



Making a positive difference
for energy consumers

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Response to National Grid ESO regarding HND South Cluster Impact Assessment & Asset Classification

Dear Graham,

We are writing to you in response to the letter you sent to us on 19 February 2024, advising us of the change to the network design in the South Cluster region of the Holistic Network Design (**HND**) following the outcome of the South Cluster Impact Assessment.¹

We respond in this letter to your request for us to consider the asset classification for the infrastructure proposed in the revised network design. We have set out the relevant publications and regulatory framework used in making our determination of the resulting classifications for assets in the South Cluster.

Should you have any questions regarding any of the matters raised in this letter, please contact the Offshore Coordination Team at offshore.coordination@ofgem.gov.uk to discuss.

Yours faithfully,

Stuart Borland
Deputy Director, Offshore Network Regulation

¹ [ESO letter to Ofgem regarding HND South Cluster Impact Assessment and asset classification \(nationalgrideso.com\)](#)

Background

The Holistic Network Design

The HND² was published (the July 2022 HND) as part of the Offshore Transmission Network Review (**OTNR**)³ launched in 2020 by the then Department for Business, Energy and Industrial Strategy (**BEIS**), now the Department for Energy Security and Net Zero (**DESNZ**).

The OTNR has since moved from review to implementation stage as of May 2023, in order to deliver a single, integrated solution to support the delivery of offshore wind across the UK to meet the target of 50GW of offshore wind by 2030 and reduce carbon emissions.

The Impact Assessment

Following the publication of the HND, parties involved progressed to the next stage of the design known as the Detailed Network Design (**DND**). Over the course of this work, parties have identified a number of issues associated with the delivery of the design as presented in 2022. A number of changes were proposed in the South Cluster, in response to evolving supply chain conditions and increased costs of offshore equipment required to deliver the HND. These changes required examination through National Grid Electricity System Operator's (NGESO) Impact Assessment process.⁴

The process assesses proposed design changes to the July 2022 HND in order to ensure that they remain compliant with the original design objectives, as any deviations from the baseline HND have potentially far-reaching implications for the transmission network, consumers, the environment, and wider industry.

As the next stage of the HND progresses to the DND an impact assessment for design changes was introduced in response to evolving conditions in supply chain constraints and increases in the cost of offshore equipment required to deliver the HND.

² [The Pathway to 2030 Holistic Network Design | ESO \(nationalgrideso.com\)](https://www.nationalgrideso.com/2022/07/20/2022-holistic-network-design/)

³ [Offshore transmission network review - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/offshore-transmission-network-review)

⁴ [HND and HNDFUE Impact Assessment Process \(nationalgrideso.com\)](https://www.nationalgrideso.com/2022/07/20/hnd-and-hndfue-impact-assessment-process/)

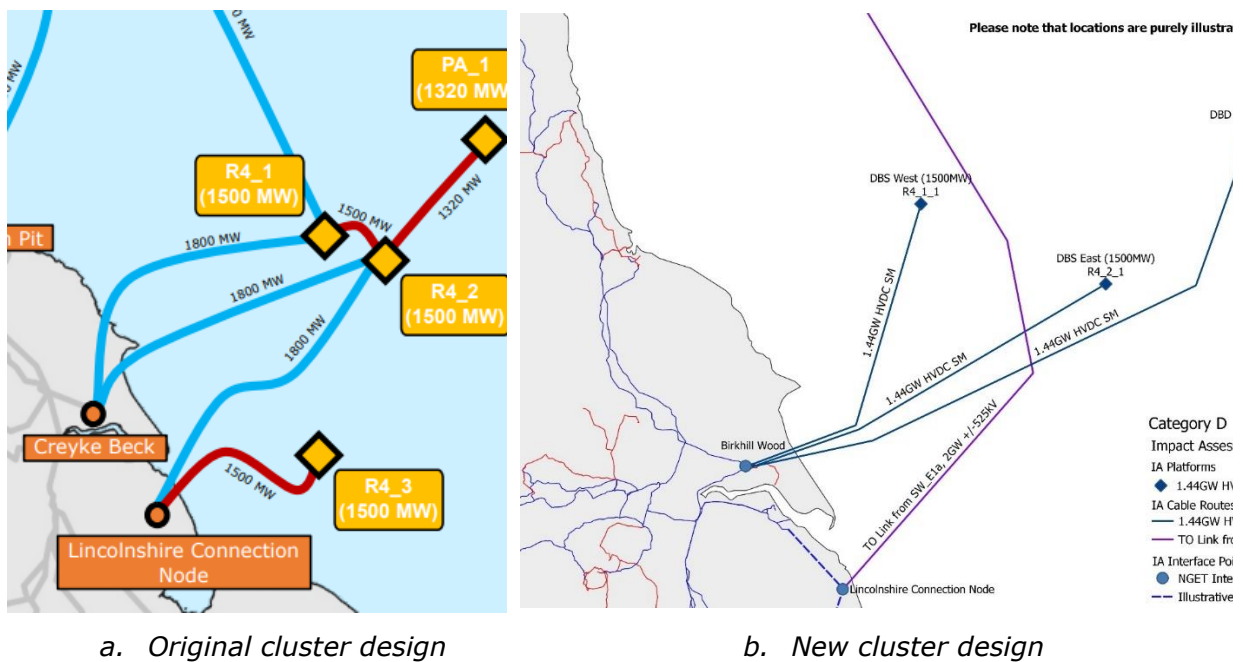
Changes to the HND

The outcome of the impact assessment has resulted in a change in asset configuration in the area of the HND referred to as the South Cluster, detailed in **Figure 1**⁵.

In order to facilitate earlier connection dates of offshore wind and due to supply chain constraints and cost of offshore infrastructure, a change was sought from a highly coordinated design to a radial one. The new configuration in **Figure 1b** was deemed by NGESO's Impact Assessment to provide the greatest overall benefit in economic, deliverability, and environmental terms, of four proposed design changes from the baseline HND.

These changes were presented to the Transmission Networks Board (**TNB**) on 15 December 2023, who confirmed that the necessary considerations had been applied and the required process had been followed, therefore the outcome of the Impact Assessment is now finalised.

Figure 1 – Original & new designs for the South Cluster



⁵ [ESO, HND Impact Assessment – South Cluster outcome summary \(nationalgrideso.com\)](https://www.nationalgrideso.com)

Asset Classification

With the introduction of a new design, NGESO asked us to consider the activities by the assets in this design for the purposes of licensing, which requires a new classification. We have applied the asset classification principles and methodology as set out in our October 2022 decision⁶, which outlined classifications for the July 2022 HND assets (**Figure 1a**), to the assets in **Figure 1b**.

In addition to the following definitions, we set out classifications in **Table 1** below and give further detail on the process as applied to each asset in **Annex 1**.

⁶ [Offshore Transmission Network Review: Decision on asset classification | Ofgem](#)

Radial offshore transmission

We consider a radial offshore solution to be a transmission system which fulfils both of the following criteria:

- Infrastructure is used for transmission in an area of offshore waters of electricity generated by a single generating station in such an area, and
- Infrastructure connecting a single offshore generating station directly to a point on the transmission system owned by a transmission owner. This point may be physically located onshore or offshore, and its designation as onshore or offshore will be determined by its primary electrical function (primary usage), as opposed to its location.

Non-radial offshore transmission

We consider a non-radial offshore solution to be a transmission system which fulfils both of the following criteria:

- Infrastructure used for transmission in an area of offshore waters of electricity generated by two or more generating stations in such an area, and
- Infrastructure connecting two or more offshore generating stations to a point on the transmission system owned by a transmission owner. This point may be physically located onshore or offshore, and its designation as onshore or offshore will be determined by its primary electrical function (primary usage), as opposed to its location.

Onshore transmission

Under the Electricity Act 1989, onshore transmission is not defined but for the purposes of the HND it is regarded as any transmission⁷ not falling within the definition of offshore transmission⁸ and under the existing regime onshore transmission assets are owned by TOs.

⁷ As defined in section 4(4) of the Electricity Act 1989

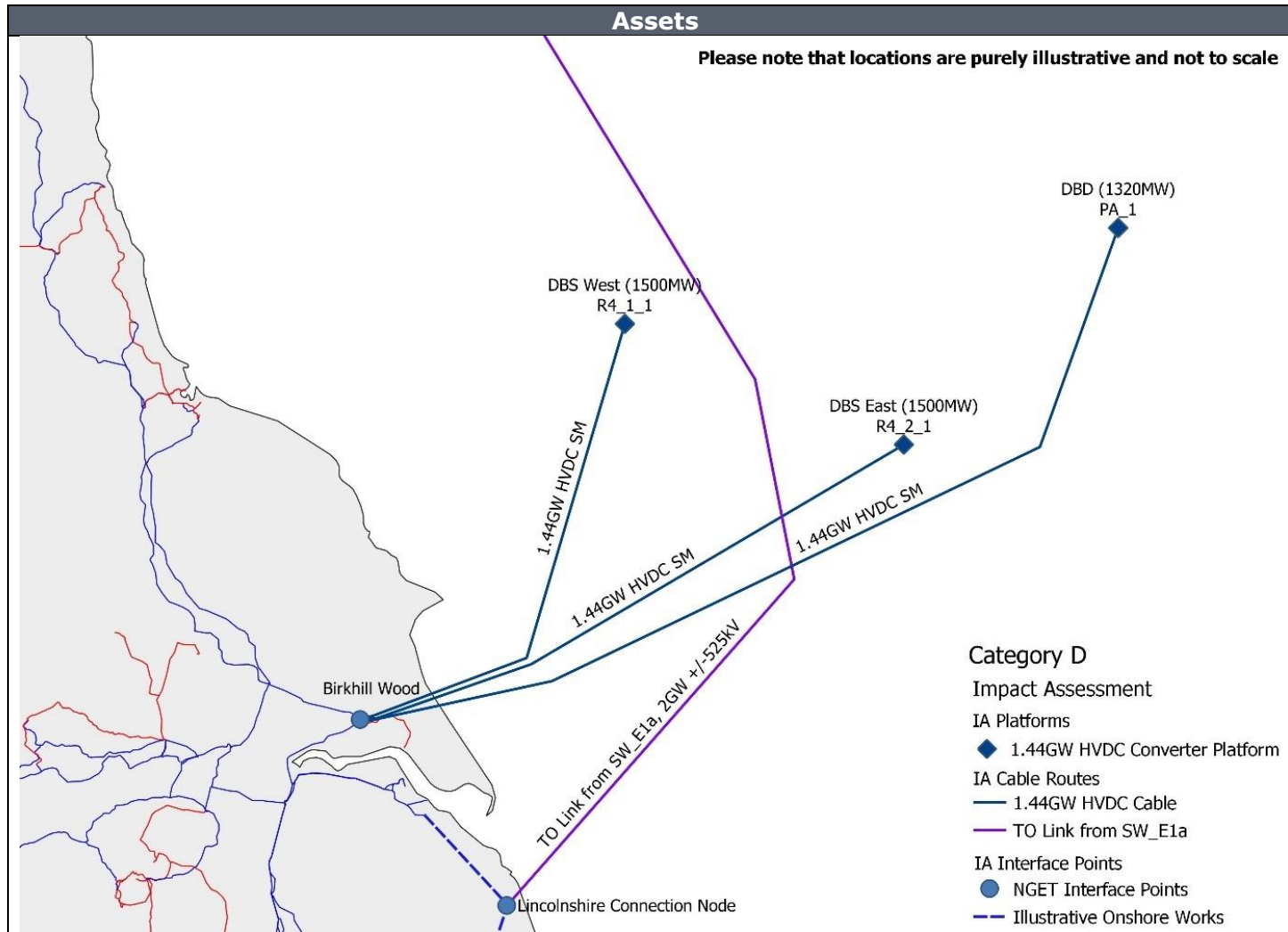
⁸ As defined in section 6F(8) of the Electricity Act 1989.

Table 1 – Classification of assets

Using the methodology indicated, we have classified the assets of the revised design of the South Cluster as follows:

Circuit	Classification
PA_1 – Birkhill Wood	Radial Offshore Transmission
R4_1 – Birkhill Wood	Radial Offshore Transmission
R4_2 – Birkhill Wood	Radial Offshore Transmission
SW_E1a – Lincolnshire Connection Node	Onshore Transmission

Annex 1. South Cluster asset classification



Circuit	Legislative Review	Technical Review		Legal Verification	Classification
		Power Flow	Capacity Utilisation		
PA_1 – Birkhill Wood	Infrastructure is used for transmission in offshore waters, of electricity generated by a single generating station. Used for conveying electricity generated by OWF to transmission system.	Unidirectional flow from PA_1 substation to onshore substation.	1.32GW OWF using 1.44GW substation & HVDC cable.	Wholly used to convey electricity generated offshore at PA_1 OWF to onshore substation.	Radial Offshore
R4_1 – Birkhill Wood	Infrastructure is used for transmission in offshore waters, of electricity generated by a single generating station. Used for conveying electricity generated by OWF to transmission system.	Unidirectional flow from R4_1 substation to onshore substation.	1.5GW OWF using 1.44GW substation & HVDC cable.	Wholly used to convey power generated offshore at R4_1 OWF to onshore substation.	Radial Offshore
R4_2 – Birkhill Wood	Infrastructure is used for transmission in offshore waters, of electricity generated by a single generating station. Used for conveying electricity generated by OWF to transmission system.	Unidirectional flow from R4_2 substation to onshore substation.	1.5GW OWF using 1.44GW substation & HVDC cable.	Wholly used to convey electricity generated offshore at R4_2 to onshore substation.	Radial Offshore
SW_E1a – Lincolnshire Connection Node	Infrastructure is used for transmission in offshore waters, of electricity generated onshore. Used for conveying electricity generated by onshore through transmission system.	Unidirectional flow from SW_E1a to Lincolnshire Connection Node	2GW onshore (most), 1.5GW OWF & substation (part) using 2GW HVDC cable.	Neither wholly nor mainly used to convey electricity generated offshore, therefore onshore. Continues & completes eastern bootstrap reinforcement link.	Onshore (reinforcement)