

Offshore Coordination Project:

Offshore Connections Review

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Executive Summary

Approach

The Offshore connections review report sets out the ESO's recommendations on the changes needed to the offshore connections regime, in order to better enable offshore coordination and thereby help achieve the UK Government's net zero greenhouse gas emissions targets.

To develop the report we engaged widely with the industry and other stakeholders to understand the barriers and opportunities within the current frameworks and processes. Having collated a broad range of feedback, we prioritised and then categorised these by when they could be implemented (running from immediate to the long term). These prioritised opportunities form the results within this report.

Outcome of the review

The prioritised opportunities are set out below, summarised by timeframes for their implementation.

Immediate to Short-Term Opportunities

1. Review the Connections and Infrastructure Options Note (CION) process to implement improvements that drive and encourage coordination.

The ESO is progressing a review of the Connections and Infrastructure Options Note (CION)¹ process, to further identify and then implement improvements needed to drive greater offshore coordination. This is being progressed now.

Opportunities for improvement identified within the CION process that we will be considering are:

- The development of the concept of regional CIONs, where a group of connections in a similar geographical area are assessed through the CION process.
- For the ESO to exercise our existing ability to fully or partially re-open the CION, in order to encourage coordination of geographical groupings of projects or following material changes on the customer side.

Medium to Long-Term Opportunities

These are our current proposals for medium to long-term opportunities, that we plan to deliver in our second phase of work. However, some may need to flex dependent on the overall direction of travel set by the Department for Business, Energy and Industrial Strategy's (BEIS) Offshore Transmission Network Review (OTNR)² and how our deliverables align with it. Further proposals may also arise from the assessment we carry out to develop our roadmap of changes for the enduring regime in our Phase 2 work.

Four specific areas of opportunity have been identified for the medium to long-term as summarised below:

- 1. Package or coordinate connection application offers with other processes such as seabed leasing rounds.**
- 2. Review where the risk sits for financial liabilities for offshore connections and ensure that this better encourages coordination.**
- 3. Consider formalising developers' roles in the System Operator-Transmission Owner Code (STC)³ to improve the efficiency and customer focus of the CION decision making process.**

¹ Connection and Infrastructure Options Note <https://www.nationalgrideso.com/document/45791/download>

² <https://www.gov.uk/government/publications/offshore-transmission-network-review>

³ System Operator Transmission Owner Code (STC) <https://www.nationalgrideso.com/industry-information/codes/system-operator-transmission-owner-code-stc>

4. Codification of the CION processes into the Connection Use of System Code (CUSC) to define timescales and provide clarity and consistency.

Conclusions and Next Steps

The opportunities summarised above are the high-level, initial findings from the review. Further work is now required to build on this, in order to refine, confirm and then implement the changes needed to the offshore connections regime.

The proposed approach for progressing these changes varies dependent of the connection timeframes under consideration as follows:

Immediate to Short-Term Opportunities

- We will progress the review and improvements to the CION process. Further engagement and collaboration with stakeholders, BEIS and Ofgem will be included within this work. This activity will be progressed by Workstream 3 of Phase 2 of the project, which encompasses delivering the tactical changes that are required to ensure that integration commences as soon as possible, ahead of implementation of the enduring offshore regime.

Medium to Long-Term Opportunities

- For opportunities identified within the medium to long-term, we propose that these are included within a second phase of the Offshore Coordination Project, subject to agreement on its progression. These will be progressed through Workstream 4 of Phase 2 of the project, which encompasses delivering an industry-agreed roadmap for their implementation.

The Report

Introduction and Approach

The Offshore Connections Review was instigated to identify the limitations within the current offshore connections regime, that are potentially inhibiting the increased coordination of offshore connections and to present opportunities for beneficial change. It should therefore better enable the achievement of the UK Government's target for net zero greenhouse gas emissions across all sectors by 2050.

The Offshore Connections Review had two key aims:

1. For connections in the immediate and short term – confirm whether there are any quick wins that would enable coordination for live or nearly live works.
2. For the medium and longer term – identify those issues and opportunities that could be progressed in a potential second phase of the Offshore Coordination project.

Stakeholder Engagement

Throughout the review, we have engaged with a broad range of stakeholders, including offshore wind and interconnector developers, onshore Transmission Owners, council officials, The Crown Estate and Crown Estate Scotland. We also reviewed previous papers and recommendations on this topic, including papers produced by the Offshore Wind Industry Council (OWIC)⁴ and the Department of Energy and Climate Change (DECC)⁵.

This engagement and review process resulted in the identification of a broad range of issues and potential opportunities, which were subsequently refined down to those with the greatest potential to improve coordination of offshore connections.

These were then categorised as either Immediate, Short, Medium, or Long-term as shown in Table 1, dependent on the number of amendments required to frameworks or codes and level of industry consultation needed to complete them.

Timeframe	Expected connection date
Immediate term	Early 2020s
Short term	Mid to late-2020s
Medium term	Mid to late 2020s to early 2030s
Long term	Early to Mid-2030s and beyond

Table 1: Timeframes used for categorisation of opportunities

This report summarises the issues, opportunities and benefits identified by timeframe, with proposals on how these can be progressed.

Background on the offshore connections process

In order to connect an offshore windfarm or interconnector to the National Electricity Transmission System (NETS), one of the first steps developers need to complete is the submission of a connection application, which involves:

- Completion of the application form;
- Provision of the technical data required by the Data Registration Code (DRC); and
- Payment of the application fee, which is dependent on the transmission entry capacity being applied for and the region.

⁴ Enabling efficient development of transmission networks for offshore wind targets, Ofgem - November 2019
<https://www.ofgem.gov.uk/ofgem-publications/161477>

Sector deal and The Offshore Wind Industry Council (OWIC) - March 2020 - not publicly available

⁵ Offshore Transmission Coordination Project Conclusions Report - DECC, March 2012
<https://www.ofgem.gov.uk/ofgem-publications/51614/20120103otcp-conclusions-report.pdf>

In response to this the Electricity System Operator (ESO) is required to provide a connection offer within 90 days, as set out in the Connection Use of System Code (CUSC)⁶. Running in parallel to this all offshore applications need to progress through the Connection and Infrastructure Options Note (CION) process, which with developer input, determines the most economical and efficient onshore connection point. A revised connection offer is issued following the CION process, which may have a different connection point or date. More information on applying for a connection can be found on our website⁷.

Concerns and issues with current approach

Concerns were raised by stakeholders as to whether the current offshore connections process, and the CION process in particular, will enable the number of connections required to meet net zero ambitions. The key concerns and issues are:

- The connection process is perceived as being disjointed and prolonged, with key milestones potentially several years apart. This means that by the later stages of a connection application many decisions have already been taken and cannot be changed without the connection being restarted. As a result, input, feedback and challenge from stakeholders and opportunities to coordinate between connecting projects can be lost.
- The CION process currently sits outside the CUSC and does not have the same requirements around the timescales as other parts of the connections process. The uncertainty on the duration of the CION process and a lack of predictability and consistency in the average time for final offers negatively impacts the ability to coordinate connections.
- Coordination across several projects is challenging, as the CION process only considers the most economic and efficient way to connect sole applications, without consideration of coordination with other applications, or the potential for further generation in the future. There is also potentially a greater impact on the environment and local communities due to connections being considered individually.
- Offers are currently considered solely in the order of their application with no account taken of the maturity of the individual projects e.g., position in consenting process. This results in situations where projects with lower likelihood of progressing, but which applied earlier, may delay the connection of later, faster progressing projects.
- There is limited communication and collaboration between the ESO, developers and key stakeholders such as local councils and environmental organisations.
- To incentivise greater coordination and minimise disproportionate risk to parties, greater clarity is needed in CUSC Modification Proposal 192 (CMP 192) on how liabilities should be apportioned when multiple parties wish to connect to an offshore network.

Opportunities identified by timeframe

Having reviewed the concerns and identified potential opportunities to address them with stakeholders, an assessment was made of realistic timeframes for the opportunities to be progressed. Summarised below are the findings and opportunities in the timeframes outlined in Table 1:

Immediate-Term

There were no opportunities identified in this timeframe that we believe could be implemented with the required changes to codes and frameworks and industry consensus.

Short-Term

There was found to be widespread support for changes in the short-term to improve and standardise the current connection processes and address the issues summarised previously.

We are currently progressing a review of the CION process to identify and then implement improvements that will drive and encourage coordination. As Phase 2 of the project commences, this activity will be progressed through Workstream 3.

⁶ Connection Use of System Code <https://www.nationalgrideso.com/industry-information/codes/connection-and-use-system-code-cusc>

⁷ <https://www.nationalgrideso.com/industry-information/connections/applying-connection>

One possible solution could be to develop the concept of regional CIONs, where the assessment of the economic and efficient approach to connections and their impact on the overall transmission system would consider a grouping of connections in a similar geographical area. Consideration is also needed as to whether the cost-benefit analysis undertaken during the CION process could be aggregated to reflect this regional approach.

A further opportunity could be having the option to fully or partially re-open the CION process in order to coordinate geographical groupings of projects or following material changes on the customer side.

The mechanism for how these changes could be implemented is currently being explored, with any proposed changes to the CION only taking place with full consultation with industry and other interested stakeholders.

Potential Benefits:

- A more economic and efficient approach to providing connections for a group of new connections in close geographical locations.
- Improved coordination of the assessment of connections, with several applications in a geographical area being anticipated and then assessed together.
- Enables the ESO to facilitate coordination in a clear, transparent and defined way, allowing connection offers to have a robust programme with decision points in the process.
- Provides enhanced visibility to developers of pre-defined areas of connection and capacity, enabling easier access.

Medium to Long-Term

We plan to progress all of the medium to long-term opportunities as part of Workstream 4 of a second phase of the Offshore Coordination Project. However, some may need to change dependent on the overall direction of travel set by the OTNR and how they fit within that. The assessment we carry out as part of our proposed roadmap changes may also suggest different activities or changes to these may be required.

Four specific areas of opportunity have been identified for the medium to long term as summarised below:

1. Package or coordinate connection application offers with other processes such as seabed leasing rounds.

Explore whether aligning and potentially combining offshore connection application offers with other processes such as seabed leasing rounds would encourage greater coordination.

In this activity, we would investigate (in conjunction with The Crown Estate and Crown Estate Scotland) whether it would be possible to package a connection offer with the seabed lease agreement. This is likely to have a knock on effect on other processes such as the CION, the role and concept of which may need reviewing and a new approach developed if appropriate.

Potential Benefits

- This would focus connection applications on a specific time window and would therefore also potentially facilitate the management of applications as a group, resulting in more coordinated, economical and efficient approach with potentially associated reductions in the impacts on the environment and communities.
- This would help address the issue of misaligned timeframes during the connection process, helping to firm up the timing of decision making and availability of information throughout the process.
- If connection agreements are clearly linked to seabed leases this should provide greater visibility and rationality in the order in which projects will be looking to connect and similarly help to prioritise projects with higher certainty of progressing to completion.
- Providing a coordinated assessment of connection applications could potentially increase the availability of future connection capacity, by aiding the efficient development of onshore assets (e.g. system reinforcements) and optimising the use of both onshore and offshore sites.

2. Review where the risk sits for financial liabilities for offshore connections and ensure that this better encourages coordination.

To enable greater coordination in offshore connections a review of CMP 192 is required to identify amendments that are needed to the mechanisms and methodology, to provide greater clarity on liabilities and ensure that their apportionment across all parties incentivises and enables the connection of multiple projects.

Furthermore, developers will need a clear route to market and certainty on delivery of their connection assets. Where this goes beyond the remit of the ESO we anticipate that this will be considered as part of the OTNR.

Background

All users connecting to the National Electricity Transmission System (NETS) are liable for a security to connect known as user commitment liability. Liabilities are placed on users for triggering works on the NETS using the methodology described in section 15 of the CUSC, known as CUSC Modification Proposal 192 (CMP 192).

This process reduces the risk, born by the onshore Transmission Owner, of stranded assets based on likelihood of termination or reduction of capacity. The liability covers broad system investment (Wider), and a specific liability to cover local generator-driven investment (Attributable). Generation projects are liable for their attributable or local amount.

CMP 192 currently works for individual connecting projects, however there are challenges when there are multiple projects connecting. Challenges to coordination as a result of CMP 192 and financial liabilities in general that were identified by stakeholders are outlined below:

- CMP 192 was not designed with coordination in mind and will need to be redrafted in order to facilitate effective coordination, without placing undue risk on any parties.
- Within CMP 192 the mechanisms and methodology used to calculate the security when considering the connection of multiple projects lacks clarity e.g., definitions such as the MITS (Main Integrated Transmission System) node, used to calculate the liability, become less clear.
- Offshore generators are currently more likely to be liable for higher levels of security than those connecting onshore, due to the more distant location of the onshore MITS.

3. Consider formalising developers' roles in the System Operator-Transmission Owner Code (STC) to improve the efficiency and customer focus of the CION decision making process.

Consideration is needed as to whether a more formalised role for developers should be created within the System Operator-Transmission Owner Code (STC), such that they act as "Shadow" TOs during the CION decision making process. This more formalised engagement approach would provide developers with greater transparency and control, and a reduction in the uncertainty on timeframes.

Background

Currently, offshore developers wanting to connect an individual project to the NETS have informal discussions with the ESO ahead of commencing their application for that project. After the application is submitted the relevant onshore TO and the ESO then progress the application and carry out optioneering of the most economical connection site.

Without involvement of the developer, this potentially results in a lack of visibility and transparency of the TO driven work, unpredictability on timeframes and missed opportunities to take a more holistic and coordinated view.

Potential Benefits

- The creation of a formalised "Shadow" TO within the STC would enable developers to be formally involved in the CION process, especially with the proposed grouped studies.
- This would also potentially give developers more direct control over the works that they are reliant on and therefore allow them and others to coordinate more when the certainty is increased.

4. Codification of the CION processes into the Connection Use of System Code (CUSC) to define timescales and provide clarity and consistency.

Consider whether codification of the current CION processes would reduce the risk to developers caused by the changing of connection points after completion of the process, and provide greater consistency and

certainty on timescales. Exactly which parts of the CION processes will be codified and how this will be realised will need to be considered during the potential second phase of the Offshore Coordination Project.

For clarity, the scope of this proposed review would not merely be the translation of the present CION approach into a codified form, rather a full review of the process with the codification of any revised approach.

Background

The current situation where a connection point can be changed after the completion of the CION process can slow the progression of projects, with potential impacts on funding and deliverability.

It has also been noted that there is also no consistency on timescales between different applications for the CION process, presenting uncertainty as to whether projects will complete within required timescales. Financial risks for developers resulting from a delay in a final firm offer can become very material and reduce the chances of projects commissioning.

Potential Benefits

- Although not coordination specific, this approach would be beneficial in streamlining CION offers and ensuring consistency for all connections.
- Defined and codified timescales would provide greater certainty and clearer expectations.

Conclusions and Next Steps

The opportunities summarised above represent our high-level, initial findings of the potential changes required to the offshore connection's regime. Further work is now required to build on this analysis in order to develop, confirm and then implement the changes needed to the connection's regime, in order to encourage and enable increased levels of offshore coordination.

Our proposals for the next steps required are:

Immediate to Short Term Opportunities

- We will progress the review and improvements to the CION process. Further engagement and collaboration with stakeholders, BEIS and Ofgem will be included within this work. This activity will be tracked and progressed by Workstream 3 of Phase 2 of the project, which encompasses delivering the tactical changes that are required to ensure that integration commences as soon as possible, ahead of implementation of the enduring offshore regime.

Medium to Long Term Opportunities

- For opportunities identified within the medium to long term, we propose that these are included within a second phase of the Offshore Coordination Project, subject to agreement on its progression. These will be progressed through Workstream 4 of Phase 2 of the project, which encompasses delivering an industry-agreed roadmap for their implementation. The activities were included in a supplementary delivery schedule to the ESO RIIO-2 Business Plan⁸.

⁸ https://www.ofgem.gov.uk/system/files/docs/2020/12/final_determinations_technical_annexes_part_one.zip



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