Public

HNDFUE Impact Assessments - Muir Mhòr Outcome Summary

May 2025

Brief Overview

In July 2022 we published our recommended *Holistic Network Design (HND)*[1]. *Beyond 2030*[2], was later published in March 2024, which incorporated our recommended design for projects from the ScotWind Holistic Network Design Follow up Exercise (HNDFUE). Each design sets out a single, integrated network that supports the large-scale delivery of electricity generated from offshore wind, taking power to where it is needed across Great Britain. Since the publication of the HND and HNDFUE, Transmission Owners (TOs) and in-scope offshore wind developers with non-radial connections have started to produce the detailed network design (DND).

As part of the DND phase, TOs and developers consider our recommendations in more detail and can propose potential design changes. This has required us to develop a process to assess the impact of these changes, against the baseline of the HND, using the four HND design criteria set out in our methodology[3]. These changes may include a change in technology, a change in cable route or length or a change of network configuration that would have a material impact on the design criteria. We refer to this process as the HND/HNDFUE impact assessment process[4].

Deviations from the recommendations may have wider implications for the transmission network and other industry processes. It is important that we understand the full impact of any design changes, as there may be consequences that are not immediately obvious. As the independent system operator, we are able to conduct this holistic assessment at this stage of development.

[1] neso.energy/publications/beyond-2030/holistic-network-design-offshore-wind
[2] neso.energy/publications/beyond-2030
[3] neso.energy/document/270851/download
[4] neso.energy/document/286776/download

Submission

On 19 June 2024, we received a proposed design change from Muir Mhòr, a joint venture between Fred. Olsen Seawind and Vattenfall, for their 1 GW floating offshore wind farm sited off the east coast of Aberdeenshire.

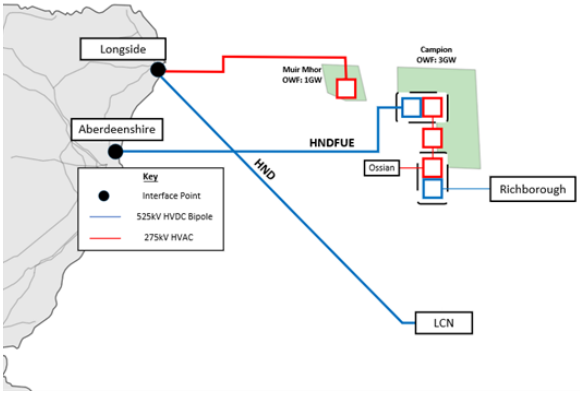
The proposed change was focussed around a localised area of the HNDFUE Cluster – the northern half. The changes proposed consisted of multiple network topologies being submitted by Muir Mhòr (coordinated and radial options) primarily aiming to facilitate a modular build out delivery model. This approach would allow the transmission component connecting Muir Mhòr Offshore wind farm to the onshore system to be delivered with advancement of the existing plan. Supporting technical reports were shared by Muir Mhòr to support the impact assessment process.

In late October, we received a further design change proposal from Scottish and Southern Electricity Networks Transmission (SSEN-T), working in partnership with National Grid Electricity Transmission (NGET), on the transmission reinforcement components of the offshore design for both the HND and HNDFUE. This proposed design change was assessed concurrently with the Muir Mhòr impact assessment as SSEN-T suggested their design change interacted with the options presented in the Muir Mhòr design change.

The proposed design change from SSEN-T considered a switch of landing locations for the two, 2 GW HVDC bipole subsea cables from the HND (initially Hurlie, proposed to move to Netherton Hub) reinforcement and HNDFUE topologies (initially Netherton Hub, proposed to move to a new planned substation in the Aberdeenshire area). Supporting technical information was shared by SSEN-T to support the assessment of the proposed design change.

Outcome

The conclusion of our analysis resulted in Muir Mhòr connecting directly to a substation at Longside in the Peterhead area emerging as the preferred option. With the original 2 GW HVAC reinforcement link that connected Muir Mhòr and Campion, being replaced with a 2 GW HVDC bypass link to Campion. The more coordinated bypass options provide opportunities for a modular build out approach. However, considering the contrasting delivery timelines of neighbouring projects, becoming independent of the 2 GW reinforcement link, was the only option for Muir



Map showing the design change – locations are illustrative and not to scale. Final design configuration is subject to further detailed network design.

Mhòr to continue to progress through detailed design at the necessary pace.

All options performed similarly to the baseline in terms of community and environmental impact. If onshore infrastructure is co-located, the community disruption could be reduced, particularly in areas with high demand for space.

For the design change submitted by SSEN-T the conclusion of our analysis determined that relocating the two HVDC links as proposed will achieve the objective of maintaining appropriate wider system capability. The change itself did not materially affect the HND design criteria to justify a formal independent assessment, and it was therefore treated as a sensitivity to supplement the Muir Mhòr assessment.

Governance

The outcome of the assessment was presented to the HND Board, previously the Offshore Transmission Networks Review (OTNR) Transmission Networks Board (TNB) on 19 March 2025, to ratify that the necessary considerations had been applied. This is consistent with HND and HNDFUE which were approved by the HND Board. We presented the outcome of the assessment, and an explanation of the process followed and sought sign off. The HND Board confirmed they believe the required process had been followed, which means the outcome of the Impact Assessment is now finalised.

It was also agreed that due to the specific characteristics of the SSEN-T proposed design change for the HND reinforcement, a formal impact assessment would not be necessary.

Next Steps

Office of Gas and Electricity Markets (Ofgem) guidance on asset classification has previously identified the HND reinforcement as an 'onshore reinforcement'. Once the final delivery bodies have been determined, they will be responsible for taking forward detailed design and delivery for the required network infrastructure. They will be subject to regulatory approval and responsibilities under planning law as major infrastructure projects.

When available, we will publish Ofgem's response to our letter communicating the outcome of these impact assessments, which will advise if a change in asset classification is required or that the original asset classification of the HND and HNDFUE is still appropriate.