47HGrid Code Workgroup Consultation Response Proforma

GC0101 EU Connection Codes GB Implementation – Mod 2

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. 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

Respondent:	*Marko Grizelj, marko.grizelj@siemens.com, 01614466930*
Company Name:	*Siemens*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	In general, the work group consultation was a success with a number of key topics being addressed. Unfortunately, due to the lack of manufacturer presence, particularly for HVDC, a number of topics were not addressed in sufficient detail. Siemens's views on particular matters within this consultation will be reflected in the answers to the questions below. *For reference, the Grid Code objectives are:* i. To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity ii. To facilitate 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) iii. 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 iv. 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 v. To promote efficiency in the implementation and administration of the Grid Code arrangements

Standard Workgroup Consultation questions

Q	Question	Response
1	Do you believe that GC0101 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Grid Code Objectives?	
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?	*If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website, http://www2.nationalgrid.com/uk/industry-information/electricity-codes/grid-code/modifications/forms-and-guidance/ and return to the Grid Code inbox at grid.code@nationalgrid.com*

Specific GC0101 questions

Q	Question	Response
1	As set out under 'Potential Alternatives - (a) 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	Do you agree that the comments raised from the GC0048 voltage/reactive consultation have been addressed, in	The comments have not been fully addressed. Reactive power requirements for Remote HVDC Converters are the same as those for Title II Converters. Suitable wording must be included in the

	particular those relating to the Offshore reactive range. If not please advise why these issues have not been addressed?	modification to ensure that these requirements can be subject to change if agreed with the GB System Operator, the Generator and the Offshore Transmission Licensee (similar wording has been used in GC0100 and for the DC Connected Power Park Modules). A similar principle should be applied for DC connected power park modules, example on the last paragraph of page 14 of the mod. This will ensure that the most cost-effective solutions can be implemented as needed, within the regulations set out within the European Grid Code.
3	Do you agree that the comments raised from the GC0087 frequency response consultation have been addressed; if not please advise why these issues have not been addressed?	
4	Do you agree with the proposed voltage/ reactive and frequency requirements (including associated diagrams and parameters) captured under the HVDC Code are reasonable? If not please advise why.	As stated above, the requirements imposed on remote end HVDC converters and DC connected power park modules should allow for flexibility (within the terms of European Grid code) if agreed on a project specific basis. It is unreasonable to apply onshore requirements to an offshore grid that is completely decoupled from the main network. The offshore grid voltage, frequency and power requirements are completely controlled by the remote end HVDC converter and/or DC Connected power park modules. This flexibility should be reflected in the grid code implementation.
5	Do you have any views on the time durations proposed for the frequency ranges defined in the Annex I of the HVDC Code? The time durations must be longer than those stipulated for RfG, however is there any materiality for an HVDC System in setting a value longer than that required under the RfG Code.	As an example, the proposed time durations for 47.0 Hz with 60 seconds will require an overdesign of aux-equipment especially converter cooling pumps or the usage of an UPS system for the converter cooling.
6	Do you believe it is reasonable to require HVDC Systems, DC Connected Power Park Modules and Remote End HVDC Converter Stations to meet similar requirements to Type D Power Park Modules defined	Yes, for HVDC Systems. No for DC Connected Power Park Modules and Remote End HVDC Connectors. The offshore system (when connected via a HVDC link) is decoupled from the Onshore AC grid. Consequently, the voltage, frequency and, in particular, reactive power requirements should be made adjustable (within the framework of the EU

	under RfG? If not please state so.	code) to take in to consideration the topology of the offshore array, technology deployed by the turbine manufacturer, technology deployed by the HVDC manufacturer and the corresponding agreements between the relevant stakeholders.
7	Do you agree that the Offshore Transmission Arrangements (OTSDUW) should be included as part of the drafting?	Yes.