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National Grid ESO response to Offshore Transmission Network Review – Multi-Purpose Interconnectors: Minded-to Decision on interim framework consultation

Dear Patricia Dunne,

We welcome the opportunity to respond to your Offshore Transmission Network review – Multi-Purpose Interconnectors: Minded-to Decision on interim framework consultation.

National Grid ESO is the electricity system operator for Great Britain. We move electricity around the country second by second to ensure that the right amount of electricity is where it's needed, when it's needed – always keeping supply and demand in perfect balance. As Great Britain transitions towards a low-carbon future, our mission is to enable the sustainable transformation of the energy system and ensure the delivery of reliable, affordable energy for all consumers.

The ESO holds a unique position at the heart of the nation's energy system. We use our unique perspective and independent position to facilitate market-based solutions which deliver value for consumers.

Key points of our response:

- **Multi-Purpose Interconnectors (MPIs) have the potential to aid the ambition of offshore coordination and meet the aspiration of the Offshore Transmission Network Review (OTNR). Therefore, we welcome this opportunity to cooperate with industry parties on the development of MPIs under the interim arrangement.**
- **We value the early engagement and cooperation with industry parties on the development of the detailed design of an MPI to ensure we can maintain system security with the required operational tools to manage the MPI.**
- **Any changes to the regulatory framework such as the licence conditions need to be prescriptive and unambiguous to maintain transparency and avoid misinterpretation in the future. Compatibility with the EU developments remains relevant given the cross-border nature of MPIs.**
- **There remain a number of uncertainties on what an MPI is (such as the role and responsibilities, the interface points, the contractual relationship). In order for us to fully understand the consequence of an MPI, such as operability, we look forward to working with the industry to develop the detail in the early stages of development.**

More information on these points can be seen in our response to your questions appended to this letter.

We welcome the opportunity to discuss any of the points raised within this response. Should you require further information or clarity on any of the points outlined in this paper then please contact Luke Wainwright in the first instance at luke.wainwright@nationalgrideso.com. Our response is not confidential.

Yours sincerely



Matthew Wright
Head of Strategy and Regulation

Appendix 1 – Consultation Question Responses

We support the development of Multi-Purpose Interconnectors (MPIs) under the interim arrangements to enable the aims of offshore coordination under the Offshore Transmission Network Review (OTNR).

The Electricity System Operator's (ESO) role is to maintain system security in the most economic and efficient way when facilitating the connection of an MPI. Therefore, we value the importance of being part of the developer discussions on MPIs to ensure all parties have a common understanding on its design, control and operation. It is important to understand what the interface points to the transmission system are, how it would be operated and how it would behave in market arrangements (i.e. which direction the flow would go to), in order for us to model the MPI effectively. Clarity and a common understanding will support us in understanding the requirements of the wider network and in quantifying any network or operability risks, using appropriate modelling tools. For example, what constraints the network may have, what reinforcements and operability tools are needed. Therefore, this will enable informed decisions to be made.

Currently, interconnectors connected via a Transmission Owner (TO) and offshore wind connected via an Offshore Transmission Owner (OFTO) are operated and managed very differently and therefore we need to consider how we can maintain consistency and transparency across the models in the set up of an MPI. For example, today we have the Balancing Mechanism to manage offshore wind and we have limited tools to manage interconnectors, especially those without explicit auctions.

Overall we value the engineering concept of an MPI however we do have serious reservations over issues such as the treatment of offshore generators connected to an OFTO and those connected to interconnectors where in essence the equipment is very similar, but the rules and requirements are very different. This results in many questions over transparency and treatment on a level playing field. Thus, this will need to be worked through with industry parties at an early stage.

We address the two consultation questions below in the context of MPIs under the interim arrangement.

Question 1 - Do you have any concerns with the minded-to decisions set out in Section 2?

We will address each minded-to decision outlined in Section 2 of the consultation document.

Please note that the use of the term 'offshore generator' used in this consultation is not limited to offshore wind farms but encompasses all forms of offshore generation technology.

Minded-to decision: We will not limit the interim framework to one MPI model. We will be open to applications for both the IC-led model and the OFTO-led model, as well as others that might be in development. (p12)

We agree with being open on the various types of MPI model to enable innovation. However, we do note that each model has its own different challenges for the reasons detailed below, which would need to be considered when differentiating between models:

- The Security and Quality of Supply Standard (SQSS) and the System Operator Transmission Owner Code (STC) are not applicable to interconnectors and apply to offshore generators and/or Offshore Transmission Owners. The Grid Code has limited application to interconnections and only in respect of connection points to the transmission system. However, the EU HVDC Network Code could be extended to apply to offshore wind and interconnectors. With different codes applying to different licences, this may have consequences for transparency and treatment on a level playing field between users, even though the equipment may be similar between OFTOs and interconnectors.
- If using GB interconnector rules under an IC-led MPI model, the contractual relationship is between the ESO and the interconnector and there is no relationship between the ESO and the offshore generator. The interconnector would however, need to ensure that the offshore wind farm is somehow bound by the applicable requirements of the Grid Code as relevant to DC Connected Power Park Modules. This is an implicit requirement of the EU HVDC Network Code, which now falls under UK legislation. The concern over this current arrangement is that the interconnector network is not designed to the requirements of the SQSS or STC. Although Grid Code requirements apply, the offshore generator would have to meet the requirements imposed on it through the interconnector rather than the more transparent arrangements available through the industry codes such as CUSC and the Grid Code. Additionally, it would need to be

understood how topics such as transmission access rights, constraints and charging arrangements work to remain transparent.

- We would need to consider future expansion and connections to existing OFTO or interconnector networks which are developed as part of the offshore transmission regime in the absence of standards, to ensure designs are not limited or constrained in the long term.

An alternative option to enable MPIs would be to require the interconnector to design their network to the requirements of the SQSS. This consequently provides consistent principles under the CUSC for the offshore generator and provides the generator greater transparency on topics such as transmission access rights and charging arrangements. With this approach however, the solution becomes very close to the OFTO arrangements so to have this type of arrangement under an MPI may provide the user the same outcome as opting for an OFTO-led MPI and its associated arrangements and obligations.

Another solution that considers future proofing is introducing the concept of Interconnector Build for the interconnector to build the Offshore Transmission assets. In essence this would apply similar arrangements to the Generator Build (OTSDUW – Offshore Transmission System Developer User Works) arrangements where the interconnector builds and designs an interconnector (with offshore generation) to OFTO standards and once built and commissioned the section of Offshore Transmission Network to which the offshore generation is connected is transitioned to an OFTO. This ensures consistency with the OFTO arrangements, provides full transparency and protection for the generator and enables the offshore network to be developed in a modular way so it can connect to other offshore networks and future networks with a set of clearly defined standards. The benefit to the interconnector and generator is that it enables quicker connection of users.

We understand the connecting Transmission System Operators (TSOs) in Europe are also open and flexible to various types of MPI models and therefore it is important to keep up to date of developments in neighbouring countries and areas whilst developing the MPI together as an industry. This ensures alignment on how the MPI would operate between two different synchronous areas from the early stages of development to enable a successful MPI under the interim arrangements.

We encourage continued close working with developers, Ofgem, BEIS and connecting UK and EU TSOs to explore the opportunities and challenges that may exist with an MPI design to ensure it can be progressed to work within the industry codes with minimal change and allow the ESO to manage the MPI with sufficient operational tools.

Minded-to decision: Ofgem will require licence applications for multi-use assets to demonstrate the expected primary or main use of the asset. We recommend, as a minimum, that this includes a simple calculation using the estimated load factor of the connecting OWF and the L1 cable capacity to show how often the asset is expected to be available for cross-border flows compared with OWF output transmission over the lifetime of the asset, which would be monitored by developers and Ofgem on a regular basis. (p18)

The use of load factor in the scenarios illustrated in the consultation for demonstrating the expected primary or main use of the asset seems sensible. However, please note the following considerations:

- Whether using load factors for offshore technology other than offshore wind farms remains fit for purpose. The load factor will vary depending on the type of offshore generation. For example, a wave or tidal generator will have a very different load factor than that of an offshore wind farm, whilst also noting that tidal generation is predictable unlike other forms of renewable generation.
- When there are multiple offshore generators connecting to the interconnector/OFTO, how would this change the load factor principle.
- Load factor can change as the capacity of the offshore generator increases. Therefore, consideration is needed on how the load factor calculation changes over time. It may be useful to have more scenarios to assess the impacts and if the load factor remains appropriate.

Having one licence for a multi-use asset may have consequences on various requirements such as access rights and charging arrangements. Any access rights need to be carefully balanced with obligations and costs associated with it. Once the primary use of the asset is determined, impacts on the regulatory framework will need to be considered and developed with possible code changes or embedded obligations into the connection agreements.

We note that should the primary use of the MPI change over time, this shall be reviewed by Ofgem on a case-by-case basis. We require greater detail and understanding on this process and whether the ESO is expected

to be involved, as we expect there to be on-going resource and time needed to continually review the asset's purpose over time.

Minded-to decision: We will introduce a reporting mechanism to monitor the asset use over time to ensure that the asset licence granted remains fit for purpose. We would expect to be a measurement based on the method the applicant has used to demonstrate asset usage in the first place e.g. OWF load factors and cable capacity. Should asset usage fall out of the parameters agreed at the point of Ofgem granting the licence, we will deal with this on a case-by-case basis to avoid penalising early adopter projects while remaining compliant with our duties under the Act. (p23)

We agree that introducing a reporting mechanism is useful for the purpose of ensuring the asset licence granted remains fit for purpose.

The consultation mentions that Ofgem is going to fully administer the categorisation of the licence and thus the way the asset is treated in regard to its use, for the duration of the asset life of the interconnector and offshore wind farm. Clarity is required on whether Ofgem expects any involvement from the ESO to support in any activities of the reporting. This is to ensure ESO's resources and time are factored into the process.

Minded-to decision: We will introduce changes to the interconnector standard licence conditions so that interconnectors that form part of an MPI are bound by the appropriate obligations in relation to their additional activities. We will introduce changes to the OFTO standard licence conditions so that OFTOs that form part of an MPI are bound by the appropriate obligations in relation to their additional activities. We note that before an OFTO licence is granted, there is a need for the competitive tender process to be undertaken first. We have not considered that in scope of this document. (p27)

We welcome the proposed changes to the licences to provide clarity on the obligations on the respective parties. We note that the changes would need to be prescriptive and unambiguous. For example, in relation to Condition 19 on the proposed change that "the interconnector operator may need to provide a means of enabling the ESO to adjust the OWF operation", we would prefer the term 'may' to be replaced with 'shall' to avoid misinterpretation on the obligation and to also include wording that allows the ESO to manage interconnector flows in addition to the offshore wind. We would be happy to share other specific examples where we think further clarity would be beneficial if helpful.

Minded-to decision: We will not be inviting licence applications for pre-existing assets to evolve into MPIs. While we will not be setting out a process for these, in the interests of being open to early innovation at this stage in the OTNR, we will consider such situations on a case-by-case basis. We will bear in mind our 2015 ITPR conclusions to maintain continuity of regulatory approach for assets that evolve into multi-purpose projects (which include MPIs). (p28)

We note this minded-to decision and we have a neutral view.

Question 2: Do you have any comments or concerns with the updates provided on wider policy considerations, as set out in Section 3?

We will address each section outlined in Section 3 of the consultation document in this section, in relation to the MPI operating under the interim framework, namely Early Opportunities.

MPI ownership structure

Having reviewed the consultation, we are working on the assumption that no additional code changes will be required as a result of an MPI developed under this interim framework. Any additional changes or obligations required may need to be covered by an alternative approach such as derogations or captured in connection agreements. Code changes could be facilitated, however it would be an enduring solution which may not be appropriate for the interim framework and needs to be considered in parallel as part of the enduring regime, to ensure a successful migration between the two workstreams.

We are conscious that having derogations may not be the best approach and this needs to be assessed on a case-by-case basis.

Migration from Interim to Enduring Framework

We recognise the importance of ensuring an MPI set up under the interim framework or enduring framework allows an equal level playing field. We welcome the opportunity to continue working with Ofgem and BEIS on this.

Interaction with Ofgem's Interconnector Policy Review Pilot MPI Cap and Floor Framework

We look forward to working with industry in the development of the MPIs set up under the interim framework. We would appreciate greater details on how an MPI would work (for example, roles and responsibilities, interface points, contractual relationships) which would then input into how the ESO would model the MPI design to see if there are broader system impacts. This is important in early phases of development to assess its impact. Once we know what the impacts are, we can define the obligations and tools needed to manage the MPI in the most economic and efficient approach.

Commercial and regulatory barriers – Contracts for Difference

We recognise it is essential for developers to have clarity on Contracts for Difference for offshore wind farms and ensure a level playing field between offshore wind farms connecting radially and via an MPI arrangement.

Commercial and regulatory barriers – Charging in IC-led model

We believe that any offshore generator connected to an MPI should have equal treatment to an offshore generator connecting to an OFTO and there is no commercial advantage (or disadvantage) in relation to charging arrangements. This would need to be considered as part of the statement under 2.11 of the consultation document that feedback from developers was to ensure that the offshore wind farm has the same access rights to the onshore GB system as if it were connected via a radial OFTO link.

We are impartial as to what the approach is to capture the payment between offshore wind and interconnectors, for example bilateral arrangements between the offshore wind farm or if it is recovered via the ESO. Although, transparency on the payment arrangements needs to be considered to ensure there is consistency on charging between parties and transparency on the obligations the interconnector and offshore wind farm may have, such as access rights.

We agree that introducing charging arrangements between the interconnector and the offshore wind farm may have wider concerns from a regulatory perspective and unforeseen impact on wider users of the onshore system, therefore the short-term solution needs to be carefully considered.

Another consideration when reviewing the charging arrangements is what this means in relation to access rights and cross border flows under the Trade and Cooperation Agreement arrangements and whether it is consistent and aligned with the EU regulatory arrangements. Consideration needs to be made with the future development in the EU and GB on market design and developments such as the Locational Marginal Pricing (LMP) and zonal pricing.

Finally, the charging methodology would need to be flexible to accommodate different types of offshore technology and ensure it is fit for purpose and applicable to the range of offshore technology the MPI arrangement may have.

Market Arrangements

We encourage wider engagement and agree with the next steps, as we need to ensure we have sufficient tools to manage the system.

We are exploring all market options (home market and offshore bidding zone) along with alternative market approaches such as LMP and are continuing our engagement with Ofgem regarding the considerations around different types of market arrangements. Please refer to our website¹ for our latest update on LMP.

In relation to the views expressed by Ofgem in Section 3.31, we believe this statement is correct from a market point of view. However, explicit intraday markets are the most economic and efficient operational tool that the ESO currently has to manage flows across interconnectors. To date, the tools developed across interconnectors with implicit intraday trading are less efficient and more costly. Therefore, suitable market arrangements need to be considered from a whole system perspective, rather than just a market one to ensure maximum value for the end consumer.

As highlighted in this consultation response, it is important for us to understand the detailed design of an MPI and how it realistically behaves in the market, for example, in which direction it flows, and what impacts its direction. This understanding is needed to enable us to model the MPI effectively to support making informed decisions on the right market arrangements and tools required to manage the MPI.

¹ <https://www.nationalgrideso.com/future-energy/projects/net-zero-market-reform>