


<p align="center">SONI Grid Code Modification Proposal Form</p> <p align="center">Email To: gridcode@soni.ltd.uk</p>			
<p>Title of Modification Proposal: High Voltage Direct Current Network Code Modification</p> <p>SPID (SONI PROPOSAL ID) SPID_04_2023</p>			
Date:	27/09/2023		
Company Name:	SONI		
Applicant Name:	Grid Code Team		
Email Address:	gridcode@soni.ltd.uk	Tel:	07551813013
Grid Code Version:	SONI Grid Code version – June 2023 [Latest Version] https://www.soni.ltd.uk/media/documents/SONI-Grid-Code-June-2023.pdf		
Grid Code Section(s) Impacted by Modification Proposal:	<p>Glossary and Definitions</p> <p>Planning Code 6</p> <p>Planning Code Appendix A2</p> <p>Planning Code Appendix A3</p> <p>Planning Code Appendix D</p> <p>Connection Conditions 6</p> <p>Connection Conditions 17</p> <p>Connection Conditions 18</p> <p>Connection Conditions Schedule 3</p> <p>Operating Code 7</p>		
Modification Proposal Justification:	<p>The HVDC Network Code is one of three Connection Codes which form part of the European Network Codes. It seeks to provide a clear legal framework for grid connections and facilitate electricity trading whilst ensuring system security, facilitating the integration of HVDC connections, including DC-connected Power Park Modules, as well as the associated system services while ensuring a more efficient use of the network.</p> <p>HVDC ‘entered into force’ on 15 September 2016, and applies to high voltage direct current systems and direct current-connected power park modules that conclude a final and binding contract for the purchase of their main plant after 15 September 2018.</p> <p>This modification is required to ensure the SONI Grid Code is inclusive of the HVDC Network Code requirements</p>		
<p>Red-line Version of Impacted Grid Code Section(s) - show proposed changes to text:</p> <p>Deleted text in strike-through font and new text highlighted in red font</p>			

Refer to SPID_04_2023_HVDC_proposal_redline

Green-line Version of Impacted Grid Code Section(s) - show proposed final text:

Refer to SPID_04_2023_HVDC_proposal_greenline

Defined Terms (Bold):

High Voltage Direct Current (HVDC) System

HVDC System means an electrical power system which transfers energy in the form of high-voltage direct current between two or more alternating current (AC) buses and comprises at least two **HVDC Converter Stations** with DC transmission lines or cables between the **HVDC Converter Stations**.

HVDC Converter Station

Part of an **HVDC system** which consists of one or more HVDC converter units installed in a single location together with buildings, reactors, filters, reactive power devices, control, monitoring, protective, measuring and auxiliary equipment.

HVDC Interface Point

The point at which HVDC equipment is connected to an AC network, at which technical specifications affecting the performance of the equipment can be prescribed.

HVDC Registered Capacity

The maximum capacity, in either flow direction, expressed in whole **MW**, that an **HVDC System** can deliver on a sustained basis, without accelerated loss of equipment life, at the **Connection Point**. This figure shall include transmission power losses for the **HVDC System**.

HVDC Registered Export Capacity

The maximum capacity, expressed in whole **MW** that an **HVDC System** may export (transfer energy from the Power System to a remote network) on a sustained basis, without

	<p>HVDC Registered Import Capacity</p> <p>Interconnector</p> <p>HVDC Unit</p>	<p>accelerated loss of equipment life, as registered with the TSO.</p> <p>The maximum capacity, expressed in whole MW that an HVDC System may import (transfer energy from the Power System to a remote network) on a sustained basis, without accelerated loss of equipment life, as registered with the TSO.</p> <p>Electric lines and electric Plant, including HVDC Systems, used for conveying electricity or provision of Reserves from outside both of Northern Ireland and the Republic of Ireland directly to or from a substation or converter station in either Northern Ireland or the Republic of Ireland.</p> <p>An HVDC System or DC-connected Controllable PPM that is not a Non-HVDC Unit. In addition, HVDC Units, which are comprised of:</p> <ul style="list-style-type: none"> (a) embedded HVDC Systems within one control area and connected to the Transmission System, and/or (b) embedded HVDC Systems within one control area and connected to the Distribution System when a cross-border impact is demonstrated to the TSO. <p>The relevant TSO shall consider the long-term development of the network in this assessment</p> <p>shall not be subject to Grid Code clauses CC.17 and to CC.18 if one or more of the following conditions apply:</p> <ul style="list-style-type: none"> 1) the HVDC System has at least one HVDC System Converter Station owned by the TSO; 2) the HVDC System is owned by an entity which exercises control over the TSO; or the HVDC System is owned by an
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	<p>entity directly or indirectly controlled by an entity which also exercises control over the TSO</p> <p><u>Non-HVDC Unit</u></p> <p>An HVDC System or DC-connected PPM with a signed Connection Agreement:</p> <ul style="list-style-type: none"> (a) Connected to the Network on or before the 15th September 2018; or (b) Whose owner has concluded a final and binding contract for the purchase of the main Plant on or before the 15th September 2018 and provides evidence of same, as acknowledged by the TSO, on or before 15th of March 2019. Such evidence shall at least contain the contract title, its date of signature and date of entry into force, and the specifications of the main Plant to be constructed, assembled, or purchased. <p>A Non-HVDC that undergoes modernisation, refurbishment or replacement of equipment which drives a modification to its Connection Agreement, and had concluded a final and binding contract for the purchase of the Plant being modified after the 15th September 2018 will be deemed an HVDC Unit.</p>
Implication of Not Implementing the Modification:	<p>The SONI Grid Code would not be inclusive of the HVDC Network Code requirements.</p> <p>HVDC Units would be required to review the HVDC Network Code, SONI HVDC Requirements and SONI Grid Code in order to ascertain all requirements for HVDC Units.</p>
Assessment	<p><u>Overview:</u></p> <p>The purpose of this modification is to incorporate the requirements set out in the EU Network Codes related to High Voltage Direct Current systems and Direct Current Power Pack Modules into the SONI Grid Code.</p> <p><u>Background:</u></p>

	<p>Commission Regulation (EU) 2016/1447 of 26 August 2016 establishing a network code on requirements for grid connection of high voltage direct current systems and direct current-connected power park modules (hereafter referred to as HVDC). It seeks to provide a clear legal framework for grid connections and facilitate electricity trading whilst ensuring system security, facilitating the integration of HVDC connections, including direct current-connected (DC-connected) Power Park Modules (PPMs), as well as the associated system services while ensuring a more efficient use of the network. The HVDC 'entered into force' on 15 September 2016, and applies to HVDC systems and DC-connected PPMs that conclude a final and binding contract for the purchase of their main plant after 15 September 2018.</p> <p>SONI submitted our Proposal for the General Application of the HVDC Requirements for Northern Ireland to the Utilities Regulator on 21 December 2018.</p> <p>On 26.06.19 The Utility Regulator issued a decision paper, granting part-approval of the HVDC Requirements.</p> <p>SONI re-submitted an updated Proposal for the General Application of the HVDC Requirements for Northern Ireland to the Utilities Regulator on 05 April 2023.</p> <p>On 11.07.23 The Utility Regulator issued a decision paper granting full approval of the HVDC Requirements</p> <p><u>Analysis & Opinion:</u></p> <p>The modification is in line with the HVDC Network Code and the UR approved HVDC Requirements.</p> <p><u>Conclusion:</u></p> <p>This modification is required to ensure the SONI Grid Code is inclusive of the HVDC Network Code requirements.</p>
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