

Grid Code Administrator Consultation Response Proforma

GC0143: 'Last resort disconnection of Embedded Generation'

Industry parties are invited to respond to this Code Administrator Consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **17:00** on **5 May 2020** to grid.code@nationalgrideso.com. Please note that any responses received after the deadline or sent to a different email address may not be included within the Final Modification Report to the Authority.

Any queries on the content of the consultation should be addressed to Nisar Ahmed at christine.brown1@nationalgrideso.com

These responses will be included within the Draft Grid Code Modification Report to the Grid Code Panel and within the Final Grid Code Modification Report to the Authority.

Respondent:	Steve Brown, Juergen Schaper and Mark Keast
Company Name:	FCC Environment
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<p><i>For reference, the Applicable Grid Code objectives are:</i></p> <ul style="list-style-type: none">(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.
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3	<p>Do you have any other comments in relation to GC0143?</p>	<p><u>Steve Brown:</u></p> <p>I recognise the need in critical circumstances to regulate the Electricity network such that stability is maintained, and disconnection should be based on security of supply rather than level of connection, with those giving secure delivery disconnection last.</p> <p>Similarly, to the fossil fuel and Nuclear plants, EfW plants play a vital role in maintaining the Electricity network and differ somewhat to the pure Renewable electricity providers, such as wind and solar that deliver on the green agenda, but in terms of delivery of capacity are unreliable, intermittent and can create instability. These Renewable types of installations could be connected both at Distributed and Transmission level and prior to any arbitrary disconnection of EfW Embedded Generation this should be considered to be disconnected as a matter of course.</p> <p>EfW are either all or the majority connected at Distribution level and as such are Embedded Generators. EfW provide a vital service not only in electricity production but also in maintaining Public Health and the response to Covid 19. Disconnection of these plants could cause those plants to enter a heightened level of instability, the possibility of having to operate at reduced load and therefore be unable to burn as much waste placing Public Health at risk. Further as the plants operate in a similar fashion to conventional generation plant, EfW provide the opportunity for the DNOs to regulate system voltage in local networks in a similar fashion to that of the Transmission connected larger generators, therefore providing greater stability to the grid.</p> <p>Taking instability as an example dependent upon how the plants were disconnected, this would cause the plants to either dump steam quickly, or in a more measured fashion, to its condensing mechanism. The quicker this happens the greater the risk of tripping the plant which in turn stops the combustion. Again, both operating at this level and with quick disconnection heightens the risk of potential failure of the plant due to the “shock to the system” which could result in the plants requiring significant maintenance intervention and unplanned shutdowns for periods of time. The knock on effect from this is that waste would have to be diverted placing</p>
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		<p>Public Health at risk, ultimately to landfill, placing significant stress on the system of collection and transfer of material as well as significant cost. Further, disconnection and through that process the plants tripping, would result in the plants being unable to come back on line to operate in steam bypass as they typically rely upon the export connection to import to gain the ability to start and operate the plant, that import equally placing more strain on a fragile network. Therefore prior to any disconnection asking plant to reduce load through bypassing steam to a level typically that they are able to sustain would provide a further better option to both plant and system before any necessary disconnection.</p> <p>I believe at the highest level it should be made clear that this poses significant risk and disconnection of Embedded Generation has to be carried out in a fashion that considers all forms of generation at all levels and based upon their security of supply position rather than level of connection, i.e. those providing the greatest level of security of supply being the last to be disconnected of which EfW are at that secure level.</p> <p><u>Mark Keast:</u></p> <p>Further to Steve Brown's email on the 3rd May I wanted to contact you regarding Millerhill EfW which processes all of the black bag waste for the City of Edinburgh, Midlothian and East Lothian Councils. I recognise the need in critical circumstances to regulate the Electricity network such that stability is maintained, and disconnection should be based on security of supply rather than level of connection, with those giving secure delivery disconnection last.</p> <p>Millerhill provides a vital service not only in electricity production but also in maintaining Public Health and the response to Covid 19 for the three councils served. Disconnection could result in a heightened level of instability, the possibility of having to operate at reduced load and therefore be unable to burn as much waste placing Public Health at risk. Also, Millerhill operates in a similar fashion to conventional generation plants and therefore provides the opportunity for the DNOs to regulate system voltage in local networks in a similar fashion to that of the Transmission connected larger generators and doing so providing greater stability to the grid. This is particularly important in Scotland where there is a high reliance on wind and solar which by their nature are less reliable, more intermittent and can therefore create instability.</p>
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Juergen Schaper:

I accept the need in critical circumstances to regulate the Electricity network such that stability is maintained however any disconnection should be based on security of supply rather than level of connection, with those giving secure and highly available, flexible delivery, disconnected last.

Similarly to the fossil fuel and Nuclear plants, EfW plants like Lincoln EfW play a vital role in maintaining the local electricity network and differ somewhat to the pure renewable electricity providers, such as wind and solar, that deliver on the green agenda. In terms of delivery of capacity solar and wind are intermittent and provide less availability. Due to their design they are reliant on spinning capacity on the network as they cannot provide system inertia and they can create instability due to their need to have the grid frequency to stabilise their inverter driven generation. These renewable type of installations could be connected both at distributed and transmission level and prior to any arbitrary disconnection of EfW embedded generation they should be considered to be disconnected in parallel in similar ratio as a matter of course.

Lincoln EfW is connected at distribution level and as such an embedded generator. This EfW provides a vital service not only in electricity production and local voltage stabilisation but also in maintaining Public Health and response to Covid 19 as we are burning MSW which is potentially contaminated with this virus. Also Lincoln EfW is one of the few assigned facilities which are currently on standby to deal with increasing amounts of clinical Covid-19 waste under RPS C4 if necessary.

A forced disconnection of Lincoln EfW could cause an increased level of instability, the possibility of having to operate at reduced load and therefore be unable to process as much waste placing Public Health at risk. If the plant would process clinical waste at that time the environment would be negatively impacted and the H&S of staff would be put at unnecessary risk.

Further as Lincoln EfW operates in a similar fashion to conventional plant generation plant, we provide the opportunity for the DSO to regulate system voltage in local networks in a similar fashion to that of the Transmission connected larger generators, therefore providing greater stability to the grid.

		<p>If the DSO would force disconnect Lincoln EfW the plant has to dump steam quickly to its condensing mechanism. The quicker this happens the greater the risk of tripping the complete plant which in turn stops the combustion which in itself causes a short term negative environmental impact. Again, both operating at this level and with quick disconnection increases the risk of potential failure of the plant due to the “shock to the system” which could result in the plants requiring significant maintenance intervention and unplanned shutdowns for periods of time. The knock on effect from this is that waste would have to be diverted, placing Public Health at risk, ultimately to landfill, placing significant stress on the system of collection and transfer of material as well as significant cost.</p> <p>Further, disconnection and through that process the plant tripping, would result in Lincoln EfW being unable to restart to operate in steam bypass as they typically rely upon the export connection to import to gain the ability to start and operate the plant, that import equally placing more strain on a fragile network. Therefore prior to any disconnection asking plant to reduce load through bypassing steam to a level typically that they are able to sustain would provide a far better option to both plant and system before any necessary disconnection.</p> <p>I believe at the highest level it should be made clear that this poses significant risk and disconnection of embedded generation has to be carried out in a fashion that considers all forms of generation at all levels and based upon their merits rather than level of connection, i.e. those providing the greatest level of security of supply being the last to be disconnected of which EfW are at that secure level.</p>
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