

## Grid Code Workgroup Consultation Response Proforma

### GC0100 EU Connection Codes GB Implementation – Mod 1

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 by **5pm on 2 October 2017** to [grid.code@nationalgrid.com](mailto:grid.code@nationalgrid.com).

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Chrissie Brown at [Christine.brown1@nationalgrid.com](mailto:Christine.brown1@nationalgrid.com)

<b>Respondent:</b>	<i>Daniel Fraile – Senior Analyst- Grids and Markets</i> <i>Daniel.fraile@windeurope.org</i>
<b>Company Name:</b>	<i>WindEurope, asbl</i>
<b>Please express your views regarding the Workgroup Consultation, including rationale.</b> <b>(Please include any issues, suggestions or queries)</b>	<p>The consultations, most of them with very short response time and running through the summer are not helping stakeholders to consolidate their views in more constructive ways.</p> <p>We are convinced that concerns expressed in the following answers to the consultation need to be properly addressed by National Grid.</p> <p>Overall WindEurope expects a better platform for exchange</p>

### Standard Workgroup Consultation questions

Q	Question	Response
1	Do you believe that GC0100 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Grid Code Objectives?	<p>In order to avoid unnecessary system costs, the specification of future system requirements must be based on transparent system studies and firmly established system design criteria. This will result in a common rationale and technical background for new requirements. The result will also be that potential later adjustments will have a much more robust starting point.</p> <p>In general, a more transparent common rationale will also result in a clearer signal to the industry in order to understand what longer-term developments are needed to support future system security while efficiently integrating renewables.</p>
2	Do you support the proposed implementation approach?	

3	Do you have any other comments?	
4	Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?	<i>If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website, <a href="http://www2.nationalgrid.com/uk/industry-information/electricity-codes/grid-code/modifications/forms-and-guidance/">http://www2.nationalgrid.com/uk/industry-information/electricity-codes/grid-code/modifications/forms-and-guidance/</a> and return to the Grid Code inbox at <a href="mailto:grid.code@nationalgrid.com">grid.code@nationalgrid.com</a></i>

### Specific GC0100 questions

Q	Question	Response
1	Removing More Stringent Requirements' concerns have been expressed by some Workgroup members that applying more stringent requirement on newly connecting parties (that fall within this scope of the EU Network Codes for generation, demand and HVDC systems) maybe incompatible with EU law. Do you have any views on this topic that could assist the Workgroup when they are considering the topic in due course?	
2	Are you comfortable with using the EU definition of Maximum Capacity instead of the GB definition of "Registered Capacity"?	
	<b>Fast Fault Current Injection questions</b>	
3	What are your views on options 1, 2 and 3 as set out in paragraph 4.4 for Fast Fault Current Injection and which option (if any) would you prefer?	WindEurope believes that the issue of <i>fault current injection</i> has not been sufficiently assessed and has been rushed for the implementation of the changes for the ongoing revision of the grid codes. The <i>Requirements for Generators</i> (RfG) network code does not imply any necessary changes to the current reactive current injection of today's UK grid code. The recently updated IGDs (and the new HPoPIPS) suggest the possible need for technological changes to meet stated requirements. But to face such

		technology changes, the industry requires a basis of verified data, as a result of system studies and firmly established system design criteria
4	Do you have any alternative fast fault current injection solutions noting that the requirement applies to the Converter not the wider Power System?	On the concept of grid forming converter controls, the wind industry believes that TSOs should focus on breaking down the characteristics of being grid forming and developing a framework for defining future requirements. National TSOs should use such frameworks specifying the minimum technical requirements needed at the connection point to maintain system stability. <b>Minimum technical specification should be technology neutral where possible.</b> They should not be translated into specific and/or preferred technical solutions like e.g. Virtual Synchronous Machines. The development of specific technical solutions should be left open for the industry.
5	In considering the three Fast Fault Current Injection options 1, 2 and 3 in paragraph 4.4 do you have any comments in relation to technology readiness, cost implications, and can they be implemented date within the context of product development timescales?	The proposed reactive current injection requirements would exceed today's industry standards, leading to additional costs-related to increasing the current hardware capabilities, R&D, certification, testing and validation costs. It's worth to mention that specific UK only requirements should not force manufacturers to change their hardware for the rest of the markets as well. Therefore the system operator should consider to incentivise the development of such capabilities under an ancillary services market,
6	Do you have any evidence to support your views?	WindEurope believes that imposing requirements exceeding the industry standards and current technology capabilities must be based on a comprehensive Cost Benefit Analysis. It is critical to have a common understanding of system needs for scenarios today and in the future. European discussions on power system needs with high renewable penetration levels of variable renewable energy sources and power electronics levels have been focusing on aspects with a time horizon beyond May 2018 to prepare necessary frameworks allowing national TSOs to specify minimum technical requirements. This is currently addressed in the ENTSO-E expert group on fast fault current. We do not understand why for National grid is so imperative to include such requirements in the upcoming revision of the grid code.
7	Do you have any views on the specific costs related to the additional requirements?	
8	Is the current proposed wording for the remote end HVDC and DC Connected Power park	

	modules sufficient to facilitate future new technology?	
	<b>Banding questions</b>	
9	What are the specific costs related to the additional requirements?	
10	Do you have any views on the banding thresholds for the original and those suggest for the possible alternative?	
11	Can you provide any feedback/comments on the associated legal text?	
	<b>Fault Ride Through</b>	
12	Do you support the fault ride through voltage against time curves If not please state why you disagree, what alternative you would recommend and your justification for any alternative?	
13	Do you have any specific views about the proposal to modify the stage 2 under voltage protection for distributed generation interface protection?	
	<b>Other questions</b>	
14	Does the Legal drafting contained in annex 2 and 3 deliver the intent of the solution outlined in section 3?	
15	Do you have any information based on the proposed solution in respect of implementation costs?	