

Conleth McAteer
SONI Limited
Castlereagh House
12 Manse Road
Belfast
BT6 9RT

22 April 2024

Our Ref: NET/E/DH/929

Dear Conleth,

RE HVDC Modification to the Grid Code for Approval

We write following our receipt and consideration of SONI's Grid Code Modification Report dated 5 January 2024¹ (the **Report**) as submitted by SONI to the Utility Regulator (the **Authority**)² in accordance with paragraph 2 of Condition 16 of the electricity transmission licence held by SONI (the **Licence**).³

The Report sets out SONI's proposed modifications to incorporate into the Grid Code requirements for grid connection of high voltage direct current systems and direct current-connected power park modules (**HVDC** and **PPMs**, respectively) (the **HVDC Modification**). SONI requests the Authority's approval to the HVDC Modification, as required pursuant to paragraph 3 of Condition 16 of the Licence.

The Authority's Decision

Having reviewed the material provided, the Authority has decided to approve the making of the HVDC Modification. By this decision letter and in accordance with paragraph 4 of Condition 16 of the Licence, the Authority directs SONI to revise the Grid Code in the manner set out in the Report. SONI must comply with this direction forthwith.

General background, the details of the HVDC Modification, and the reasons for the Authority's decision follow.

¹ We note that the Report was erroneously dated 5 January 2023.

² That is the Northern Ireland Authority for Utility Regulation. References to 'we' or 'our' or similar should be read accordingly.

³ [2022-11-18 SONI TSO Consolidated.pdf \(uregni.gov.uk\)](#)

Background

We note that Commission Regulation (EU) 2016/1447 (2016)⁴ (the **Regulation**) established a network code on requirements for grid connection of HVDC and DC-connected PPMs (the **HVDC Network Code**).

Under Article 5(4) of the Regulation, SONI was required to submit a proposal for requirements of general application (**Requirements of General Application**) to be approved (in the case of Northern Ireland) by the Authority, within two years of the date of the entry into force of the Regulation, being 15 September 2018.

SONI prepared a proposal for the Requirements of General Application and consulted upon it in November 2018. SONI received one response to the consultation, which was supportive. SONI submitted the proposal to the Authority on 21 December 2018.⁵

By a decision letter dated 26 June 2019, the proposal was part-approved by the Authority. Excluded from the part-approval were elements of the proposal relating to Articles 39(8), 47(2), 29(2), 29(3), and 42(a) of the Regulation. In its decision, the Authority requested amendments to be made before it could fully approve the proposal.⁶

SONI and the Authority continued to liaise in respect of the sections of the proposal that remained unapproved. On 5 April 2023, SONI sent the Authority a revised proposal. The Authority reviewed this in line with relevant HVDC Network Code requirements, the wider objectives of the Regulation, and the Authority's statutory duties and obligations. By a decision letter dated 11 July 2023, the Authority approved the outstanding aspects of the proposal.

⁴ [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 \(europa.eu\)](#)

⁵ [Proposal-for-general-application-of-HVDC-Requirements-for-Northern-Irela....pdf \(soni.ltd.uk\)](#)

⁶ [2019-06-26 Part Approval Part RfA of SONI HVDC Methodology_0.pdf \(uregni.gov.uk\)](#)

The HVDC Modification

Introduction

By the HVDC Modification proposal, SONI states that the purpose of the modification is to incorporate the requirements set out in the HVDC Network Code into the Grid Code, and that the proposed modification is in line with the HVDC Network Code and the UR approved HVDC Requirements of General Application.

The HVDC Requirements of General Application document sets out the structure of modifications outlined in the Modification Proposal supplied. The HVDC Requirements document consisted of: proposals for making non-mandatory requirements mandatory, parameter selection for non-exhaustive parameters, and non-exhaustive parameters for DC-connections providing certain system services. Also listed in the document were mandatory requirements and exhaustive parameters, which were not put forward to the UR for approval (as they are for mandatory implementation under the 2016 Regulation) but were supplied for information. The non mandatory and mandatory requirements listed in the HVDC Requirements, form the modifications proposed.

Detail of the HVDC Modification

The Regulation does not apply to HVDC systems and DC-connected PPMs connected to the network on the date of entry into force of the Regulation (15 September 2018), or where the HVDC/PPM system owner had concluded a final and binding contract for the purchase of the main generating plant or HVDC equipment, before 15 September 2018 (unless the connection agreement was then substantially revised).

SONI details in this proposal how the Regulation provides for mandatory and non-mandatory requirements, and exhaustive (specified range which the TSO must apply) and non-exhaustive (where the TSO could select from a range or the TSO can select a value) parameters.

Included in the Requirements of General Application were five separate themes of proposals for implementing the Regulation (Frequency, Voltage, System Restoration, Instrumentation and General Issues).

The Requirements of General Application concerned non-mandatory requirements and non-exhaustive parameters, as this is where the TSO had discretion. SONI states, in the majority of cases, where the requirement was existing in Northern Ireland, or the existing value was within the range for the non-exhaustive parameters proposed, then this requirement/parameter would be applied as mandatory/the value to be specified.

A code was inserted for each proposal that indicated whether the proposed parameter was in line with existing Grid Code Requirements, as close as possible to the existing requirements, or 'New or Different'.⁷ We note that most requirements were designated by SONI as 'New and Different'.

The HVDC Modification would insert a number of HVDC and PPM-related definitions to, and modify existing definitions within, the Grid Code. It would also modify the Planning Code, Connection Conditions and the Operating Code to incorporate HVDC Network Code requirements.

Procedural history of the HVDC Modification

SONI consulted on the HVDC Modification proposal from 4 October 2023 to 15 November 2023, with no responses received. There are therefore no written representations or objections to which the Authority must have regard to as part of its decision-making process.

As required by GC6 of the Grid Code, the HVDC Modification proposal was reviewed by the Grid Code Review Panel (the **Panel**) on 27 September 2023 (pre-consultation) and again on 6 December 2023 (post-consultation). The Panel recommended the HVDC Modification be progressed for approval by the Authority.

SONI prepared the Report and submitted this to the Authority.

SONI's Rationale for the HVDC Modification

SONI explains that any HVDC Unit *“seeking a connection to the Northern Ireland Grid must ensure they are compliant with three separate documents[:] the HVDC*

⁷ This is defined by SONI in the Requirements of General Application as *“The requirement either does not exist in our Grid and Distribution Codes today and a rationale for the selection is provided. In some cases we have the requirement today but we are proposing a different value and a rationale is provided for this choice.”*

Network Code; the HVDC Requirements; and the SONI Grid Code in order to ascertain all applicable requirements for HVDC Units.”

The HVDC Modification would incorporate all of these requirements into the Grid Code. It will also ensure SONI efficiently discharges its obligations and complies with the HVDC Network Code in particular. SONI considers that the only impact of the HVDC Modification will be to ensure the accuracy, completeness and applicability of existing requirements and definitions with the HVDC Network Code, and provide future HVDC systems with certainty on the relevant requirements.

SONI considers that the HVDC Modification supports the objectives of the Grid Code, as set out in paragraph 1 of Condition 16 of the Licence because it will –

- permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity,
- facilitate competition,
- promote the security and efficiency of the electricity transmission system in Northern Ireland, and
- promote efficiency in the implementation and administration of Grid Code arrangements.

SONI considers that the HVDC Modification is in line with the HVDC Network Code and the Requirements of General Application.

In terms of the proposed implementation date of the HVDC Modification, SONI is of the view that *“early implementation of the modification will benefit both the TSO and HVDC Connections in and to Northern Ireland.”*

The Authority's Decision and Reasons

Having reviewed the Report and its supporting documentation, the Authority has decided to approve the HVDC Modification.

The Authority considers that approval of the HVDC Modification is in line with its electricity principal objective under Article 12 of the Energy (Northern Ireland) Order 2003 (the **Energy Order**). Under Article 12, in exercising its electricity functions, the Authority's principal objective is to protect the interests of consumers supplied by authorised electricity suppliers, wherever appropriate by promoting

effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission, distribution, or supply of electricity.

We recognise SONI has made clear in its proposal that the HVDC Modification would simplify the process for connecting to the network and fulfil the requirements of the HVDC Network Code, as the need for a connection applicant to ensure they are compliant with three separate documents would be simplified, as values and parameters would, under the proposal, be increasingly aligned across these documents. The UR agrees with SONI's assessment that the HVDC Modification will facilitate competition, by improving clarity about the process for connecting to the network, and providing standards for the operation of electricity markets within, and between, different synchronous areas, creating the potential to establish new links.

SONI also considers that the HVDC Modification will permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity; promote the security and efficiency of the Northern Ireland transmission system; and promote efficiency in the implementation and administration of Grid Code arrangements. We agree that the modifications as proposed, by increasing the amount of clarity around HVDC connections, will contribute toward these areas of work.

We also consider that the standards for the connection of HVDC systems and DC-connected Power Park Modules could improve system security, by laying down standards for cooperation between these two systems. We also perceive that these modifications could assist HVDC links contributing to maintaining voltage management and fault level management in a system with increasing renewable generation. HVDC links could also be utilised for less common types of renewable connections, such as offshore wind.

SONI states that the HVDC Modification would ensure the accuracy and completeness of the Grid Code. As we have noted in this decision letter, many of the elements of the proposal document were classed by SONI as proposing a new requirement, or a new value, in the Grid Code. Given the potential for HVDC technology to facilitate different forms of connections (typically over longer distances), and to contribute to management of a system with increasing amounts of renewable generation connected, we believe the HVDC Modification could benefit: (i) securing that all reasonable demands for electricity are met within Northern Ireland (a statutory duty to which the UR is to have regard under Article

12(2)(a) of the Energy Order), and (ii) in promoting effective competition (forming part of the UR's principal objective in Article 12(1) of the Energy Order).

By this decision letter and in accordance with paragraph 4 of Condition 16 of the Licence, the Authority directs SONI to revise the Grid Code in the manner set out in the Report.

This approval shall be effective from the date of this letter. Please proceed to publish an updated version of the Grid Code on SONI's website.

We trust this is satisfactory. Should you have any further queries please contact Jody O'Boyle.

Yours sincerely,



Donald Henry
Networks and Energy Futures Director