

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?	
2	Do you support the proposed implementation approach?	<p>Templeborough Biomass Power Plant supports the need to avoid large scale failure of the grid network and broadly supports the proposed priority order, however perhaps the generation in category 2 “Synchronous generators without any associated demand” should be further categorised into:</p> <p>2a. “Synchronous generators without any demand and with low inertia such as wind farms” and</p> <p>2b. “Synchronous generations without any demand and with high inertia such as biomass powered generation stations.</p> <p>This is discussed further in question 13.</p>
3	Do you have any other comments?	
4	Do you wish to raise a Workgroup Consultation Alternative Request for the Workgroup to consider?	
Specific GC0147 Workgroup Consultation questions		
5	How can it be ensured that all reasonable commercial alternatives have been pursued first before emergency instructions are used as a last resort?	<p>It is absolutely vital that this change to legislation does not put renewables as the “easy target” for network management. The consultation does not make any comment about preventative measures that could be done through distribution network investment and it is important that enforced curtailment of renewables should not be an excuse to avoid this investment from the DNOs. All DNO’s are now including provision for constraints on generation under their respective ANM plans within their connection offers which seriously impact on the viability of renewable generation going forward. This puts the CEP under threat. Of course, there have to be mechanisms for avoiding catastrophic failure of the network and there may well be limited</p>

		<p>circumstances when embedded generation will need to be curtailed or disconnected. However, this must be on the basis of technically not being able to secure enough reduction in output through the market-based alternatives. i.e. there should not be a cost constraint on curtailment through the balancing market. This could in turn lead to increased participation in the balancing market and make network management much more controllable. I would therefore not support the statement in Article 13 paragraph 6 (a) “or if other solutions would result in significantly disproportionate costs” as this is a subjective approach.</p>
6	<p>Are there any further alternatives to emergency disconnection that have not been considered?</p>	<p>Perhaps an alternative “emergency balancing market mechanism” could be put in place with those embedded generators that are not currently balancing market participants could be set up to try and pre-empt grid issues. Such a mechanism could have pre-agreed disconnection priorities and procedures alongside pre-agreed compensation arrangements. Such a system could offer clarity and help with clearly defined protocols should an emergency situation arise.</p>
7	<p>In terms of possible safety implications of disconnection, are there any specific risks in relation to this solution? What is the additional risk?</p>	
8	<p>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>	<p>Templeborough Biomass Power Plant strongly believes that generators need to be compensated for being constrained or disconnected. Compensation payments must also take into account the impact that emergency curtailment will have on the economics of the embedded generator. Biomass embedded generation is currently at a disadvantage to other embedded renewable generation such as wind and solar.</p> <p>Wind and solar assets, even those with existing Renewables Obligation Contract support, have much more certainty about their life after the ROC support expires as their capital costs will have been repaid and they will therefore be able to continue to operate beyond the ROC period as long as the market power price provides an income greater than annual maintenance costs. This means that compensation can be based upon the traded energy prices at that time plus any other support that project has such as ROCs.</p>

		<p>Biomass generators such as Templeborough Biomass Power Plant have to make a return on capital expenditure during its ROC contract period as the prospect of the post ROC energy price supporting the maintenance and fuel costs is much lower. This means that the cost of emergency disconnection has to take much more than the loss of generation revenue. A disconnection would result in the plant “going cold”. This in turn means that a restart not only takes longer, but also adds cost to the biomass plant through the use of auxiliary fuel to get the combustor back up to temperature. Another hidden cost for Templeborough Biomass Power Plant would be the cancellation or re-direction of fuel from the plant from the point of disconnection. The power station has a fuel storage capability that is proportionate to its generating output. There is therefore a limited ability to accept fuel to the plant in the event of a complete outage and therefore the fuel has to be cancelled or re-directed at the plant’s cost.</p> <p>Templeborough Biomass Power Plant is also designed to run at it full load on a steady state basis whilst the normal fluctuations experienced when running such thermal plant is acceptable significant, sharp changes in load can cause increased wear resulting in increased maintenance costs and even damage to the facility.</p> <p>All of this means that biomass generators such as Templeborough Biomass Power Plant are impacted significantly more that wind and solar embedded assets. This would need to be taken into account in terms of both compensation quantum and timing to avoid cashflow impacts. The time taken for a biomass power station to re-start means that the disconnection should be the absolute last resort for a biomass power station. However, biomass generation does have the ability to manage its output and it should be possible to agree output curtailment of up to 40% with such installations but this should always be based on forecasts wherever possible to retain plant control. Therefore, curtailment must be done on the basis of suitable notification procedures and appropriate compensation arrangements.</p>
9	What mechanism could compensation be achieved by?	<p>It would be relatively straight forward to provide a compensation price for the project’s disconnection based on agreed parameters. However, to keep costs under control there are a few methods of compensating generators:</p> <ol style="list-style-type: none"> 1. There could be standard disconnection compensation for different technologies. This would have winners and losers as currently the embedded generators’ income varies

		<p>significantly in accordance with the support mechanisms they were constructed under and the assumptions used to secure funding. However, I am sure the industry would work with National Grid to try and come up with suitable pricing;</p> <ol style="list-style-type: none"> 2. An alternative could be that all embedded generators are obliged to submit a disconnection/load management cost estimate (with the ability to audit the calculations) on an annual basis; or 3. There might be an opportunity to create an “emergency disconnection market-place”. Embedded generators could have the ability to bid into half hour periods, much the same as the balancing market, but for complete disconnection during periods when issues are forecast. This would resolve the issue of quantifying compensation payments and would have a pre-agreed set of generation ready to react quickly should the need arise. As it is a bidding process then it could minimise the cost of compensation payments. <p>The compensation management should be done through a central body such as National Grid ESO. In terms of meeting the cost of this compensation, it could be an option to revert back to a mechanism similar to the Fossil Fuel Levy, where the costs of network management are distributed fairly amongst all electricity consumers. If the requirement to disconnect is very infrequent as proposed in the document, then this should not add an excessive charge to consumers. An exemption scheme for those consumers who are able to support the network management through controlled flexibility could potentially increase the rate of deployment of more flexible energy consumption.</p>
10	<p>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)</p>	
11	<p>Is compensation a requirement of the Clean</p>	<p>Templeborough Biomass Power Plant Ltd. believes that compensation is a requirement of the Clean Energy</p>

	Energy Package legislation? Please expand where possible on why or why not.	<p>Package legislation. It is understood that the legislation clearly lays out that it is an obligation on the system operator requesting re-dispatch or curtailment to financially compensate the facilities concerned.</p> <p>Included within the legislation is that the compensation should include additional operating costs and/or lost net-revenues otherwise generated on the day-ahead market, including financial support, if applicable.</p>
Form/Implementation of instructions		
12	What form should an instruction take? (eg % or MW; registered capacity or active power output)	For biomass power generators it is recommended that a procedure should be put in place that allows a pre-agreed MW generated output reduction to be implemented at relatively short notice.
13	What priority order should generators reasonably be disconnected in? Have a link in the report to the guidance note on priority order.	<p>Templeborough Biomass Power Plant Ltd. broadly agrees and supports the proposed priority order suggested on page 15 of the report. However, it would recommend that the generation in category 2 “Synchronous generators without any associated demand” is further split into:</p> <p>2a. “Synchronous generators without any demand and with low inertia such as wind farms” and</p> <p>2b. “Synchronous generations without any demand and with high inertia such as biomass powered generation stations”</p> <p>Biomass generators such as Templeborough Biomass Power Plant has greater inertia than windfarms and this should be accounted for in reacting to emergency situations. This could system stability is maintained during emergency disconnection of the embedded generators. It should also be noted that, in addition to inertia, biomass facilities have a limited ability to adjust power factor. As indicated in 8 above, whilst biomass plants can help to support the network appropriate notice periods must be agreed. It should, however, be possible to forecast potential “risk periods” for network issues and the plants could be on alert and ready to react during such periods if suitable compensation arrangements could be agreed.</p>
14	What arrangements are necessary for restoration?	The procedures need to be put in place to ensure that reconnection/increased output notices are issued as soon as practicable to minimise impact on the generator and keep compensation payments down to a minimum.

15	How much of the detail of how an instruction should be implemented needs to be codified rather than in a guidance document?	Templeborough Biomass Power Plant would recommend that as much detail as possible is pre-agreed with embedded generators to provide certainty and ensure delivery of the required outcome. The generators need certainty about the mechanisms and for the process not to be open to subjectivity wherever possible.
Legal Text		
16	Do you agree with the proposed Grid Code legal text? Please provide the rationale for your response and any specific comments.	