For the attention of the Offshore Co-ordination Team

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National Grid Electricity Transmission (NGET) welcomes the opportunity to comment on the ESO Offshore co-ordination consultation, which seeks to address many of the challenges in connecting unprecedented levels of offshore wind by 2050. We are committed to working with the Government, Ofgem and wider stakeholders to ensure that coordinated onshore and offshore electricity network solutions are developed in the interest of communities and consumers, and that Britain can seize the opportunity to be a world leader on the journey to net zero

With circa 60% of all offshore wind developments looking to bring their energy on shore around the East Coast, this will require careful planning and coordination alongside significant onshore infrastructure and enabling work if we are to ensure the necessary electricity transmission infrastructure is delivered in a way which minimises the impact to the communities which often host it.

Regardless of any developed coordination solutions, major onshore development and electricity network reinforcement will be necessary. To put this in to perspective, successfully delivering the Government's 40GW of offshore wind ambition will require ~500km of onshore and ~400km of offshore electricity transmission network being consented and delivered within this decade. With much of this work already 'in flight' and scheduled for completion in 2028/29/30 and beyond, there is no room for slippage without considerably increased constraint costs or delays to offshore wind connection. The ESO's Offshore coordination consultation report should explicitly acknowledge this requirement for onshore infrastructure development, as is outlined in other ESO publications such as the Network Options Assessment (NOA).

Summary of Key Points:

- **Levels of Integration:** We have significant concerns with regards the viability of the ESO's current assumptions on the levels of integration being achievable. We believe that for this to be delivered, within the timescales to successfully achieve the 2030 target, will require adequate fiscal, regulatory and policy mechanisms being in place imminently.

- **Cost Benefit Analysis:** Greater clarity is required on the breakdown of cost savings that could be realistically achieved. Currently, there is notable ambiguity as to where the main cost benefits will be delivered. We believe this creates additional risks for an already challenging consenting process for onshore infrastructure.

- **Technology assumptions:** Alongside ensuring there is a clear consideration on the possible onshore technology opportunities, including higher voltage transmission infrastructure, we believe the technology opportunities should be broadened out to consider other infrastructure competing for marine seabed space.

- **Connection process and investment certainty**: There are significant onshore planning and consent challenges to delivering the volume of onshore electricity network infrastructure required. Any early reduction of this infrastructure will both help to alleviate will some of these challenges and help to bring the impacted communities with us. We therefore feel that the short-term options should take in to consideration progressing trials to package connections.

Response:

Levels of Integration

The initial analysis assumes a level of integration between 2025 and 2030 and is based on an 'ideal scenario to deliver maximum integration'. We have significant concerns with regards the viability of the ESO's current assumptions on the levels of integration being achievable. We believe that for this to be delivered, within the timescales to successfully achieve the 2030 target, will require adequate fiscal and policy mechanisms being in place imminently.

We would welcome to the opportunity to work with the ESO to further refine these assumptions to what would be an achievable level of integration, balancing consumer and environmental benefit of integration against deliverability and meeting targets.

Cost Benefit Analysis

We would welcome greater clarity on the breakdown of cost savings and asset reduction driven by offshore integration, as both onshore and offshore assets are referenced in the report however this is notably ambiguous. We do not anticipate it will have any significant impact on the deeper onshore infrastructure requirements and we are keen to avoid any additional risks for an already challenging consenting process for onshore infrastructure.

Specifically, we are keen to understand how both the cost and infrastructure reductions are split across the following:

- OFTO offshore substations
- OFTO ccts
- OFTO onshore substations
- ONTO connection ccts
- ONTO NOA ccts
- ONTO substations

In addition, it would be beneficial in the next phase to understand the cost benefit analysis for a more realistic level of integration i.e. from 2030 as well as the theoretical ideal scenario.

We understand that a generic asset design life of 25 years has been applied to the co-ordinated offshore assets we would welcome confirmation or otherwise that this assumption is credible for those assets function and if not, whether increased design life has a material impact to the cost/benefit assessment.

Technology assumptions

Alongside ensuring there is a clear consideration on the possible onshore technology opportunities, including higher voltage transmission infrastructure, we believe the technology opportunities should be broadened out to consider other infrastructure competing for marine seabed space.

We note the high-level conclusion statement, that most of the technology required for integrated option will be available by 2030 - highlighting HVDC Circuit Breakers and 1800MW thermally rated cable solutions as risk areas. We would welcome further work and clarity as to the quantified benefit erosion of the integrated solution for delayed deployment of these assets specifically.

Whilst the report recognises the need for HVDC circuit breakers and cabling, and MPI's are noted on figures 3 and 4, we would be keen to understand to what extent other technology has been considered, such as multipurpose HVDC (bootstraps) or wind farms connecting directly to electrolysers. Equally, to what extent other infrastructure competing for marine seabed space e.g. hydrogen, CCUS has been considered.

NGET would also welcome the opportunity to work with the ESO to review onshore AC technology opportunities such as 550kV and 800kV.

Connection process and investment signals and investment certainty

There are significant onshore planning and consenting challenges to delivering the onshore electricity network infrastructure required to accommodate the growth in offshore wind. We therefore welcome any early reduction of this infrastructure, as it will both help to alleviate some of these challenges and help to bring the impacted communities with us. However, it will be critical to develop clarity around exactly what will be required in terms of changes to achieve the ambition outlined.

We feel that the short-term options should take in to consideration progressing trials to package connections. NGET would be keen to work with the ESO and customers to progress such pathfinder projects. As part of this we would encourage the ESO to look at how they can accelerate a review and implementation of changes to connection securities.

We note this area appears light on detail and implementation plans currently and we look forward to working closely with the ESO and industry on developing the practical aspect of this and what specific projects an evolving and improving Connection process applies to in the next phase of work and beyond.

Yours Sincerely

Graeme Cooper

Project Director – East Coast Connections

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