

Research study into the North East offshore wind supply chain

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Authorisation and Version History

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1.0	24/03/20	Jon Stenning	Executive Summary of Final Report

Executive Summary

The UK government has recently updated the Climate Change Act, to increase the rate of decarbonisation of the UK economy and reach net-zero GHG emissions by 2050. This will require stringent policy in order to be realised, and the UK electricity generation network will have to decarbonise more rapidly than previously anticipated in response. At the same time, the government's Industrial Strategy has outlined key priorities for the coming years, including the Offshore Wind Sector Deal, detailing ambitious aims for the offshore wind sector. Local authority and LEP-level economic strategies are seeking to prioritise good quality jobs and increasing local productivity. In the context of this national and regional policy, the offshore wind sector can play a major role in the economic development of the North East.

The research study into the North East offshore wind supply chain seeks to provide a better understanding of the opportunities the offshore wind sector presents for economic growth and employment in the North East, and how the North East LEP and other regional stakeholders can support the local supply chain and deploy the wider regional asset base to realise this value.

What local economic impacts are created by future offshore wind sector opportunities?

The offshore wind cluster located in the North East has many existing strengths, such as an extensive and well-connected supply chain, leading innovation and testing facilities, good infrastructure, and an extensive skills and knowledge base built upon a long maritime and engineering heritage. Given the current capabilities and competitive advantages of the North East's offshore wind industry, the Offshore Wind Sector Deal (the Deal) offers a major opportunity for the region, with the North East also recognised as a key region for delivery of the Deal's national ambitions. A key question is precisely how large the impact on the North East economy could be under different assumptions about the level of involvement of the region's supply chain in delivering future projects within the UK and overseas.

The potential GVA and employment effects from future expansions in the offshore wind installed capacity in the UK were estimated using a purposebuilt Offshore Wind Model, originally developed by Cambridge Econometrics (CE) for RenewableUK.

In the next decade, total offshore wind employment in the UK could peak at around 25,000 jobs

Based on the expected future installed capacity up to 2030, Cambridge Econometrics' Offshore Wind Model estimates that total employment in the UK's offshore wind sector will peak in 2024, driven by peaks in demand for labour-intensive installation and manufacturing output. In 2024, total UK employment across all stages of the offshore wind direct supply chain reaches just over 24,500 jobs, over twice the current number of jobs in the sector. In 2030, when 35 GW of UK installed capacity is expected, there are estimated to be just over 19,000 jobs across the UK in the direct supply chain of the offshore wind sector. These estimates are based on projects which are currently consented or under construction.

A range of scenarios are explored to investigate the impacts in the North East

To estimate the contribution of the North East to the development, production, installation, operation and decommissioning of future UK offshore wind sector developments, assumptions were made on the relative contribution of businesses located in the region to each stage of the supply chain. A range of scenarios were developed in which the contribution the North East makes to the overall UK offshore wind supply chain is assumed to change, in most cases reflecting efforts to increase obtained market share:

- Scenario 1 is a 'positive' scenario in which the North East region successfully attracts a manufacturer, and/or associated supply chain, of nacelles, rotor blades or towers for large wind turbines into the region.
- Scenario 2 is a further positive scenario in which the North East's share of global activity increases steadily.
- Scenario 3 is another positive scenario where it is assumed that there is consolidation of the offshore wind industry, in response to a larger UK pipeline but at tighter margins, leading to the North East's share of the UK market increasing.
- In Scenario 4 it is assumed that as the global industry expands, so do the benefits of large volumes of manufacturing taking place in low-cost parts of the world, and hence the North East's region's position in balance of plant and decommissioning is diminished, leaving the North East with a smaller portion of the global industry than currently.

A peak in employment is reached in 2025 across all scenarios

In all scenarios, employment gradually increases between 2019 and 2025, as the deployment of offshore wind energy increases across the UK. While the model estimates a decline in the number of jobs existing within earlier stages of the offshore wind life cycle between 2025 and 2027, employment in earlier stages of the supply chain could reasonably be expected to continue momentum past the 2025 peak estimated by the model. This is because the model only takes in to account current planned projects and does not take in to account future projects which enter the pipeline. After 2027, total employment in the sector is also strengthened by a growing number of jobs in later stages of the supply chain, such as operations and maintenance and decommissioning services.

Strengthening the North East's overseas offering and attracting manufacturers offers the greatest direct economic opportunities

Scenario 2, in which the North East's share of global activity increases steadily, is the scenario in which the highest number of jobs are created within the direct offshore wind supply chain, reaching a peak of 4,600 in 2025. The general trend in the levels of gross value-added follow that of employment in the region over the period 2019 – 2030, with a peak in all scenarios noticed in 2025. In terms of GVA, Scenario 1, in which the North East region successfully attracts a manufacturer and/or supply chain of nacelles, rotor blades or towers for large wind turbines into the region, generates the highest levels of economic output of all the scenarios.

Further, knock on economic benefits are also experienced in the North East

The knock-on impacts of the increased investment in installed offshore wind capacity, once the effects have fully circulated through the economy are also considered. These wider economic impacts include the impact on the wider supply chain considering upstream providers (indirect impacts) and the impacts on household spending considering increased employment leads to higher aggregate household incomes (induced effects).

The results of the analysis show that in 2025, when a peak in direct economic benefits is experienced, up to a further 2,500 jobs may be created and up to an additional £144m GVA generated (in Scenario 2 for example) in additional sectors such as construction, employment services, architectural and engineering services, management consulting services and land transport services located within the North East, as an indirect result of a growing North East offshore wind sector. Furthermore, within the North East region, up to 1,600 additional jobs may be generated in the most optimistic of the scenarios (Scenario 2) in 2025, as a result of increased household spending. These jobs will typically be created in sectors in which households spend a large proportion of disposable income, such as retail and leisure activities.

A number of international opportunities exist

The global offshore wind sector has expanded significantly in recent years, with installed capacity more than tripling globally between 2011 and 2017. By the end of 2017, nearly 84% of all offshore installations were located in the waters off the coast of eleven European countries, the rest being located mainly in China and other Asian countries. Europe is expected to continue the expansion of its offshore wind sector installed capacity, but the bulk of future expansion is expected to come from China. Other countries with ambitions in the offshore wind sector are South Korea, Japan, Taiwan and the US. Untapped markets represent sizeable opportunities for the North East offshore wind sector, which could gain market shares thanks to favourable business conditions, government support and its specific strengths.

In particular, given the presence of trade barriers and focus on local content by individual governments, the North East could benefit from the provision of services and expertise, to help countries with nascent offshore wind industries to develop a local supply chain. The US is deemed to be the most attractive destination for North East's exports because of a local supply chain needing advice and lower linguistic and cultural barriers which would facilitate the establishment of joint ventures between North East and American companies. However, all export markets present potential opportunities for the region.

Key takeaways of the analysis

The North East cluster has many **existing strengths and opportunities**; it is a **strong player** in the UK industry and a key region for delivery of the Deal's ambitions, with first mover advantages and has the opportunity to lay the groundwork for **further development during the global expansion** of the industry.

Assuming a continuation of its current position in the UK sector, in the next decade employment in the North East cluster's direct supply chain could reach **3,500 jobs and be worth up to £140m in GVA**.

Further development of the sector, by strengthening the supply chain, strengthening the region's export offering or using existing strengths to dominate the UK market **could reap additional economic rewards**.

With further strategic development, the number of jobs existing in the direct supply chain of the sector could reach **4,600 jobs and generate up to £180m in GVA**.

Furthermore, **an additional 3,000 – 4,000 jobs could be supported by the offshore wind sector through indirect supply chains and other economic impacts** within the region.

Therefore, total jobs in both direct and indirect supply chains for offshore wind could reach over 8,500 with strategic development of the sector.

Plus an additional 2,000 – 3,000 jobs could be supported in the rest of the UK as a result of increased activity in the North East's offshore wind sector.

Recommended strategic interventions

Finally, all the key findings have been brought together to form evidenced policy recommendations, which could support the development of the North East's offshore wind industry:

- The North East would benefit from enhanced coordination and cooperation between local firms. Such collaborations should focus on business development, skills and innovation, in order to play to the region's existing strengths. Cluster bodies should coordinate collaborative programmes across these topics between firms. Current cluster structures, such as the Energi Coast cluster body, should build on its current position and provide the platform for development of focused programmes of cluster development action including in skills and innovation.
- The North East offshore wind cluster can be strengthened by developing stages of the supply chain where it is currently less well represented. Currently, no wind turbine manufacturing takes place within the region. Attracting inward investment from a manufacturer or the supply chain of either nacelles, rotor blades or towers for large wind turbines would strengthen this stage of offshore wind development, completing the North East's offering. However, attracting inward investment should not be limited to turbine manufacturing stage of the supply chain, but sought across all stages.
- There is the need to provide certainty for potential investors by ensuring the required infrastructure is in place to support manufacturers and supply chain businesses. The creation of a port infrastructure fund would ensure that the ports located within the region can facilitate large scale manufacturing and installation.
- A skills programme should be developed, to ensure pathways are in place to meet the anticipated needs of offshore wind firms. Such a programme should be designed in collaboration with project developers, existing local firms operating in the offshore wind sector and local universities and educational institutions.
- An innovation programme should be developed, with central involvement of key innovation organisations. This should be supported and coordinated under the umbrella of a cluster body, to include the wider ecosystem of firms surrounding the core offshore wind supply chain.
- A stronger relationship should be built with central government, in order to be able to draw attention to matters important to the North East. In the context of this study, such matters include the aims of the North East's local industrial strategy and the development of its offshore wind cluster.
- The UK's future trading relationship with the EU is currently uncertain. The negotiated deal will have inevitable consequences for trade between the UK and other European countries, including trade in goods and services related to offshore wind. Export opportunities in developing markets further afield would become increasingly important in a no-deal scenario. Local policy makers can assist firms in the North East by consulting with them to fully understand what support would be required in the event of the introduction of substantive trade barriers, and to understand the desired requirements when negotiating trade deals with other countries. Furthermore, greater support from cluster bodies can also be extended to help the North East cluster strengthen its export offering. By promoting the region's supply chain capabilities, innovative technologies and practices, and existing infrastructure, the region can be showcased to overseas developers.