

# Offshore Wind – The socioeconomic impacts on the Scottish economy SUMMARY

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## **Introduction**

IPCC (2014) has recognised renewable energy as one of the important mitigation measure to reduce atmospheric CO<sub>2</sub> to below pre-industrial level of 450 ppm by 2100. As part of UK government's plan to reduce greenhouse gas emission, a target has been set for a reduction by at least 80% of 1990 by 2050 through the Climate Change Act. Relatively shallow offshore water and strong wind makes UK the ideal condition for the development of offshore wind farms. The consistency of wind and higher wind speed offshore allows the turbines to produce more electricity than onshore wind turbines with reduced noise effect and visual impacts on local community. On an analysis report by Cebr, it was highlighted that UK offshore wind sector could provide Gross Value Added (GVA) of around £7bn (excluding exports) and over 30,000 full time equivalent (FTE) UK jobs by 2020. Meanwhile, Scotland has the availability of around a quarter of Europe's potential offshore wind resources. In Scotland, several wind farms have been consented and some are in construction stages while on road to generating the equivalent of 100% of electricity consumption from renewable sources by 2020. The Scottish government has so far granted planning consent for over 4GW of new wind farm projects in Scotland therefore creating several employment opportunities.

### **Aims and Objectives**

This report aims to investigate into the progress made by offshore wind industry in terms of direct, indirect and induced employment opportunities created in Scotland. The report has assembled three different case studies scenarios to compare wind farms at three different development stages in Scotland; Under construction, operational and decommissioning stage

### **Methods**

The report assembled three case studies including Beatrice Offshore Wind Limited (BOWL) in construction stage, Robin Rigg in operational stage and Beatrice Demonstrator in decommissioning stage. The wind farms were accounted for the number of employees hired in Scotland, training and apprenticeship opportunities provided, partnership fund and UK content using media sources and published reports by the owners and associated companies.

## Results

The Beatrice Offshore Wind Limited (BOWL) owned by SSE, Copenhagen Infrastructure Partners (CIP) and Red Rock Power Limited is a £2.6bn project which will consist of 84 wind turbine generators with a generating capacity of 7 Megawatts (MW) each. The construction of the wind farm began in March 2017 and is expected to be completed and start operation in 2019.

The operation and maintenance facility for the wind farm which is under construction in Wick is expected to create 65 peak time jobs and 95 long term jobs in locality. SSE further hopes to contribute towards improving socio-economic condition by providing initial skills training programs and apprenticeships during the operation of the project.

Tier 1 supplier of the project include Seaway Heavy Lifting (SHL), Nexans and Siemens. Siemens has built its new manufacturing plant in Hull where the blades for the wind turbines will be manufactured. The manufacturing plant had been expected to employ 1000 employees in Hull.

Nigg Energy Park in Highlands is being used as the main construction port which has created 100 direct and indirect jobs in the area and helping local economy. An UK based engineering company – Babcock has been awarded with a contract to build two Offshore Transformer models (OTM) which will be built at one of their three sites located in Rosyth. Babcock has a great reputation for providing local employment opportunities as they support 8000 direct, indirect and induced jobs combined in all three sites. Babcock has further improved the socio-economic impact of Rosyth and Clyde by providing over 14,000 days of training on Marine and Technology.

The design and delivery contract of a piling template instrumentation and control system has been awarded to a Dutch company Seatools and the contract for turnkey supply and installation package of the inner grid cable was awarded to Siem Offshore Contractors (SOM) based in Germany. The companies are likely to hire employees from Netherlands and Germany and therefore Scotland based companies are likely to miss out on creating further employment in the locality.

Burntisland Fabrication Limited (BiFab) is Scotland based company (Fife) which has secured a £100m contract to build 26 subsea jackets which has secured 200 jobs in Fife. An

apprenticeship training is also provided by the company which has trained over 100 participants since 2007. The contracts to build the rest of the jackets has been awarded to Belgian and Danish companies.

In total, SSE claimed to have spent £25m on Scotland based supply chain contracts in the development phase until 2016. According to SSE, out of £2.6bn project investment, 45% is expected to be within UK and 22% of the 45% of UK investment is expected to be captured by Scottish firms. Such investment has the potential to create 5,800 jobs in Scotland and 18,100 jobs in UK.

The Robin Rigg is a £381m investment of 60 wind turbines each with 3.6 MW capacity in the Solway Firth off the coast of Scotland. The operational base and grid connection of the windfarm is located on the north coast of Cumbria in England. The construction of the wind farm began in 2007 and completed in 2009 and full generation began in 2010.

According to an analysis by BVG associates, 63% of the supplier's contracts were awarded to overseas companies and 37% to UK based companies. The UK content during the construction was 32% which mainly consisted of project management contracts. Dumfries and Galloway and Cumbria received 3% and 4% of all the project management contracts respectively. Furthermore, it was mentioned that the contracts awarded to places local to wind farm were small in value therefore making a small contribution to the socio-economic situation. Other UK based contracts awarded include webGIS system management contract to SeaRoc which is based in England and environmental consultancy in Dumfries and Galloway. The 56% of installation and commissioning contracts were awarded to UK firms, of which 21% was awarded to Scottish firms.

Although Robin Rigg was the first commercial scale offshore wind farm in Scotland, the operational base located in England meant that Scotland could not fully benefit from the employment opportunities from the wind farm.

The Beatrice Demonstrator project was consented to be built in 2004 consisting of two 5MW turbines 22km off the coast of north-east Scotland. The demonstrator project was built to examine the feasibility of a commercial windfarm in water. The wind turbines were manufactured in Nigg Yard in Highland and 30m project was completed in two stages for commissioning of two turbines. The jackets were also built in the BiFAB plant in Arnish and Burntisland which could have created several employment and socio-economic benefits.

The decommissioning of the demonstrator project was announced by the owner when it was indicated that there was no potential to incorporate the two turbines into the new bigger BOWL project. Although the quantitative benefits of the demonstrator project were not accessible, the contracts for jackets, and piles suggest there could have been a positive impact. Furthermore, the wind turbines reduced the Beatrice Alpha oil platform's demand for electricity from the grid by around 30% providing an environmental benefit as well as innovation for further research and investment to be set towards offshore renewables in Scotland.

## **Conclusion**

The report briefly summarises the main findings about the current and potential socio-economic impacts of offshore wind farm industry in Scotland. Due to a lack of fully operational offshore wind farm with offshore transmission facilities based in Scotland, there are a lot of uncertainties in the potential economic impacts that an offshore wind farm could offer. However, the commitment from the Scottish Government towards promoting renewables in Scotland has been an encouragement for companies to further invest in the field. The shallow water and highly windy weather conditions make Scotland ideal for potential future investment in the industry. However, it has been recognised through three case studies that Scotland requires investments in turbines manufacturing which could generate the highest jobs opportunities and improvement in socio-economic conditions of Scotland.