

Response to NGESO's Offshore Coordination

Project Consultation

Dear Offshore Coordination Team,

Our vision is a world that runs entirely on green energy. In the UK, we develop, construct and operate offshore wind farms as well as battery storage and innovative waste-to-energy solutions. We also offer flexibility solutions to our industrial and commercial customers as well as supplying them with electricity and gas. Headquartered in Denmark, we employ 6,000 people, including over 1,000 in the UK. We are the largest offshore wind farm developer, generator and owner in the UK and we are currently constructing Hornsea Project Two which was awarded a CfD contract in Allocation Round Two at £57.50/MWh.

We welcome the opportunity to respond to NGESO's consultation on the Offshore Coordination Project, ahead of the next phase of the project in early 2021. We support the work being undertaken by NGESO and see it as an important step as we look to transition from the current, predominantly point to point, regime to a more integrated grid solution. A new framework would allow further consumer value to be unlocked through facilitating innovation and more holistic thinking on grid planning and design. We are hopeful that any new framework would also accelerate, and not slow down the energy transition. The time is right to deliver a more fit-for-purpose system, as the current processes to deliver offshore transmission were not designed with the level of success and uptake in offshore wind that we see today.

We wish to highlight some areas of focus in our response. This includes the alignment of the project with the efficient delivery of our national net zero ambitions, as well as ensuring that developer risk is accounted for when developing positions. Our more detailed responses to the consultation questions outlined in the response proforma can be found in the Annex.

A positive change

The developer can see the benefits of taking an integrated and holistic approach to transmission planning, where offshore wind and transmission become one and the

same project, and clusters and hubs can emerge to save CAPEX and minimise the environmental impact of numerous landing points. We recognise that delivering at least 75GW of offshore wind by 2050 with only radial connections may not be the optimal solution for all stakeholders and that a coordinated approach, with several parties sharing connections, is likely to have benefits. We also note that the current connection process contains inefficiencies to getting a timely connection and we are in support of any solutions that a coordinated approach may facilitate to overcome these issues.

Considering a wider range of stakeholders

When considering the merits of an integrated approach, it is important to factor in wider needs beyond those of the system operator and grid. For developers, we believe that in addition to delivering 40GW of offshore wind by 2030, there will also be environmental and local stakeholder concerns that also need to be balanced against investor confidence to deliver the projects required to decarbonise the electricity system.

To this end, we would like to see some enhancements in the analysis. For example, whilst the cost-benefit analysis examines the number of assets that would need to be deployed, it would be beneficial to consider the impacts of what could be fewer but larger assets on local stakeholders, as well as factoring in environmental considerations to model permissible cable routes. Additionally, it would make sense to consider the full range of costs and benefits encountered by all involved stakeholders. For example, whilst a £5.5bn saving is anticipated, it is also important to consider the distribution of costs between all parties, such as the cost split between TOs and network users of the coordinated network. If the anticipated costs to developers can be established at a more granular level it will aid in determining the viability of the project as a whole.

Ensuring the need is there

When considering the move to an integrated approach and its value, we should also consider the counterfactual case of point to point connections and the trend towards delivering larger offshore wind projects as part of cost reductions that also deliver value to consumers.

For example, wind farms that offer a capacity two or three times those currently installed may be feasible during the timeframes that this project is considering. Their installation would likely reduce the requirement for coordination. With this in mind, we expect that the results of the Crown Estate Leasing Round 4 (TCE4) will provide a good barometer for the need of the project.

Managing risk effectively

Lastly, the capacity required to meet our targets will be delivered by offshore wind developers taking on the commercial risk of projects. Therefore, when considering the development of shared connections, we need to ensure that the risks are effectively managed. These burdens must be shared in an equitable manner and under a clear and transparent structure, that will enable multiple commercial parties to work together to deliver shared connections in a timely fashion. We look forward

to continuing conversations with NG ESO to take on these considerations as the framework continues to be developed.

Annex

Holistic Approach to Offshore Transmission Planning Report

Q1 Do you agree with our assessment of the key technology and system risk barriers coming from the Holistic Approach to Offshore Transmission Planning Report?

Yes, we agree with the high-level findings of the assessment. It is imperative to maintain a clear pathway and continue momentum to deliver full decarbonisation of the power sector. We are therefore in support of the modular buildout approach, outlined by NGENSO, to develop and deploy new concepts. This will enable the future offshore transmission system to develop and evolve in a stepwise manner that maintains investor confidence and reduces the risk of stranded assets.

A modular, step-wise approach to developing concepts would also allow developers and the ESO to build understanding and experience for managing new challenges that would be presented in offshore coordination, and for leading-edge technologies to be deployed in a manner that better allows them to become business-as-usual. Modular build would also represent a balance between preserving value for today and tomorrow's consumers, in line with Ofgem's Decarbonisation Action Plan.

Q2 Do you have any proposals on how to most effectively bring the technology to market for when needed?

As a key feature, we believe that offshore wind generators will play a key role in bringing together any coordinated approach that embraces new technologies. As users of offshore transmission assets, there is scope to ensure that new transmission concepts have the accompanying control systems, standards and principles delivered in a way that best facilitates the flow of offshore wind power back to shore, in addition to any requirements from the ESO for effective system operation and constraint management.

In order to most effectively bring this project to fruition, we strongly believe that a future framework needs to continue to have a Generator-build option for offshore transmission assets. This would help to overcome some of the counterparty and coordination risks, as well as reduce first-mover risk for new transmission concepts.

Additional uncertainties should also be accounted for. For example, a substantial risk to delivering a coordinated approach, that involves anticipatory investment, will be how individual offshore wind projects competing in auctions for Contracts for Difference subsequently build coordinated offshore transmission assets (that have benefits for future projects). Given that additional investment and risk would likely be associated with these developments, further thought is required to establish how projects can compete within the CfD without compromise.

Additionally, considerations around allowing anticipatory investment and innovation are currently barriers within the OFTO framework run by Ofgem. Whilst the OFTO framework allows generators to deliver the transmission asset ahead of divestment, the high disallowance risk presented in the framework at the Cost Assessment phase when costs are already sunk, prevents novel designs from reaching the market. We believe that making some changes to this framework may allow some pathfinding projects to go ahead to demonstrate technology. For example, introducing an 'approval in principle' process with Ofgem ahead of the Cost Assessment phase of the divestment process could mitigate cost disallowance risk before costs are sunk, and improve the ability for developers to deploy innovative solutions and bring them into business-as-usual.

In the longer term, a new, enduring framework could produce a better coordinated planning and commissioning system that caters for the increased complexity and integration in offshore grid design that would become deployable under the volumes of offshore wind that are expected towards 2050.

Q3 Do you have any additional evidence to inform the assessment we have made?

AND

Q4 Do you have any further feedback on the report?

From an offshore wind market perspective, in order to enhance this approach, we believe there is merit in examining the results of TCE Leasing Round 4 and Scotwind leasing results to better determine the geographical distribution of projects, the sizing of each project, and the number of projects in each zone. This extra information will be valuable in informing the viability of some of the described approaches against the counterfactual and number of assets that need to be deployed in a given regional topology.

With regards to further work, we see value in examining these findings in the context of an integrated system that also combines with power offtake solutions, for example hydrogen technologies or battery storage. These technologies are currently absent from the analysis and are expected to have a significant role in the future energy mix.

Cost-benefit Analysis Report

Q1 Do you agree with our assessment of the costs and benefits?

AND

Q2 Do you have any other evidence to support or challenge the assessment made?

Broadly yes. We are in general agreement that benefits are realised when fewer assets are deployed at sea, which is how we understand the primary basis of how the cost benefits are realised in the scenario. However, we note that the societal and system level CBA approach being used does not factor in project and financial CBA outcomes that would be more useful for informing network users.

To build on the analysis, we would like to see additional detail of the assumptions that were used to inform the CBA. We would be particularly interested in the installed capacity of each wind farm (which does not appear to be clearly available in the CBA report) during each time period, as well as the assumptions to define CAPEX and OPEX associated with the offshore developments. We think this is an important assumption as larger projects would naturally also require less infrastructure to deliver the same capacity (e.g. one large X GW project as opposed to two Y MW projects).

TCE R4 results may therefore give a good indicator of trends we are likely to see. We have already seen the average size of offshore wind farms awarded a CfD increase from 519MW to 1,091MW between Allocation Round 1 to Allocation Round 3, a span of only 4 years between these rounds.

The sizing of projects is a key driver for cost reduction in delivering new generation, which are also benefits to consumers and society at large. A phase 2 CBA should therefore examine the total system cost.

Q3. What do you see as the potential impact on the environment of these proposals, particularly the reduction in the number of assets and landing points?

We appreciate this has been a high-level study, so full detailing is not being discussed. On the environmental side, we would point out that concerns are not just on landings and onshore disruption, but the cable routes must also not cross any sensitive areas.

The UK Marine Plan needs to be considered not just for a CBA, but in any deployed offshore network. The cabling requirements once this is considered would also increase development costs due to the works needed to obtain the relevant consents.

Within maritime planning, we see a greater need to coordinate all activities and any subsequent CBA should also consider viable cable paths being mindful of the natural environment. We envisage that if an integrated option progresses, stakeholders would have very strong views on where shared export cables would go and the preference would be to avoid offshore designated sites, of which there are many. Though we are aware this may be possible, it would likely be a complex challenge.

Q4. Do you have any further evidence on the potential social and community impacts of these proposals? We would particularly welcome responses from local authorities on this question.

We anticipate that shared connections will reduce environmental and social impacts. Though we note that the impacts – and subsequent views of stakeholders – are likely to be dictated by location, our broad view is that a larger ‘pre-consented’ substation for multiple projects would be preferable from a community’s perspective for a few reasons:

- Differing construction timelines for multiple substations and projects in the same area are very heavily objected to;
- A greater number of residents are likely to be impacted during operations if we continue to build substations at a 1:1 ratio (noise/visual etc.)

Having said this, it is possible that stronger objections may be received from local stakeholders in the area where joint assets are being placed. However, this could be mitigated by proper site selection and would be more of a concern in certain areas.

Q5. Where do you see value for further work to build on and test these findings? Either from the proposed list or beyond?

As stated in our response to Q1, we believe that additional granularity when assessing the range of costs and benefits on all stakeholders would be beneficial. Therefore, in addition to the system CBA which by definition demonstrates value at a system (and therefore higher) level, we would like to see a project level CBA that offers the level of detail that developers will often seek to understand the merit of deployment of new coordinated concepts.

Offshore Connections Review Report

Q1. Do you think that if the areas we are highlighting were improved, that the ability to coordinate projects would be significantly increased?

Yes, in the main we believe that improvements to the areas outlined in the consultation would allow for greater ease in coordinating projects.

When considering the move into phase 2, we would hope to see more details regarding the Regional CION. However, we are in support of the overarching principle of a wider holistic background study that helps accelerate grid connections. We believe this change would have most effectiveness when looking at new projects rather than those already under development.

On packaging and coordinating grid offers with seabed leasing in the medium to long term, we would again like to have more details. Any offers need to be compatible with projects that win seabed leasing rounds, for which the developer will have a preferred connection size, connection point, and connection date in mind. If coordinating and packaging seabed leasing with connection offers can

demonstrably secure these three points to the satisfaction of all parties in a shorter timeframe than the current processes, then we would be in support.

Finally, we have some initial concerns with regard to formalising developer roles in the STC as a Shadow TO and would need additional details before reaching a finalised position. Generators cannot hold a transmission licence, and be formally party to the STC, so whilst a shadow TO role may allow better customer focus, there can be unintended consequences to developers. For instance, they may become subject to additional constraints that they would not ordinarily be liable for unless the shadow TO role is strictly defined.

Q2. Do you think we have missed anything in our offshore connections review that would add value and increase coordination?

We agree with the concerns and issues highlighted in the document and note that a number of these are becoming increasingly concerning for projects – even at present – owing to the lack of coordinated development.

We would therefore suggest some enhancements to certain areas, notably the CION. As noted in the consultation document, the CION process currently sits outside the CUSC and does not have the same requirements around timescales as other parts of the connections process; this is currently leading to delays in finalising grid connection offers until the final outcome of the CION is completed. The uncertainty on the duration of the CION process, as well as a lack of predictability and consistency in the average time for final offers, negatively impacts the ability to coordinate connections.

Our view is that any available development that may improve on the current process should be prioritised. We therefore believe this element should be moved into the nearer term, as opposed to the longer timeframes detailed and hope that this will form an early part of the anticipated work for Phase 2.

Do you have any other feedback, if so, please add below?

We would have concerns about re-opening and reviewing offers in the short-term category that have already been signed. Whilst a regional CION has benefits, projects which have already started works and have committed investment need to be able to opt-out of any new processes. This would be significant for all parties (developer and NGESO and NGET) and impact the investment cases going into CfD as well as revenue recovery for price controls.

Finally, we note that National Grid currently take around ten years to get from the point of application to connection if grid works require a DCO for NG infrastructure. This is whilst using well established technology. We therefore have some concerns over timeframes and think there may be difficulty in issuing connection offers using the integrated approach prior to 2030.