Section 2

Sectors in change
Case Studies

UK offshore wind power generation

Increased electricity generation from renewable sources will be crucial for Europe to achieve climate neutrality by 2050. In the UK, strong government support for the offshore wind industry has enabled the sector to grow substantially over the past decade. Although the offshore wind industry is not yet a major employer, future potential employment is significant. Offshore wind may also provide alternative employment for offshore oil and gas workers as that industry contracts.

Overview

The UK is the global leader in the offshore wind power generation sector, with installed power generation capacity of 8.5 GW in 2019, a mature supply chain and world-class engineering expertise. In the UK, 8 per cent of national electricity is generated through offshore wind (up from 0.8 per cent in 2010).[62] In 2018, the sector employed an estimated 7,200 full-time equivalent (FTE) and generated £3.7 billion of turnover.[63]

In 2019, the UK government set out its ambition for the sector, including a target of 30 GW of total installed capacity (providing one-third of national electricity generation), and an aim to employ 27,000 highly skilled workers in the sector by 2030.[64] In support of the latter there are to be measures to develop new curricula and accreditation, and to facilitate job mobility between energy sectors (eg from oil and gas).

Interactions with megatrends

Automation could make operating wind farms more efficient and safer, but will need highly skilled individuals who are capable of deploying automated systems and analysing data, implying an upskilling of the current workforce and job creation rather than replacement. For example, technicians currently working offshore could be reskilled/upskilled to deploy robots from land and to analyse the wealth of data gathered from autonomous systems.[65]

Offshore wind is an example of a truly globalised sector, where ownership, components and expertise travel across borders. As a result of the legacy of sectors such as automotive and oil and gas, the UK has developed world-renowned expertise in the offshore energy domain. The country is currently the global sector leader for installed capacity and engineering expertise, and is exporting its products and services around the world.

In 2018–19, UK-based companies signed at least 317 offshore wind contracts in 15 countries, for a maximum contract value of £8.8 million and a total combined value per company up to £53 million, offering services such as blade transport and installation, cable protection systems, equipment and engineering expertise.[66] However, few wind farm owners and big suppliers are of British origin:[67] Ørsted (Danish), Vattenfall (Swedish) and E.ON (German) accounted for 64 per cent of UK market share in 2018.[68] Many smaller businesses are also foreign owned (eg the Polish JDR Cables, leader in the cable segment).

Implications for jobs and skills

A 2017 study by Cambridge Econometrics estimated that, by 2032, the UK offshore wind sector might provide 21,000 FTE jobs – more than doubling from current levels. Indirect and induced employment, such as jobs that are part of the supply chain to the sector or those, supported by the wages of workers in direct and indirect employment, like retail, could result in an additional 37,000 FTE positions, bringing the total number of jobs supported by the offshore wind sector to 58,000 FTE. Within the offshore wind sector, technical professionals is the prevalent occupation and most jobs are expected to be created in the North East of England and in the Humber region.[69]

Skills that will be crucial in the development of the offshore wind sector include: engineering and technical skills (mechanical, electrical and control & instrumentation, blade and turbine technicians, with an increased role of IT skills), scientists (with degrees in disciplines such as marine biology, geophysics, hydrography, oceanography) and offshore-specific skills (working in confined spaces, working at heights, team working, team living). The UK has traditionally been capable of producing a world-class offshore workforce employed mainly in the oil and gas sector, whose skills could be easily transferred to offshore wind.[70]

However, supplying the skilled workforce needed to meet the expansion of the sector might be challenging. It is estimated that the UK is already short of 20,000 engineering graduates per year for all sectoral demand. Moreover, attracting talent could be more challenging for small and medium-sized enterprises (SMEs) (which represent the bulk of the UK offshore wind sector) than it is for large companies.[71]

Case Study
How Iberdrola leads on offshore wind: a commitment to talent and skills development

For two decades, the Iberdrola Group has been supporting the clean energy transition. Its UK-based subsidiary company ScottishPower plays a key role within the Iberdrola Group in the provision of offshore wind-related training and talent-fostering at a global level.

In recent years, ScottishPower has worked actively to improve diversity in the workforce and to increase mobility between offshore renewables and extractive industries. For example, ScottishPower Renewables (SPR) is involved in the creation and development of training courses at the East of England Offshore Wind Skills Centre. As a part of their £55,000 donation, SPR sponsored ten places on an 'Offshore Wind Transition Course', which is aimed at individuals with previous experience in engineering and focuses on key elements such as working at height and Global Wind Organisation basic technical training. SPR also collaborates with the centre to ensure that the training meets the needs of the sector and can be adapted as the industry evolves. SPR staff members from the local operation and maintenance (O&M) facility regularly attend the college to provide career talks and interview training. One of the early success stories includes the recruitment of a local Lowestoft resident as a trainee balance of plant technician, following on from their successful completion of the funded transition into offshore wind training.

Top: Wikinger (350 MW) located in Germany

Bottom: East Anglia (714 MW in 2020, up to 1,200 MW by 2024) in the UK. Credit: Iberdrola