

## Elia Group input regarding the United Kingdom's consultation on the Offshore Transmission Network Review (OTNR)

On behalf of Elia Group we would like to thank Ofgem and the Department of Business, Energy & Industrial Strategy for the opportunity to provide input as part of the Offshore Transmission Network Review (OTNR).

In the context of the United Kingdom's long-term climate strategy and the European Green Deal, the United Kingdom commits to a 100% reduction in emissions by 2050, which goes hand in hand with the European Union's aim to be the first continent to be climate neutral by 2050. Offshore wind energy is to be a key element in achieving these goals.

Elia Group is active in electricity transmission. With its two TSOs - Elia in Belgium and 50Hertz in Germany - the Group is one of the top 5 leading transmission system operators in Europe. In addition, we participate in the Nemo Link joint venture that operates the interconnector between Belgium and the United Kingdom. Elia and 50Hertz also provide consulting services through their joint subsidiary Elia Grid International. All this knowledge and experience combined makes Elia Group a front-runner in the development and operation of offshore grids and an excellent partner to contribute to achieving the objectives of the United Kingdom's long term climate strategy and the European Green Deal by (inter)connecting the massive renewable energy generation capacities.

Regarding the specific amendments proposed in the consultation paper, we concur in general. Hereinafter, we have taken the opportunity to address some individual aspects of those amendments and provide additional information that may be relevant.

### Comments on individual proposals

#### 1. Early Opportunities

**Question 1:** Are there any concepts we have not identified developers may wish to progress?

The different concepts presented cover many of the possible options. However, one option that could be considered is a configuration that allows a multi-purpose interconnector (MPI) to be connected to the bootstrap developed by the TO. These bootstraps realized by the TO will create offshore connection capacity. This connection capacity needs to be able to be used to also connect (hybrid) interconnectors in addition to offshore wind farms. We also believe that the future framework should include the possibility to easily integrate an option that was not foreseen since the beginning without having to start all work all over again. Evolutions could be a lot quicker than the regulatory and legal change process.

**Question 2:** Should anticipatory investment risk be shared with consumers? If it should, what level of risk is it appropriate for consumers to bear?

We generally agree with the principle that risk should be allocated to the party best capable of managing it. However, given the objective of the consultation which is to incentivize coordination by developers on a short-term horizon and given that most development risks are currently borne by offshore developers (not consumers), including uncertainty about the regulatory regime and project

bankability, we would recommend that in this interim period the risks associated with anticipatory investments should be mostly and to a largest extent allocated to consumers.

**Question 3:** For concepts that intended to provide a wider system benefit, e.g. by mitigating an onshore constraint, how should the need for investment be demonstrated by the developer?

We believe that the parties best placed to demonstrate wider system benefit are those who design and operate the electricity system. It is in our view thus best to move forward as quickly as possible with a Holistic Network Design, which should bring forward these benefits, (at least for the UK electricity system).

**Question 4:** What options are available to developers in demonstrating a reasonable expectation they intend to connect to the system?

No view to be expressed.

**Question 5:** To what extent do you agree with our proposals to remove barriers to the Early Opportunity concepts? Please explain your answer.

We welcome the efforts being done to remove potential barriers for Early Opportunity concepts. We share the vision that the anticipatory investment risk is an important barrier to remove. Still, we would like to take the opportunity to highlight that we believe that encouraging coordination for early opportunities (on developer's voluntary basis) could require more dimensions (like incentives, etc.) than just removing the barriers. These include the fact that developers often finance projects through a project financing structure, the requirement to demonstrate a stable regulatory framework in general, a clear risk allocation and stable cash-flow. However, an important element in this discussion, as brought forward, remains to limit the risk for consumers having to bear stranded cost.

**Question 6:** Do you believe a Significant Code Review is required to give effect to a potential decision to 'share' AI risk between consumers and developers?

We would defer to UK regulatory experts on that matter but are concerned with the fact that the longer the period to agree on and implement an interim regulatory framework, the less relevant it may be as most "early opportunities" may be too far advanced in planning, consenting, etc., to consider a change on grid connection concept.

**Question 7:** Do you agree with Ofgem's proposed approach to deliver the objectives of Early Opportunities workstream?

Important issues are being raised and discussed. However, one topic that is not addressed as part of the Early Opportunities work stream is how an MPI will be integrated in the electricity market(s). When one or more offshore wind parks are connected to more than one bidding zone, or BZ (e.g. via an MPI), the question arises how to set up the BZ configuration in this area. Two main alternatives for the market setup exist and have been analyzed in much detailed by different parties: "home market" (HM) and "offshore bidding zones", or OBZ.

In the context of Nautilus, we have commissioned a specific study related to the realization of MPI via the OBZ solution and the changes it would require to UK legislation, regulation, codes, etc. to make this possible. We would be very happy to share and discuss further this material with BEIS and OFGEM.

Furthermore, specifically for MPI's, we question whether there are significant differences in terms of commissioning dates between potential projects for the Early Opportunities or for the Pathway to 2030.

## 2. Pathway 2030

**Question 8:** We consider that a holistic design will result in a more coordinated, economic and efficient network. Do you agree? Please give reasons for your answer.

We agree that a holistic design will result in a more coordinated, economic and efficient network. We believe that developing a long-term, holistic view for the development for the electricity grid has always been a requirement in order to ensure its efficient delivery. This remains true now more than ever. Given the increasing number of constraints, stakeholders, developers, etc., a strong coordination will be key in order to deliver the required grid infrastructure. Therefore, it is important that we do not needlessly differentiate between onshore and offshore infrastructure. Network plans should look at the whole picture and develop the most economic, sustainable and reliable solutions to connect producers and consumers wherever they are located.

Given the intermittency of most renewable generation, interconnecting different countries and grids will be increasingly more important to ensure that the electricity can be transported efficiently. Since the United Kingdom is an island with a high share of renewables, we strongly believe that a holistic design will be even more beneficial to UK energy consumers than what can be achieved in continental Europe as grid planners will be in position to propose offshore connections to remove onshore grid congestion for example. Such a Holistic Network Design (HND) would need to be developed in consultation with the TSOs of the other North Sea countries to ensure compatibility and coherence with their respective national network development plans as well as the European TYNDP. This becomes even clearer when considering the UK Government ambition of 18GW of total interconnectors capacity by 2050.

The proposition that the HND will be delivered by the ESO seems logical since planning activities are by nature a monopolistic function. Detailed specifications and requirements for transmission assets are key for ensuring quality, security and for guaranteeing potential further extendibility of the grid and, if part of the model, for organizing fair competition among investors in grid infrastructure. Therefore, it appears obvious that a rigorous joint offshore planning will be the responsibility of governments, regulators and TSOs.

**Question 9:** Do you agree with the planned work for a detailed network design offshore?

In principle, we agree that DND and HND could be delivered by different players if processes and data availability (e.g., regarding network interoperability, stability aspects etc.) allow for both design steps to fit together. Without further description of what level of detail will be covered in the Holistic Network Design & Detailed Network Design, it is not possible to develop a thorough view of the proposed approach. However, if there would be a separate onshore and offshore version of the Detailed Network Design, it will be crucial that the Holistic Network Design goes into sufficiently

detailed in order to capture all benefits that can be captured from developing a holistic view. Moreover, it would be important to ensure coherence and long-term vision especially if several players are involved. When envisioning how to best connect a new wind farm, the Network Design should consider the different coordinated options such as connection to an offshore bootstrap or MPI or, in a later stage, integration into a larger North Sea grid. These options will need to be compared with stand-alone radial solutions in order to opt for the most beneficial and economic solution. In case DND is carried out by the developer in charge of procuring and building the assets, this would allow the developers to implement some level of innovation on the asset design, to provide enough flexibility to define procurement strategy and to manage negotiations with supply chain, etc.

**Question 10:** Who do you believe is best placed to undertake the detailed design for assets that are in offshore waters?

Without any doubt, the design of the assets required for the OWF should be in the responsibility of the developer. When it comes to the grid connection and its integration into the overall system, having separate Detailed Network Designs for onshore and offshore brings certain chances but creates the risk that not all benefits arising out of a holistic grid development can be captured. One way to mitigate this risk is to clearly define processes, interfaces and to make the necessary data available to the various parties involved. In any case, a constructive cooperation between the HND and DND developer is necessary. Additionally, it would be important to limit the number of parties developing Network Designs in order to ensure coherence and long-term vision.

**Question 11:** Do you agree that the existing developer led model should be retained and applied where the HND indicates a radial solution should be used? Please explain your answer.

As explained in the previous answers, the radial solution should not be the natural first option. Firstly, the party (or parties) responsible for the HND & DND should investigate all possibilities to connect offshore wind as part of a larger vision: integration in an (transnational) offshore grid, development of an MPI or an offshore bootstrap. Only when it becomes clear that these options do not bring sufficient benefits, developer led models such as the “shared offshore transmission systems”, the “quasi-bootstrap” or a stand-alone radial connection should be allowed to be developed. In that case, a developer-led approach would be best suited.

However, it could be questioned whether a difference of market design for radial and non-radial connections could introduce a bias in the Contract for Difference Allocation Rounds, depending on whether the radial connection is built into the tariff and/or which portion of the shared transmission assets should be built into offshore wind developer tariff. In our view, using a consistent delivery model for offshore transmission assets irrespective of the connection topology could be a solution to ensure a level playing field for offshore wind developers bidding for Contract for Difference Allocation Rounds.

**Question 12:** Please provide your views on each of the delivery options we have described in this document. In providing your views, please comment on the issues we have raised. Please also give your views on the implementation issues we have raised.

We would like to state that all the presented delivery models come with different advantages and challenges. Therefore, rather than expressing our preference for one specific delivery model, we would like to highlight the points that we deem to be relevant when considering the different options.

- *Option 1 – TO Build and Operate*

Ensuring coordination with other countries around the North Sea and allowing for an efficient build-out of offshore grids & MPI's requires stable and long-term partnerships. Of the presented delivery models, models "1-TO Build and Operate" & "2-TO-build > OFTO operate" are well suited to implement the just mentioned, thereby bringing benefits to grid users to the extent that it would enable significant economies of scale (through development of all transmission assets by a limited number of players, i.e., incumbent TOs) and efficiency gains (management of consenting/permitting, standardization, etc.).

Whether the Electricity System Operator or the Transmission Owner is best placed to deliver the Detailed Network Design (for delivery model 1 & 2) would depend on the level of detail that these designs cover and the roles of both parties.

However, besides the challenges already raised by Ofgem in the consultation paper, given the current offshore market design in UK (offshore transmission connections to windfarm developed by Offshore wind generators, and interconnectors part of non-regulated activities), we are not sure whether incumbent TOs have already developed offshore transmission expertise (including staffing, etc.) to develop multiple offshore projects simultaneously. Given UK offshore ambition, allowing several parties with offshore experience to participate in the development, construction and operation of offshore transmission assets in UK could ensure timely delivery of offshore transmission grid and reduce the risk of creating a bottleneck in offshore wind development.

- *Option 2 – TO Build > OFTO Operate*

In general, our comments on option 1 would also apply on option 2.

- *Option 3 – TO Design > OFTO Build and Operate*

Regarding delivery model 3, we identified some challenges that could impact the delivery of offshore transmission assets. Indeed, we would question what form of incentives would be set in place to ensure timely/efficient completion of DND offshore and pre-construction activities (mostly engineering/project activities) given TOs are generally mostly remunerated on asset base. If significant incentives were not implemented, it could be seen as an activity creating limited value for the company/shareholders although it would be critical to achieve UK offshore ambition. Beyond the timely delivery of these activities, it would be challenging to ensure the most optimized detailed design has been proposed by TO, or whether a more standard/conservative design has been proposed to expedite approval and transfer to OFTO. Finally, we strongly believe that design optimization requires close cooperation/interaction with the supply chain (OEMs, construction companies, etc) and may potentially impact the procurement/contracting strategy. Therefore, a split of responsibility (or discontinuity) between the design authority and the procuring authority would in our opinion significantly alter the later to achieve significant cost improvements.

- Option 4 – Early OFTO Competition

We believe that delivery model options 4 and 5 could offer potential benefits for an enduring model in the UK. Important points to consider in this regard are:

- Implementation of (Very) early competition would foster cost efficiency across the complete asset lifecycle and cost components (i.e., DEVEX, CAPEX, OPEX and cost of capital) among market participants.
- As opposed to delivery model 1 and 2, the development and construction of projects could be managed by several experienced market players, avoiding the risk of operational bottleneck on the development and construction of offshore grid infrastructure.
- Opening competition for the construction of offshore grid would allow to attract required private capital to support the significant investments required in the grid infrastructure to support UK plan to net-zero emissions
- Such models could also in our opinion ensure an appropriate level of accountability towards the grid developer, who would have not only to ensure the performance of the transmission asset over an extended period, but would also be accountable for the connection of future assets (accounted for as anticipatory investment), etc. as part of the Holistic Network Design (and possibly Detailed Network Design)

Whether the ESO/TO or OFTO is best placed to deliver the Detailed Network Design (for delivery model 4 & 5) would depend on the level of detail that these designs cover and the roles of both parties.

- Option 5 – Very Early OFTO Competition

Please refer to our answer on Option 4.

- *Option 6 – Developer design and build, OFTO operate*

From our point of view delivery option 6 would be bringing the following challenges that should be considered when deciding on the optimal delivery option for the UK:

- It would limit access to offshore transmission opportunities to offshore generators. However, one could argue that, specifically in Europe where un-bundling restrictions is enforced, Offshore generators may not be the most experienced players to design and build complex offshore transmission assets. If some offshore generators are developing some experience with complex transmission assets, their number remains very limited. Besides, with such a delivery model, market players with extensive experience on offshore transmission assets (usually bound by un-bundling regulation) may be prevented from participating in the design and delivery of offshore transmission assets. Ultimately the competition could be significantly reduced to a few players.
- The Offshore Generator may have a bias towards his own generation project while designing and building coordinated offshore transmission assets. Also, given the proposed transfer of assets to an OFTO, the responsibility of connecting a 2<sup>nd</sup> windfarm or other assets would likely fall on OFTO scope, etc.
- Depending on the type of transmission asset to be built, it could be challenging to define which part of the shared transmission assets should be built into offshore wind developer tariff as part of the Contract for Difference Allocation Rounds.

**Question 13:** Please describe any feasible delivery options that we have not set out in this document.

We believe that many options are already being explored as part of table 4 and therefore focus should be on finalizing a preferred delivery model to provide for a stable regulatory framework for developers/investors.

### 3. Multi-Purpose Interconnectors

**Question 14:** Do you think we are focusing on the right models at this stage, or are there other models we should be considering? Is it also necessary to consider the evolution of such MPIs from pre-existing assets? Ultimately, should Ofgem accommodate multiple MPI models (e.g. IC-led and OFTO-led) or just one? What factors influence your answer?

As proposed in the answer to question 1, we believe a model that should be added is a configuration that allows a multi-purpose interconnector (MPI) to be connected to the bootstrap developed by the TO. These bootstraps realized by the TO will create offshore connection capacity. This connection capacity needs to be able to be used to also connect (hybrid) interconnectors in addition to offshore wind farms.

We fully support the statement in 4.24 that BEIS will need to consider the potential for further development models to be introduced but is unclear whether MPIs are thus considered only as an intermediate step.

**Question 15:** Do you agree with this position with regard to ownership structures of MPIs under the current framework?

We share your understanding with respect to ownership structure. However, although the different ownership structures that had been developed in the UK have shown their advantages in order to connect offshore wind in radial approach, our view is that holding on to ownership structure towards the development of more integrated offshore infrastructure such as MPI's and an offshore grid could prove to be counterproductive. It is our belief that these will need to be adapted, consequently requiring changes in primary legislation. The name itself "multi-purpose" indicates that the same assets will serve different purposes. Although initially it might be possible to make a distinction and determine a "primary use" (cf answer to question 17), we believe that in the future this distinction will not be possible, since the primary use will fluctuate over time, driven by the market conditions.

In the context of Nautilus, we have commissioned a specific study related to the realization of a MPI and the changes it would require to UK legislation, regulation, codes, etc... given current regulatory regime. We would be very happy to share and discuss further this material with BEIS and OFGEM.

**Question 16:** What are the commercial, operational and regulatory factors that would drive a developer's preference for either the OFTO-led or IC-led MPI model? and do you envisage a different usage of the component assets of an MPI depending on the MPI model?

We believe the developers preference is currently mainly driven by an opportunistic approach, where the revenues associated with the first use of a transmission asset could be improved with the "marginal" additional cost, and by regulations (Offshore developers/OFTOs would initiate an OFTO-led MPI model while TSO/others would follow an IC-led MPI model). However, should an Holistic Network Design be developed by NG ESO, then the delivery model and license should be defined as



part of network development schedule, and not decided by developer (except potentially for connections to existing OFTO/IC assets).

**Question 17:** How would the line to shore (L1) be used in practice and what would you consider to be the primary and secondary activities from a practical perspective? Please provide views for both the IC-led and OFTO-led models, highlighting any differences between L1 usages across the two models.

As mentioned in question 15, Elia Group believes that in the long term, it will not be possible anymore to clearly define a primary use over 25 years (for certain parts) of the offshore assets when evolving towards more coordinated solution such as an MPI or an offshore grid. Building further on the proposed HND (and DND), for greenfield transmission projects, OFGEM/BEIS should consider uniformising the offshore delivery model and licensing process to avoid an early categorization of the assets based on primary use, and different regimes being established thereof. Also as highlighted in the Consultation, it would make sense to further look at the convergence of transmission regimes between offshore and onshore as part of the Enduring Regime.

Introducing a specific MPI activity within the Act should be handled with caution. It would be a solution in the spirit of trying to determine another type of primary use, which could even complicate things further. In our opinion trying to define ex-ante a default or even target percentage of use would not be economically efficient. We should strive to a decisional process in which market has the full control, since market conditions might change substantially during the lifetime of the asset and consequently also the use it would be made.

**Question 18:** Are there any barriers within the current frameworks, such as definitions within the CUSC, SQSS or other industry codes, that might prevent the line to shore (L1) being classified as either an OFTO or an interconnector while undertaking other secondary activities?

In the context of Nautilus, we have commissioned a study specific related to the realization of a MPI and the changes it would require to UK legislation, regulation, codes, etc... to make this possible. We would be very happy to share and discuss further this material with BEIS and OFGEM.

**Question 19:** What are your views on the feasibility of adopting a regime that requires developers to submit evidence to support their licence application (for assets that form part of an MPI) and commit to regular performance reports? Would this be practicable, proportionate, and effective? Are there other options that work well for industry that we could explore further?

We would not be in position to formulate recommendations on this matter.



**Question 20:** What are your views on the practicality of transposing obligations from one licence into another, which obligations would be the most important to incorporate into a remaining licence?

We would recommend that any additional obligation that may be imposed on a licensee should be informed at the time of financial investment decision so that it is not perceived as a regulatory risk by the investment community (project bankability requirement). Alternatively, licensee should have a right to reject modification of the license.

**Question 21:** Do you think the exemption provision with the Act offers any solutions to licencing MPIs within the current framework, even if only a temporary solution until a potential enduring solution is implemented?

We are of the view that a temporary solution/exemption mainly creates additional uncertainty and may have little effect to un-lock or speed up potential projects realization. We would rather like to see a definition and implementation of Enduring Regime at the earliest possible.

**Question 22:** Are there any aspects of the priority dispatch and curtailment arrangements, the TCA, or the cross-border trading arrangements that are adopted in UK that might influence the choice of MPI models?

In an electricity system with large share of renewable energy source (RES), priority dispatch for new wind farms will not be relevant anymore. Adding to this, any MPI with the EU will have to consider that priority dispatch for new RES is not possible anymore.

Indeed, the Offshore Bidding Zone solution allows for an efficient use of interconnection assets and the creation of a meshed offshore grid. In turn, the application of this market model is incompatible with the notion of priority dispatch for RES given that non-discriminatory access should be granted on interconnection assets.

Also, we strongly recommend that any market arrangement between the EU and UK (covered in the TCA) should be based on the implicit allocation of cross border capacity.

**BEIS Question 1:** What do you consider to be the key challenges to the establishment and operation of MPIs in the UK presented by current and proposed regulatory requirements applicable in EU Member States or other countries which MPI projects may connect with, or by the TCA? (e.g. regarding the efficient operation of MPIs under both the Home Market and Offshore Bidding Zone approaches). Are there further domestic challenges to these possible market design options?

In order to ensure an efficient use of interconnection assets between UK and EU Member States, the offshore bidding zone approach would be preferred. Any perceived downside for the generator could be captured in a separate agreement so that economic welfare is adequately re-distributed.

One of the key challenges will be the introduction of efficient market arrangement. However, one could argue that only a return to an efficient implicit coupling with EU (tight volume coupling or ideally price coupling) will unlock the full potential of MPIs and allow a transition to a meshed offshore grid.

Should you have any further questions or need further clarification as set out herein, please do not hesitate to contact us at any time. We are always available to provide our support, not only in the context of this consultation, but also more generally, for instance in a further exchange of experiences with a particular focus on offshore networks.



**For further information please contact**

**Head of Regulatory Affairs**

Dr. Lorenz Müller | [REDACTED] | [REDACTED]

**Business Development**

Christophe Durieux | [REDACTED] | [REDACTED]

**Nautilus**

Gert Van Cauwenbergh | [REDACTED] | [REDACTED]