any other GB Codes be required? [for example, imbalance and cash-out arrangements in the BSC, arrangements with DNOs, suppliers or embedded generators in the CUSC and DCUSA)	No comment.
11	Is compensation a requirement of the Clean Energy Package legislation? Please	We are not legal specialists in this area, but we repeat that compensation should be made, irrespective of whether this an obligation imposed by the Clean Energy Package.

	expand where possible on why or why not.	
Form/Implementation of instructions		
12	What form should an instruction take? (eg % or MW; registered capacity or active power output)	<p>The types of potentially affected generation varies considerably between DNOs. The result is that, if each DNO is required to disconnect the same amount of MW, some would be able to do so by disconnecting solely non-synchronous generation, while those with low levels of such generation would almost immediately begin disconnecting synchronous generation.</p> <p>The result would be that there would be parts of the country with non-synchronous generation still connected to the grid, while elsewhere synchronous generation would be disconnected.</p> <p>This issue should be addressed by mapping generation types at a national level and issuing disconnection instructions in proportion to the level of non-synchronous generation in each DNO's area.</p>
13	What priority order should generators reasonably be disconnected in? Have a link in the report to the guidance note on priority order.	<p>We agree with the broad approach that non-synchronous generation should be disconnected before other types.</p> <p>Further, it is essential that whatever approach is decided upon is set out in the code modification (at least at a high level) so that there is clarity for all parties.</p> <p>For the reasons set out in our response to question 7 above, landfill gas and biogas sites (both AD and sewage gas) should be disconnected later than other synchronous generation, whether or not they have a substantial associated demand. They should sit in a new category between the proposed categories 3 and 4.</p> <p>This should be combined with the changes recommended in our response to question 12, so that the amount of generation each DNO has to disconnect takes account of the differences in composition of generation types within each DNO area – such that at a national level synchronous generation is only disconnected after non-synchronous generation.</p>

		<p>In addition, there should be a de minimis level of generation capacity that will not be required to disconnect. Our reasoning for this is that, although environmental risks as described above in our response to question 7 would still apply, the benefit in terms of balancing supply and demand would be negligible. We are not recommending a specific threshold, but one should be chosen and clearly communicated to all those potentially affected.</p> <p>As a final point of detail, the lowest category should not refer to Covid, since this is intended to be an enduring solution. The wording in the proposed guidance should be amended to 'Critical DG services and CNI sites'</p>
14	What arrangements are necessary for restoration?	<p>The concerns set out in our response to question 7 are reinforced by the fact that there is no guarantee that disconnected sites will be restored to the grid promptly once the emergency instruction is no longer in place.</p> <p>Some of the skills required to re-energise sites are very specialist (such as those involving HV connections). As with the circumstances of disconnection itself, it is likely that there will be resource constraints if multiple sites of a similar type (or managed by the same operator) are affected simultaneously.</p> <p>It is perfectly possible that an emergency instruction would only require disconnection for a few hours but it would be a matter of days before the site is able to return to generation, and consideration of environmental and safety risks should take this into account.</p>
15	How much of the detail of how an instruction should be implemented needs to be codified rather than in a guidance document?	<p>We need to be careful as guidance is very much down to interpretation, which creates ambiguity. The core framework, how to apply the needed reduction (including the priority order), compensation and penalties should be codified. Guidance can then be based around those key areas.</p> <p>We appreciate that the circumstances in which disconnection will be instructed would depend on the circumstances, but generators need some transparency on where they fall on their DNO's list – this would enable them to make sensible</p>

		<p>assessments of where their risk management efforts would be best spent.</p> <p>Given the very short timeframes between the ESO issuing an emergency instruction and it needing to be carried out, those scripts will be written in advance so it must be possible to communicate at least an overall sense of this.</p> <p>We also agree with the implication in the consultation that if disconnection happens several times efforts should be made to share the impact fairly (ie that if only some sites in a given category are disconnected the first time disconnection is instructed, these should be the last in their category to be disconnected the following time).</p>
Legal Text		
16	Do you agree with the proposed Grid Code legal text? Please provide the rationale for your response and any specific comments.	We have no specific drafting points beyond the policy responses set out above.