

# Confirm the predominant flow direction on the HND HVDC circuit

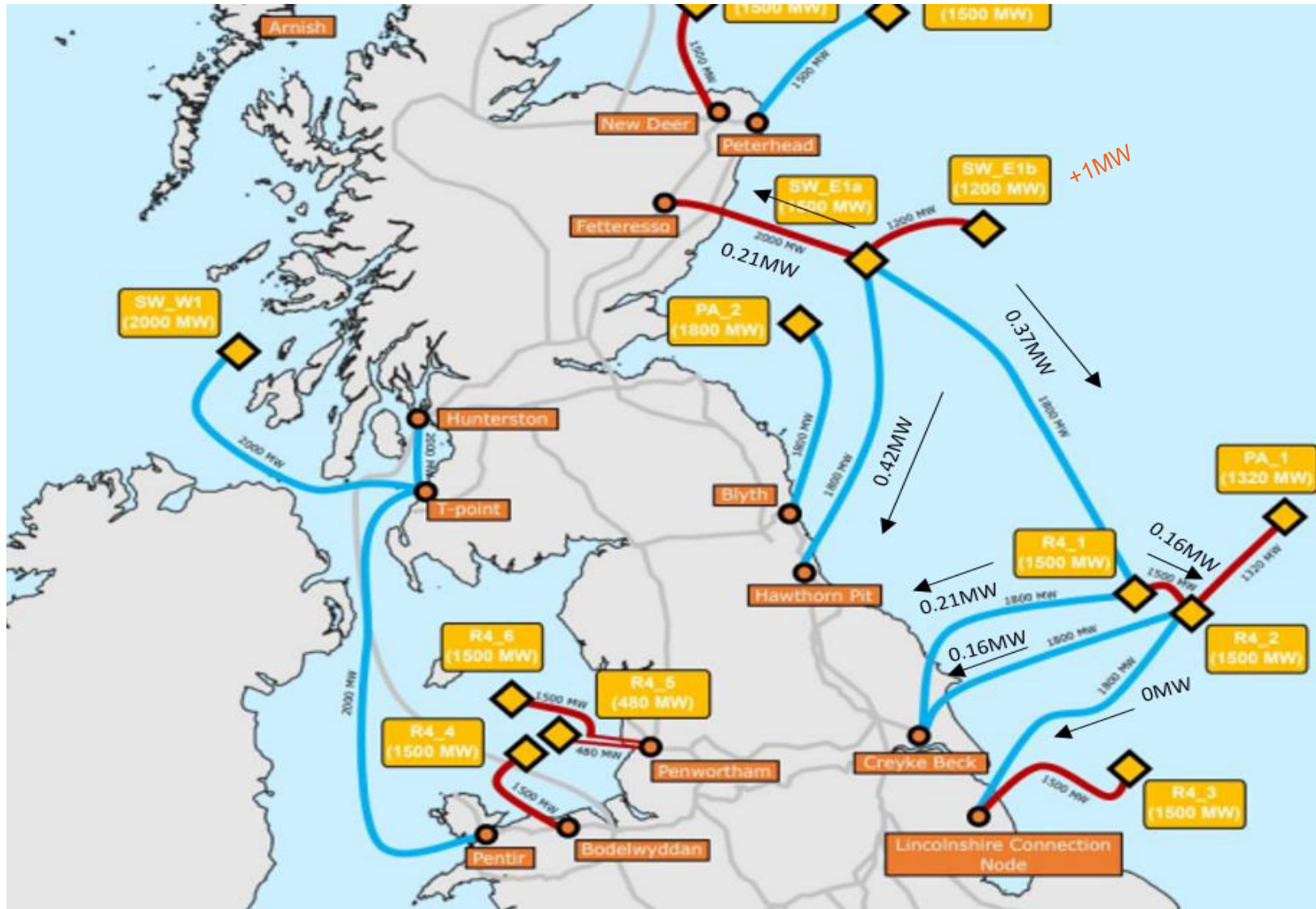
Circuit	Legislative Review	Technical Review		Legal Verification	Classification	Delivery Model
		Power Flow	Capacity Utilisation			
Fetteresso – SW_E1a	Infrastructure is used for transmission in offshore waters, of electricity generated onshore. Used for conveying electricity generated onshore through transmission system.	Mostly unidirectional (bidirectional possible) flow from Fetteresso to offshore substation	2,000MW HVAC cable connecting to offshore substation	Neither wholly nor mainly used to convey electricity generated offshore, therefore onshore. This is the first point of connection for onshore reinforcement in this cluster.	Onshore (reinforcement)	TO build
SW_E1a – R4_1	Infrastructure is used for transmission in offshore waters, of electricity generated onshore. Used for conveying electricity generated by onshore through transmission system.	Predominantly from SW_E1a substation to R4_1 substation	2,000MW onshore HVAC cable (most), 1,500MW OWF and substation using 1,800MW HVDC cable	Neither wholly nor mainly used to convey electricity generated offshore, therefore onshore. Continuing reinforcement from Fetteresso.	Onshore (reinforcement)	TO build
R4_1 – R4_2	Infrastructure is used for transmission in offshore waters of power generated onshore. Used to convey this power to transmission system (redundancy).	Bidirectional flow between R4_1 and R4_2 substations, but mostly from R4_1 to R4_2.	1,800MW HVDC (main user), 1,500MW OWF and substation using 1,500MW HVAC cable	Neither wholly nor mainly used to convey electricity generated offshore, therefore onshore. Continuing reinforcement from SW_E1a.	Onshore (reinforcement)	TO build
R4_2 - LCN	Infrastructure is used for transmission in offshore waters of	Unidirectional flow from R4_2	1320MW OWF, 1500MW OWF,	Mainly, but not wholly use to convey	Onshore (reinforcement)	TO build

Predominantly from north to south

Source: Ofgem’s decision on OTNR asset categorisation (Annex 1)

<https://www.ofgem.gov.uk/publications/offshore-transmission-network-review-decision-asset-classification#:~:text=This%20letter%20outlines%20our%20decision%20on%20the%20classification,-%20Radial%20offshore%20transmission%20-%20Non-radial%20offshore%20transmission>

# Recap: Option 1 – treat DC circuits as if they were AC circuits



- Indicative flows by +1MW at SW\_E1b
- Results are indicative
- Results change with generation, demand, network topology and parameters
- Note that it was thought Lincolnshire connection node is not yet energised in 2030, however -

