

Offshore Coordination project

Consultation feedback form

We launched our consultation on **30 September 2020** and it closes on the **28 October 2020**.

Please use this form to send in your written feedback. If you would like to feedback via this route. We are also working with stakeholders to receive verbal feedback. Please contact us if you would prefer to provide feedback verbally.

We would like to publish responses to our consultation following its closure. Please can you confirm whether you would like us to treat your response confidentially by selecting one of the options below: (delete those that do not apply)

- ~~Confidential – please do not share the feedback or company~~
- ~~Confidential – you can publish the feedback without our name or sector included~~
- ~~Confidential – you can publish the feedback without our name but you are welcome to identify which sector we come from~~
- **Non-confidential – you can publish the full response**

Throughout the consultation document we have asked some questions on our three reports that we would like your feedback on to shape our final documentation. These are below and do not need answering if you do not have views. If you would like to provide any other feedback, please feel free to do so.

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?

ScottishPower Renewables (SPR) welcomes the work done by NGENSO on this assessment, but we believe that without an Offshore Transmission Network Owner (OFTNO) that could lead the coordination and construction of this integrated approach, the timelines outlined may be challenging to meet. The costs of having an overall architect and coordinator should also be accounted for in the CBA.

We find it difficult to understand the significance of the cost reductions outlined in the report without visibility of unit cost data, and we believe that sharing the unit costs and data behind these cost reductions could be a good transparency exercise. Our experience indicates that overall technology costs and advancements are difficult to foresee as they are subject to global market signals that may not always be predictable. Trying to forecast costs 30 years ahead is a useful exercise when trying to understand future trends but any estimates can be considered no more than indicative for projecting costs and benefits.

The progress and developments necessary around technology readiness levels (TRLs), particularly HVDC cables and HVDC circuit breakers (CB), included in the report seem optimistic based on the network design that's being proposed by 2030 (page 13). Achieving this degree of integration will be conditional on reaching a significant level of maturity in regard to HVDC circuit breakers and HVDC cable sizing, that seems challenging for the end of the decade - judging by the TRLs depicted in the report. Clear market signals should be given to manufacturers in advance of integration, supported by an Innovation Strategy that incentivises developers and transmission owners into the live utilisation of key technologies.

We are concerned about the expectations that these reports might raise, and how critical stakeholders might react based on the assumptions made. In particular, projects that will be commissioning in the mid-2020s already have connection agreements and are preparing for the next CfD auction round and are unlikely to be pursuing integrated connections due to uncertainty of the risk allocation.

We welcome the work that NGESO and collaborators have put into these pieces of information that address technical aspects of a future integrated offshore network, however, as the reports indicate, these assessments and proposals reflect an idealised view which could set dangerous and unrealistic expectations for certain stakeholders. For example, Planning permission processes could be influenced by the conclusions and recommendations of this report, with the assumption that feasible degree of coordination is around the corner with the expectation that technology barriers would be something to overcome along the way. One of the risks for developers is that any delays in planning will obviously impact the timing of participating in CfD allocation rounds. Therefore, we believe the conclusions and recommendations from this report should make it clear that the Integrated network designs proposed for 2030 and 2050 are merely indicative best views of hypothetical integration, and that there is still a need for a realistic roadmap of action to be developed – taking into account other key commercial and regulatory barriers that will have an impact on the final coordinated design.

We agree that technology barriers need to be addressed through learning-by-doing, with a targeted innovation strategy. The outcomes of this exercise, lessons-learned and know-how, should drive the creation of a roadmap of actions and developments to support the stages of the offshore coordination. Technology developments should be considered one of the drivers for coordination instead of one of the outcomes. Hence, as recognised in the consultation documentation, integration before 2030 may not be achievable and changes may need to happen in a phased way for projects connecting in that period, including the outcomes of the innovation strategy for bringing the technology readiness levels to the desired state. Not having an innovation strategy in place in the early stages of coordination could compromise the benefits the industry is expecting to obtain from an optimal offshore network development, creating unintended consequences such as higher unavailability and impacts on network resilience.

It is important to recognise that HVAC will still have a role to play going forward, as many of the projects already in development for the 2020s are based on that technology, and there will be projects in future where radial connections continue to be the most cost effective. Full integration may be the ideal outcome, but project-specific circumstances may change how this integration can be achieved in the most cost effective and competitive way.

Given the current SQSS limitations around offshore connections to 1.32 GW normal loss of power infeed risk, and the fact that a review of the standard would be deemed necessary as soon as possible to investigate the costs and benefits for better alignment of the limits that apply to onshore and offshore networks, we believe that any outcomes from such an assessment should also inform the CBA at a later stage. This would include, for example, any potential implication for an increase in the costs of balancing services, particularly reserves, given larger loss of infeed.

As stated in the consultation, The Grid Code does not fully account for the characteristics of offshore wind farms connected to integrated HVDC offshore transmission networks through meshed connections. Further consideration would need to be given to how to

manage interactions between wind farms connected to the same platform, with turbines from different manufacturers, highlighting the importance of having a coordinator.

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

We would welcome an innovative ‘learning by doing’ approach for bringing this technology to market. We believe this would be most effective in the form of an Offshore Coordination Innovation Strategy with incentives for developers to actively use new technologies, with initial demonstration projects to provide outcomes and lessons learned, feeding into a successful roll-out. Given the limited operational experience, such an Innovation Strategy would help mitigate the risks to developers associated with integrating new technology in the design.

We would welcome conversations between NGENSO, Ofgem and BEIS to develop an Offshore Coordination Innovation Strategy.

In addition, SPR would be keen to support and actively participate in demonstration projects that help bring the technology to market. There are already good examples in GB of industry stakeholder collaboration to accelerate technology developments and bring down costs. The [Carbon Trust's Offshore Wind Accelerator](#) has been working as a collaboration platform between wind developers since 2008. OWA's workstreams have successfully sent market signals to manufacturers to bring down cost and technology barriers. Projects such as [‘Qualification of 66kV inter-array cables’](#) illustrate the benefits of having relevant market participants work towards a common goal. BEIS had previously provided funding to OWA projects until 2015. We believe an innovation strategy could rekindle interest in allocating funding to this kind of platform with a view to achieving favourable integration and meeting the timescales.

We believe any innovation initiative to support integration should also account for 60% local content as indicated by the UK Government.

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

As discussed in Q1, we believe that forecasting progress on developments for technology and readiness levels (TRLs), and its associated costs to 30 years ahead is a useful exercise but should always be considered as merely indicative. Technology costs and developments are subject to global signals that are influenced in part by the UK market but never entirely. This highlights the importance of moving across different spectrums of integration between Counterfactual and best case of integrated approach. in order to future proof the coordination approach without overestimate it.

Q4. Do you have any further feedback on the report?

We welcome an integrated approach and believe that it is the best way forward. However, as stated, we have concerns regarding the optimism of the timelines set out in the report, which are dependent on the availability of technology.

For this reason, we would encourage an Integration Development Roadmap (including but not limited to technology) to be developed in order to help manage the expectations of this project. This could include timelines for milestones on when certain aspects of this integrated approach would be implemented including demonstration projects, regulatory milestones and commercial solutions.

Cost-Benefit Analysis Report

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

Yes, we generally agree with this assessment, but would like to raise a following points:

As before, if unit costs are not shared it is difficult to understand how this was assessed. However, our experience indicates that costs are subject to many drivers that are related to global markets.

We believe that quantifying benefits around CAPEX and OPEX only is limiting the outcomes of the CBA. We would welcome the quantification of environmental and system security costs (related to changes in the SQSS and loss of infeed) KPIs where possible in order to give the CBA a wider picture of counterfactual vs integrated.

Additionally, it is unclear how the CBA is considering supplementary costs for lengthy cables in the integrated approach.

We also believe there is potential for increases in OPEX due to the downtime that is associated with new technologies with limited operational experience which may not be accounted for. The same could be said about the potential for having temporarily stranded assets in an integrated approach that are waiting to be utilised by a successful CfD project.

We are doubtful about some of the outputs of the CBA, for example, the level of curtailments which is slightly higher for the integrated approach than the counterfactual, and the overall carbon intensity which is very similar for both approaches out to 2050. The integrated approach was supposed to support the onshore network to create new ways to take the energy across GB, reducing network constraints and therefore improving carbon intensity. We believe these benefits should be accounted for an integrated approach or, failing that, it should be explained why integration does not achieve wider benefits of boundary reinforcement.

We believe it could be convenient to have a new KPI that covers impacts on local supply chain and local communities.

Overall, it is not yet clear how shared connections will be delivered, and the impacts that this will have on costs and benefits. One of the main barriers to shared connections is the third-party risk that developers will have to take on, which is the main reason that OFTO-led build has not been taken forward to date. Higher risk may mean higher financing costs for either the transmission network or the offshore wind farms, which may reduce the overall benefits. It is essential therefore that we keep in mind the purpose of the offshore transmission network: to enable net zero via higher volumes of offshore wind and interconnection. Therefore, the commercial needs of the developers must not be taken for granted for the future system. Offshore developers operate in a competitive industry where cost can be a critical factor in generation development and connection. In addition to cost, offshore developers must also commit to fixed commercial deadlines. This does not leave offshore developers with sufficient financial flexibility to pre-build or overdesign transmission capacity to accommodate future offshore generation assets that could be owned and operated by another company.

The Offshore Coordination Project recommends that offshore developers move away from the present approach of connecting to the onshore Main Interconnected System via radial circuits and consider an integrated (meshed) system. It should be recognised that there are good economic design reasons for the present implementation that is predominant today for the offshore wind generation. This approach makes economically effective use of the relatively expensive offshore technology currently available for connection of wind

farms. The principal advantage of the radial transmission configurations is the simplicity and speed at which offshore wind developers can move their project forward, without having to wait for other projects and limit dependency on larger transmission reinforcements.

For the offshore industry to move towards an integrated offshore transmission approach, unintended consequences should be avoided in the form of additional costs and risks to developers, that may reduce the competitiveness of projects and have an adverse impact on final consumers.

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

We would like to raise concerns regarding an integrated approach potentially resulting in delays. There is a risk that planning authorities may halt planning consents to await outcomes from this major workstream, and that this will ultimately delay connecting additional projects to the network. We are also sceptical of the availability of proposed technology at specific points in time, particularly before 2030, and how this might delay progress. There is some technological risk that needs to be accounted for in the CBA.

Additionally, we believe that network faults in an integrated approach could have a more significant impact vs. the counterfactual approach due to larger loss of infeed. Those costs could be proportionally calculated and included in the CBA as an indicative estimate in advance of a SQSS review.

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 believe there are potential considerations about environmental impacts associated with larger amounts and footprints of HVDC technology when reducing the landing points across GB that have not been considered in the reports. This needs to be managed strategically, with points identified in advance and early management of environmental and social impacts.

We believe integrated projects may face greater challenges in their planning applications due to the novelty of arrangements, technologies and footprints that would add complexity to the applications. Likewise, planning consents could also potentially become more complex due to environmental risks being picked up later down the line in the planning process. This highlights the importance of Strategic Planning and the need to have a party responsible for this.

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 have concerns regarding the impacts on the local supply chain and benefits to local communities resulting from an integrated approach. Technologies required for the integration will likely only be able to be sourced from overseas unless an innovation strategy and funding is made available to support their development.

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

We see further value in the development and assessment of alternative coordination approaches beyond the single integrated option proposed to date. For example, by taking different dates as the starting point for integration and considering deliverability and the

tipping point between the economics of the integrated and status-quo approaches, this might result in a 'hybrid' approach which is more beneficial. Furthermore, a fully integrated network will take time to develop, with oversized connections being built for projects to connect into at a later date. We would recommend that further work should be done to investigate the costs and benefits of building such oversized connections to areas of potential wind farm development, thus assessing the balance of risk of stranded assets versus the costs of building out extra capacity for future projects..

We believe the CBA would benefit from developing a lifecycle analysis approach to understand the full picture for how each KPI would be affected.

Finally, as previously mentioned, we recommend developing a roadmap with planning of when demonstration projects could be undertaken, and which phase would follow. This could also provide an understanding of current TRL status, as this is not touched upon in the reports.

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, we agree that the areas highlighted are a sensible approach, especially in regards to the regional Connections and Infrastructure Options Note (CION), the formalisation of the developer roles and the codification of the CION. However, we believe the proposed areas of improvement should be flexible enough for maintaining the pace of existing project developments while progressing with changes in favour of a wider coordination.

Furthermore, it is not entirely clear to us how a regional CION process would work with connection offers. For example, would multiple developers be offered the same coordinated connection agreement? For this case, we believe the second phase of this project will need to work in conjunction with these highlighted areas of improvement in phase 1 in order to provide clarity around regulatory considerations such as liabilities and securities, CMP192 (Arrangements for Enduring Generation User Commitment), and Transmission Use of System Charges.

We note that opportunities highlighted for immediate and short-term grid connections may be linked to progress in areas that are going to be progressed in phase 2 of the coordination project, compromising the ability of industry stakeholders to access quick wins for coordination. For example, reopening the CION process without understanding the implications for securities and liabilities, and their impact on projects may be challenging, bringing uncertainty to projects. Reopening the CION also presents significant risks to developers. This needs to be tackled by engaging with developers in the early stages and providing them with transparency regarding the plans, timescales and actions to follow.

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

We believe most of the significant issues/topics are included in this review although, as per previous questions, these are closely linked to workstreams that are included in phase 2 of the Offshore Coordination Project. We encourage NGESO to produce a matrix of interactions between different workstreams to support stakeholders' understanding of how/when the different milestones of the Offshore Coordination Project can be facilitated within a defined timescale.

This matrix of interactions should also be integrated into a wider roadmap which includes other project milestones, beyond and above regulatory, such as a potential innovation strategy.

Do you have any other feedback, if so please add below. Many thanks for taking the time to provide written feedback. When we publish our final documentation, we will let you know what we have done with the feedback and how it has shaped our work.

We welcome the fact that NGESO has made available a wide range of channels to provide feedback on this consultation and we would encourage NG ESO to continue to do so. However, we understand that anonymous feedback has been part of the options for responding to this consultation through webinars and surveys. We believe NGESO needs to apply appropriate weight to different sources of feedback when making further decisions in regard to such complex technical and regulatory issues.