



CHANGES INTENDED TO BRING ABOUT GREATER COORDINATION IN THE DEVELOPMENT OF OFFSHORE ENERGY NETWORKS

Consultation response from OGUK

Summary

OGUK is the leading representative organisation for the UK offshore oil and gas industry. Our membership includes over 400 organisations with an interest in the UK's upstream oil and gas, and other energy sectors including offshore wind. As the champions of industry, we work on behalf of the sector and our members to inform understanding with facts and evidence, engage on a range of key issues and support the broader value of this industry in a changing energy landscape. From exploration through to decommissioning and located across the length and breadth of the UK, our members are critical to safely providing security of energy supply, while supporting around 200,000 jobs and contributing billions of pounds to the economy each year. OGUK, on behalf of its members, welcomes the opportunity to provide a response to OFGEM on their review of the Offshore Transmission Networks consultation.

The oil and gas sector is fully aligned with supporting the UK achieve net-zero by 2050, having developed its own Roadmap 2035¹ in 2019 and emission reduction targets for the sector in 2020². The sector recently agreed the North Sea Transition Deal (NSTD)³ with government setting out the role of the sector in reducing emissions from oil and gas production and in delivering the objectives on CCUS and Hydrogen as set out in the Energy White Paper and the Prime Minister's Ten Point Plan. Much of the content of this agreement was based on the Energy Integration Project⁴ produced by Ofgem, with the Oil and Gas Authority and other regulators (summarised in Figure 1 below). This ground-breaking deal is a commitment from both industry and government that will ensure the UK achieves their net-zero future.

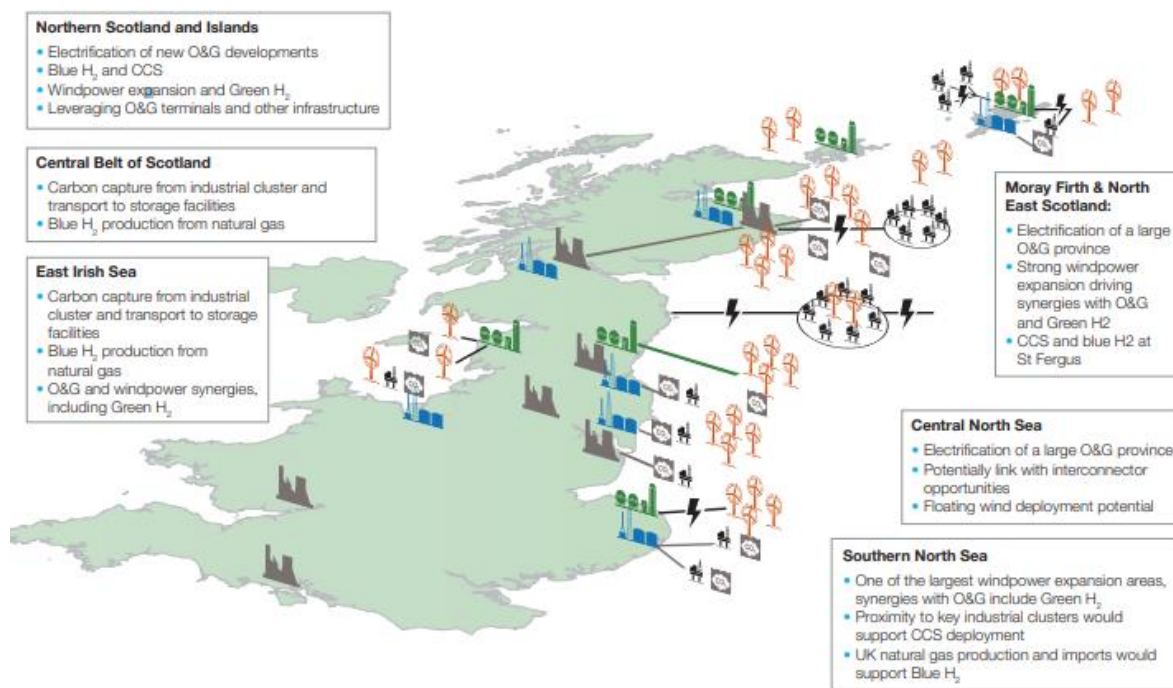
¹ <https://roadmap2035.co.uk/>

² <https://oilandgasuk.co.uk/product/production-emissions-targets-report/>

³ <https://oilandgasuk.co.uk/nstd/>

⁴ [Oil and Gas Authority: UKCS Energy Integration - Final Report - 2020 - Publications - News & publications \(ogauthority.co.uk\)](#)

Figure 1: Summary of EIP Outcomes



Source: Energy Integration Project, page 13

One of the key elements of the NSTD is recognition of the role that offshore electricity networks can play in reducing emissions from oil and gas production. Such networks will also facilitate the development of both CCUS and Hydrogen sectors which will likely use electricity for example, in processing, compression, and transportation activities. Emission reduction of oil and gas assets is increasingly important in delivering investment into the sector and avoiding offshoring of activity through premature decommissioning of assets or forgone development opportunities which will be key in supporting the UK consumers' energy needs.

Indeed the UKCS Energy Integration Project⁵ concludes that *"integration of offshore energy systems, including oil and gas, renewables, hydrogen and carbon capture and storage, could contribute to delivering approximately 30% of the UK's total carbon reduction requirements needed to meet the 2050 net zero target"* where electrification of platforms could lead to abatement of operational emissions of 2 – 3 MtCO₂ p.a. by 2030 – a significant contribution to meeting a net zero target, and 50% emissions reduction by 2030.

In general, the work carried out by OFGEM is welcomed since it recognises that greater coordination of offshore assets and infrastructure will deliver real savings, accelerating investment compared to the existing OFTO and interconnector regimes.

⁵ <https://www.ogauthority.co.uk/news-publications/publications/2020/ukcs-energy-integration-final-report/>

The OFTO regime is not suited to emergent requirements:

The OFTO regime was designed for the one-way transmission of power from an offshore generator to the onshore grid for supply to onshore consumers. However, the reality will be very different. Decarbonisation of the UK North Sea will require the supply of power to multiple offshore oil and gas customers, the potential integration with one or multiple offshore wind farms to provide a portion of this power, and a connection to the onshore grid to provide a means to balance the system. In this type of arrangement, the wind farm's main purpose will be to provide power to offshore industrial consumers with the onshore grid providing top-up power during low wind conditions and allowing excess wind power to be exported during high wind conditions. The cable connection to shore will therefore be two-way with power flow direction being determined by the balance between offshore demand and wind farm generation. We believe that the OFTO regime is not designed with this scenario in mind and should not apply to an integrated oil and gas electrification and wind farm scheme. Building an integrated electrification hub / wind farm brings its own set of regulatory questions and we would welcome further interaction with the Government Regulatory Electrification Group (GREG) led by BEIS to discuss these issues in greater detail.

The OTNR as it is currently designed does not consider the needs of offshore demand users:

Offshore demand for both reliable and affordable power supporting oil and gas electrification and other users of the UKCS is a different application than that envisaged by the OTNR. The review's focus and the current consultation is on the infrastructure needs to support transmission of offshore power to onshore. Failing to recognise the emergent needs of potential offshore users would lead to adverse outcomes for example, increased landing points adding inefficient infrastructure requirements, and also undermine both environmental and community considerations. Striving for collaboration now between oil and gas operators (as future energy consumers themselves), wind developers and future electricity users such as CCUS compression facilities should be a key consideration for both "early opportunities" and "pathway to 2030" if economic costs and installed capacity is to be achieved. A fit for purpose regime for greater co-ordination to reduce infrastructure requirements and achieve targets of 40GW by 2030 should therefore also consider the role in which the oil and gas industry can provide, the bigger picture of reducing emissions and achieving net zero emissions.

The regime should consider how best to rapidly address demand for offshore infrastructure to meet the objective of decarbonising the UK oil and gas production:

The timescale required to achieve a practical oil and gas electrification scheme (or schemes) is at best coincident with the OTNR Early Opportunities workstream. Oil and gas assets in the UK North Sea have a limited remaining lifetime and if electrification is not achieved by 2027 / 28 then a large part of the decarbonisation opportunity will be lost. The current regulatory uncertainty on how oil and gas electrification schemes will be treated is a significant barrier to investment. The Early Opportunities workstream should therefore quickly consider how best to facilitate integrated electrification / wind farm schemes to ensure the oil and gas decarbonisation opportunity is optimised. Integrating an already complex oil and gas electrification and offshore wind scheme into the wider offshore wind infrastructure envisaged under the OTNR may overstate the already tight window of opportunity. However, an alternative approach would be to keep oil and gas electrification entirely outside the OTNR process to facilitate rapid decision making, including the possibility of licence exemptions.

The following sections set out some particular relevant suggestions relating to the different timeframes set out in the consultation. Not all of the questions are relevant at this stage:

Early Opportunities

OGUK and members are supportive of policy which would accelerate the roll out of infrastructure that will support the scale up of 40GW by 2030; and in turn the objectives of Early Opportunities proposal, but the limited time window available to decarbonise the North Sea will require electrification schemes to be in place before 2030.

As discussed above, while the scope of “early opportunities” is primarily intended to adapt the current regulatory regime to support generation developers’ current in-flight projects; **OGUK considers that it is vital to also consider this from the perspective of the evolving intended users and consumers of renewable energy sources**, i.e. oil and gas electrification.

Our members are currently in process of developing proposals for electrification of oil and gas assets across the UKCS. As described previously, current barriers such as the absence of transmission infrastructure, access to electricity at an affordable cost, and regulatory uncertainty currently threatens the economics of these projects.

In addition, it is our judgement that the offshore infrastructure being promoted under the OTNR is likely to arrive too late to facilitate oil and gas decarbonisation at scale. Developing an alternative route to promotion of investment is essential including the possibility of using licence exemptions.

In considering whether there any concepts we have not identified developers (as defined in this chapter) may wish to progress (i.e.. Question 1).

The [six] concepts identified in this section largely aim to support the installation of capacity for renewable energy for use of consumers onshore. Co-ordination of users within a geographical region to make best use of existing infrastructure which would reduce infrastructure requirements, cost and landing points would be welcomed. **However, the concepts shared don’t include for offshore demand and the timescale envisaged for an offshore transmission network to emerge is likely to be too late to facilitate large scale oil and gas decarbonisation.**

An example of a likely integrated electrification / offshore wind scheme is illustrated below. As described previously the primary purpose of this scheme is to provide power to the offshore oil and gas assets. To make this scheme work, both technically and economically, power has to be able to flow in either direction down the cable linking the scheme to the onshore grid.

Shared offshore transmission system

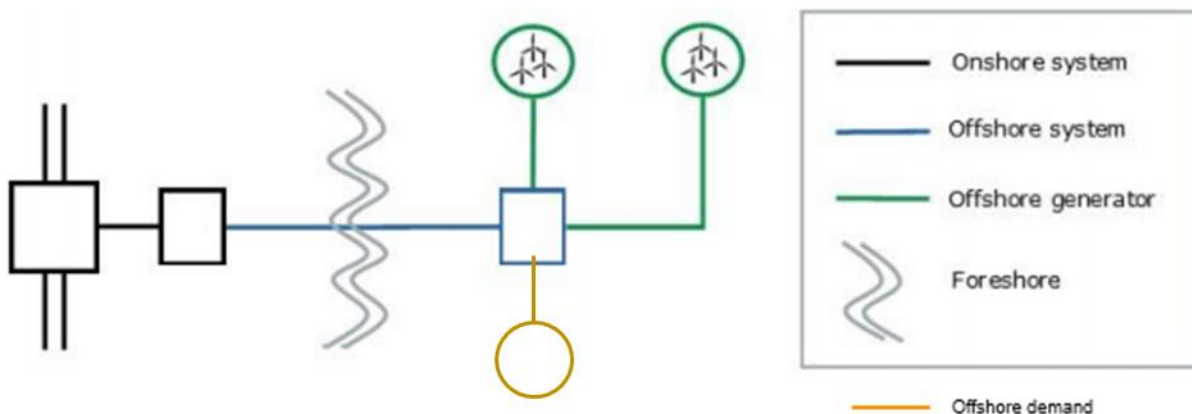


Figure 4 Shared offshore transmission system concept

Note key points with the adaption of figure:

- 1) Offshore electricity demand provided by offshore oil and gas assets;
- 2) Wind farm primary purpose to provide power to offshore oil and gas assets
- 3) Onshore connection to balance the system – provides top-up power during low wind conditions and a potential export route for excess power during high wind conditions.

In considering the regulatory framework for “Early Opportunities”, the challenge of attracting investment into an oil and gas electrification scheme will depend on the regulatory framework applied, the risk/reward balance and the overall economics of any scheme. Schemes designed to facilitate offshore decarbonisation through electrification will be bespoke to that purpose and should be treated as such.

For such cases there would not necessarily be a need for other end users to contribute to the costs or the associated risks since the contribution from offshore users would likely cover the additional costs. Therefore, this approach would be unlikely to require a Significant Code Review even if this would be needed for other types of anticipatory investment to facilitate future rounds of generation investment.

There should, therefore, be specific consideration of other users of renewable energy such as oil and gas assets and we would propose treating schemes built primarily for the decarbonisation of the UK North Sea separately from schemes designed primarily to provide power to the onshore grid. Commitments by industry to achieve emissions reductions has already meant potential electrification clusters are beginning to form notably around the Central North Sea, Outer Moray Firth and West of Shetland. For these to have the best chance of successful development will require the appropriate regulatory regime to be in place.

Pathway to 2030:

OGUK and its members support the premise of the Pathway to 2030 with regards to the need to drive greater coordination of offshore projects both in terms of delivering the Government target of 40GW by 2030, contributing to the Sixth Carbon Budget but as well to delivering effective solutions which will ensure the electricity transmission system is planned and built in a more coordinated way.

It is recognised that if the UK is to achieve net zero by 2050, a holistic consideration should be applied to ensure users of the UKCS and surrounding waters delivers synergistic benefits in meeting the target. Improved incentives for infrastructure developers (wind, OFTO and others) to deliver, synergy benefits and anticipatory investment mechanisms associated with accelerating collaborative infrastructure development should also be a key consideration to achieve the 40GW target and, to meet oil and gas electrification requirements for affordable and reliable power within a pragmatic timeframe. The electricity demand for carbon capture and hydrogen production are also relevant.

A holistic network design would therefore be one which considers the full users of offshore energy and its energy demand needs. The approach taken should be integrated with objectives of other regulators for example OGA Stewardship Expectation 11, where *“OGA expects the Upstream Oil and Gas Industry to reduce, as far as reasonable in the circumstances, Greenhouse Gas (“GHG”) emissions from all aspects of their upstream operations. This includes: the development of new hydrocarbon projects; existing producing assets;.... and the progression of potential energy integration/net zero solutions to assist the Secretary of State in meeting the Net Zero Target”*⁶.

Therefore, in the build up to pathway to 2030, spatial development for the most efficient design of network and future users is fundamental to unlocking many of the key barriers. Key clusters such as CNSE (Central North Sea Electrification); OMF (Outer Moray Firth) and West of Shetlands pose significant interest to both oil and gas consumers but wind developers for electrification and strong wind expansion to support growth sectors such as floating wind. The recent consultation by the Scottish Government on additional areas for renewable investment to support offshore operations is relevant in this respect.⁷

However; unlocking and realising these clusters will require significant tripartite collaboration between regulators, wind developers and oil and gas operators if the cost of capital (project economics); regulatory processes (connection processes) and, price of power (removal of levies) is to be improved. Ultimately, supporting net zero remains a key objective while providing secure, safe, affordable and reliable energy to the end consumer. To that end, it should not be forgone the potential benefits of offshore electrification of oil and gas assets to the end consumer for the following reasons:

- 1) Electrification of assets enables cleaner generation of power demand, thus providing lower carbon gas for the end consumer while reducing greenhouse gas emissions
- 2) Via synergies of offshore wind infrastructure and the capabilities of the oil and gas sector; unlocking the full benefits of the GB waters will enable the roll out and scale up of offshore

⁶ https://www.ogauthority.co.uk/media/7184/se11_net-zero.pdf

⁷ <https://marine.gov.scot/data/sectoral-marine-plan-offshore-wind-innovation-and-targeted-oil-and-gas-decarbonisation-intog>

wind therefore providing the opportunity to deliver a proportionate share of renewable energy into the electricity transmission network. Storage of energy is also key enabler of renewables and the correct infrastructure offshore could allow at scale of Hydrogen generation, geological CO2 storage, export of the Hydrogen by using existing infrastructure.

A more holistic approach to identifying investment opportunities would imply strong involvement from the ESO (and the future independent system operator – if relevant). Future transmission investment will be less likely to be radial connections.

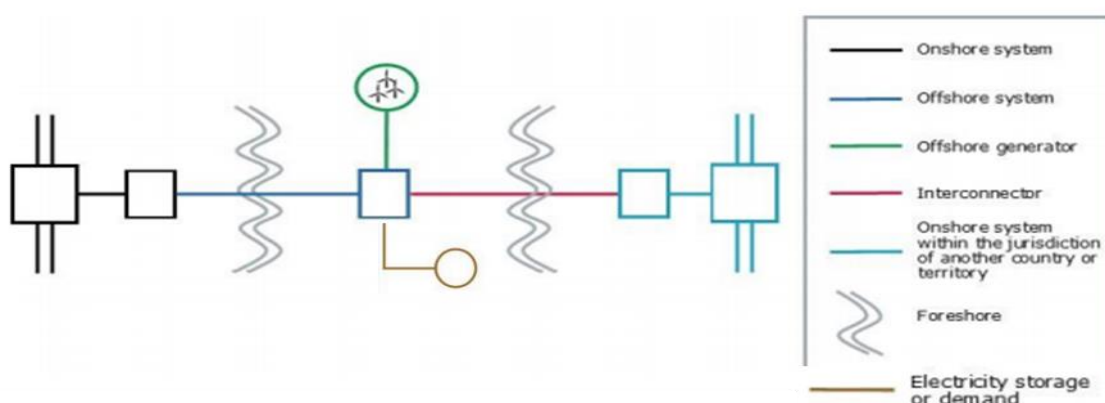
In terms of the developer model for UK transmission infrastructure aimed primarily at the expansion of offshore wind to provide power to the UK mainland OGUK members are relatively agnostic so long as secure and reliable power can be secured on a rapid timeline, at an acceptable cost. However, oil and gas operators are unlikely to be able to support wider risks or costs associated with the wider investment in offshore transmission infrastructure. As a relatively small (demand) user of the transmission system over the life of the infrastructure, we would expect the highest proportion of the transmission development costs to borne by power generators rather than demand customers. This would be fundamental in unlocking key constraints and within the regulatory control of OFGEM to support and protect consumers interest, where the consumer in this regard would be oil and gas demand users and therefore proportionate to the regulatory control and responsibilities of OFGEM.

The cost recovery mechanism for use of infrastructure takes account of the scale of transmission demand and duration of that demand, as well as an equitable treatment of developer risks. As well as commitment to infrastructure development, clarity will be required on the cost recovery mechanism and costs of delivered power.

Multi-purpose Interconnectors

OGUK general comments on this section is that both the regime for MPIs and the Enduring regime requires additional policy development. This includes the future degree of integration of the GB electricity system with the European Union.

OGUK would also welcome the consideration of the potential to electrify oil and gas assets as set out in the adapted version of Figure 7 below. Recognising the scope of the consultation was intended for





users of electricity onshore, there are some considerations which would be particularly useful when taking a holistic approach to offshore energy users.

In this regard, it would be sensible not to make definitive policy arrangements in terms of, for example, whether projects would be “led” by OFTOs or interconnector projects or on the balance between regulatory driven investment versus spontaneous or exempt investments. That being said, the greater the extent of the offshore networks, the more that these will need to be fully integrated in the overall GB and European transmission systems.

Ofgem and BEIS should allow for a flexible and outcome focused regime which will allow for regulatory evolution.

OGUK Sustainability Team
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