

**Grid Code Review Panel**  
**GB implementation workgroup for High Voltage Direct Current (HVDC)**  
**European Network Code**

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On behalf of National Grid Electricity Transmission Plc

### Summary

**High Voltage Direct Current (HVDC)** is the next of the three European Network Codes for grid connections expected to successfully conclude the '[comitology](#)' phase, after which point it is written into European Law. It is estimated by the Commission that it will 'enter into force' in Q1 2016. At that point it will take precedence over existing national codes and legislation, with member states permitted three years to ensure compliance. This paper requests that the Grid Code Review Panel approve the formation of a workgroup to progress in a timely manner any changes necessary to the Grid Code. This is to ensure code alignment, to set national parameters as required, to help identify any other implementation tasks, and to ensure thorough engagement with impacted industry stakeholders and involve them in these activities.

### Users Affected

#### **High**

Generators: Developers of any 'new' DC-connected Power Park Modules

HVDC system owners/operators: Any developers of 'new' HVDC systems connecting to the NETS, for example interconnectors or DC networks connecting offshore PPMs

Transmission System Operator; Transmission Owners (including OFTOs)

#### **Medium**

#### **Low**

### Description & Background

European Network Codes (ENCs) are being developed as one of the requirements of the Third Energy Package, which sets directives and regulations obligating member states to co-ordinate European electricity networks. Their purpose is to encourage connection of new renewable generation, support a co-ordinated approach to system stability and security, and encourage greater market competition to reduce consumer costs.

The package of ten ENCs focuses on grid connections, operations, and markets, with a number of codes under each. HVDC is one of the 'Connection Codes' which comprise:

- Requirements for Generators (RfG) –sets functional requirements that new generators connecting to the network (both distribution and transmission) will need to meet, as well as responsibilities on TSOs and DNOs.
- Demand Connection (DCC) – sets functional requirements for new demand Users and Distribution Network connections to the Transmission System and includes Demand Side Response capabilities, as well as responsibilities on TSOs/DNOs.
- **HVDC – sets functional requirements for HVDC connections including offshore HVDC networks which connect Offshore generation schemes.**

As these codes become European law, national implementation will be required to align existing national codes and legislation with the European Network Codes. There are also a number of parameters within each of the codes that need to be defined on a national basis, and in addition a set of future compliance requirements.

The timescales for compliance are set out identically in each of the codes as three years from their entry into force. They will be applicable to all new equipment, defined as that which is not connected to the system two years after the European Network Code is enacted, or for projects in construction which have not let contracts for major plant items at this point.

The experience of RfG, and feedback from the Joint European Stakeholder Group in recent months, advocates timely formation of any such workgroup to ensure best possible industry stakeholder engagement and preparation for any consequential code changes. This allows the maximum time for affected stakeholders to reflect requirements in equipment specifications.

### Proposed Solution

Establish an HVDC implementation workgroup, under the governance and guidance of the GCRP, following the implementation model piloted by RfG. The workgroup will manage the national application process, including understanding the structure of the code, setting any local parameters required, and formulating the corresponding GB code changes; all subject to National Regulatory Authority (Ofgem) approval.

Prompt formation of this workgroup allows time to properly understand the necessary steps for local implementation and engage with as many industry stakeholders as possible. This is particularly important for HVDC as it sets an agenda for system use and design for future years. There are many projects in development currently, particularly interconnectors, which may be subject to changes under HVDC. It is therefore important to understand this impact as swiftly as possible, particularly if there are investment impacts.

### Assessment against Grid Code Objectives

The objectives of the Third Energy Package are to develop a more harmonised European energy market and in doing this facilitate a move to more renewable energy sources while ensuring security of supply and enhancing competition.

Will the proposed changes to the Grid Code better facilitate any of the Grid Code Objectives:

**(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;**

As above

**(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);**

As above

**(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; and**

As above

**(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.**

As above

## Impact & Assessment

### ***Impact on the National Electricity Transmission System (NETS)***

Impacted by the National choices selected under the HVDC code.

### ***Impact on Greenhouse Gas Emissions***

In helping to enable the 3<sup>rd</sup> package objective of a move to renewable energy sources this will have a positive impact.

### ***Impact on core industry documents***

HVDC will primarily impact the Grid Code. There is a chance that changes may be needed to other core industry documents (e.g. BSC, CUSC, D-Code), however this unlikely.

There is a potential impact on STC clauses. The workgroup's terms of reference will therefore consider this in more detail, with any consequential STC code modifications being managed under STC Code Governance. The STC Panel will therefore be advised on the formation of any HVDC workgroup under Grid Code.

### ***Impact on other industry documents***

Possible consequential impact on SQSS.

## Supporting Documentation

Have you attached any supporting documentation Yes

If Yes, please provide the title of the attachment: 'pp15/102 HVDC Workgroup Draft Terms of Reference'.

## Recommendation

The Grid Code Review Panel is invited to:

**Progress this issue to a workgroup for further analysis and discussion**

## Document Guidance

This proforma is used to raise an issue at the Grid Code Review Panel, as well as providing an initial assessment. An issue can be anything that a party would like to raise and does not have to result in a modification to the Grid Code or creation of a Working Group.

Guidance has been provided in square brackets within the document but please contact National Grid, The Code Administrator, with any questions or queries about the proforma at [grid.code@nationalgrid.com](mailto:grid.code@nationalgrid.com).