UK COMMISSION FOR EMPLOYMENT AND SKILLS

# Maximising employment and skills in the offshore wind supply chain

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# Executive Summary

## Introduction

The offshore wind energy sector has been identified as having the potential for employment growth in the next decade. This study is intended to explore the extent and nature of that employment growth and implications for government, employers and other stakeholders in light of current spending and policy priorities. In particular the research explores the role that skills demand and supply may play in helping the sector achieve its full potential; and the lessons for other emerging sectors that might help to rebalance the UK economy[1]. The study's aims were to identify:

- risks to making the most of the employment opportunities afforded by offshore wind energy generation; and
- responses to those risks and potential actions that could be taken by government, industry, firms, individuals and providers of education and training to make the most of the offshore wind energy sector's employment and skills potential.

The first phase of the research comprised a wide-ranging literature review on the public policy environment and the offshore wind energy sector, including previous research on employment forecasts, and a series of bilateral consultations with employers, training providers and other stakeholders in the sector. The findings of this initial phase were analysed and synthesised for calibration at two policy-workshops, which were also used to discuss potential actions on skills issues. Two in-depth supply chain case studies were conducted on existing offshore wind farms to draw out learning, practice and observations for the future. In preparing the final report, the study also drew on the latest employment forecasts for the sector.

## Public policy environment

The review of the public policy environment identified factors influencing the UK offshore wind energy industry and their implications for public policy on employment and skills in the sector. The key findings were as follows:

[1] This project links to another UK Commission project '*Rebalancing the economy sectorally and spatially*' given its focus on understanding the employment and skills potential of a sector that is expected to grow, with a supply chain that is often associated with 'peripheral areas' and lagging regions. See Pringle *et al*, (2011) for the report on *'Rebalancing the economy sectorally and spatially*'.

- The UK is moving from a carbon intensive to low carbon economy. The UK government is also seeking to rebalance employment from the public to the private sector, as well as to rebalance the economy spatially and sectorally. These policy objectives may impact on the development of the offshore wind energy sector.
- Work undertaken on the 'green economy' in the European context indicates that the responses to these challenges are likely to include efforts to 'top-up' (a) 'generic skills' e.g. leadership, communication, team working, project management; (b) 'generic green skills' e.g. resource efficiency; and (c) 'specialist green skills', as part of efforts to enable workers to make an effective transfer to the renewables sector. In the case of offshore wind energy specifically, many of the skills required are traditional power generation skills, e.g. those associated with electrical, mechanical and civil engineering, and design.
- Public sector and/or coordinated industry-level intervention may be required in order to ensure: (a) labour markets respond effectively to changes in the scale and nature of demand, so that 'bottlenecks' in the development of the sector can be avoided; and (b) in the context of greening and rebalancing the economy, geographical areas losing jobs are able to attract new ones and equip residents to take new employment opportunities.
- Governments and regulators are major factors in determining the scale and pace of changes in the electricity generation market. In theory this gives rise to the possibility of coordinating different public sector policies so that labour market polices complement wider environmental, regulatory and industrial policies. However, there is a risk of state or institutional failure to coordinate activity effectively that has to be recognised and managed.
- Arrangements for the delivery of education, training and economic development in England are in a state of flux, posing challenges and opportunities for the offshore wind energy sector. The key challenge is to ensure opportunities offered by the sector are visible, legible, accessible and affordable to those wishing to move into the sector. The opportunity for the sector is to seek to influence changes in arrangements.

## State of the offshore wind energy sector

In reviewing the state of the offshore wind energy sector, the study found a number of important issues associated with its development so far, its current nature and its future prospects. The key messages were as follows:

- The UK offshore wind energy sector is a nascent sector and a 'follower' in international terms. The Crown Estate's Round 3 licensing arrangements have

brought a 'step change' in the sector's development[2]. There are different views of how the sector might develop over time in terms of the pace and scale of its development and the structure that the sector may take.

- There are also different views with regard to the likely nature of employment and careers in the sector. Some anticipate 'contract work' to account for much of the sector's employment, in line with the offshore oil and gas industry, and others anticipate a majority of permanent staff. This has consequences for potential career paths, and approaches to recruitment and training.
- A recent study of the sector sponsored by RenewableUK and Energy & Utility Skills (the Sector Skills Council which includes power within its sector footprint) estimated that employment in the offshore wind energy sector had quadrupled between 2007 and 2010 to stand at around 3,100 full-time equivalent jobs.
- There are a number of studies forecasting employment needs for the sector and for each link in the supply chain. The forecasts depend on a number of assumptions, such as share of manufacturing carried out in the UK and the likely scale of exports. The most recent forecasts indicate that the lower end expectations are for the sector to directly employ around 12,000 jobs by 2020 and at the higher end the sector is expected to directly employ over 40,000 jobs (including indirect jobs, the range is from around 19,000 jobs to nearly 70,000 jobs). A series of recent announcements by major international players in the sector to locate manufacturing in the UK are encouraging.
- The sector is often studied in terms of the different phases of development: Planning and Development; Design and Manufacture; Construction and Installation; and Operation and Maintenance; plus associated Services, such as legal and financial expertise. Each phase has its own occupation and skill needs, which face different pressures in terms of competing demands for skills and the scale and timing of demand for labour. Therefore, it is important to remember that different elements of the supply chain will experience different pressures at different times and will respond in different ways.

[2] To date the development of offshore wind farms in the UK has come from three rounds of licensing by the Crown Estate, plus the licensing of rights by the Scottish Government. Rounds 1 and 2 provided for around 8GW of generating capacity. In January 2010, the Crown Estate announced the successful bidders for each of nine Round 3 offshore wind zones within UK waters. Round 3 offered the potential for an additional 32GW generating capacity. The new offshore wind farms were expected to come on stream around 2015. The Crown Estate is an independent organisation, which manages the property portfolio owned by the Crown, The estate includes extensive marine assets across the UK. Given its ownership of marine assets, The Crown Estate is a key player in the offshore wind energy sector. In effect, it is the landowner for many offshore wind farms in UK waters.

- A number of Sector Skills Councils are relevant to offshore wind energy, reflecting the multifaceted nature of the sector, drawing as it does on manufacturing, mechanical, electrical, design, construction and maritime skills. This means that any public sector intervention or coordinated action needs to take account of interactions with a number of other sectors.

## Factors affecting the growth in employment and skills in the offshore wind energy sector

The study looked at the factors affecting the growth of employment in the sector and the factors affecting the supply of skills including responses of employers and training providers to date. The key findings were as follows:

- Round 2 wind farms (the second round of commercial offshore wind farms announced by the Crown Estate) were not associated with significant skills issues except for some specialist roles. Skills issues were anticipated by employers as part of Round 3 development and deployment (the third round of commercial offshore wind farms announced by the Crown Estate) including: planners, Environmental Impact Assessment specialists, engineers, cable jointers, wind turbine technicians and project managers.
- A concern in relation to general **'skills in the offshore context'** was identified, such as health and safety and survival skills.
- The lack of **'sector attractiveness'** (shared with engineering and manufacturing), competition with other sectors (e.g. offshore oil and gas) for similar skills and difficulties coordinating skills and training needs across the supply chain were cited as potential causes of concern.
- **Shortages of labour** for some roles in the supply chain were reported, in particular those relating to the Planning and Development stage. **'Pinch points'** were identified as likely when the sector starts to scale up activity further from 2013 onwards, when other sectors, for example nuclear, are also expected to grow. Furthermore, there were significant **concerns from employers over the capacity of the sector to cope with the high absorption rates** implied by the scale of growth that is anticipated.
- In the short term, the **supply of labour** to meet future demand is likely to come from other sectors, including offshore oil and gas, automotive and aerospace, and the military; although there are challenges in attracting experienced workers such as higher wages and benefits in other sectors. Alternatively labour may be sourced internationally. In the medium term apprenticeships were cited as a key source of skilled labour.

- The research reviewed the responses to skills issues of training providers and firms in the sector's supply chain. It found examples of **firm-level initiatives**, and **industry and education provider collaboration** to meet skill needs. These mostly arose as a result of direct interaction between employers and providers, often building on existing relationships. For example, a new consortium of employers and training providers formed in response to the opportunities associated with the London Array that builds on previous partnership working between education providers and offshore wind farm owners. There was evidence of difficulties in planning and investing in training initiatives given the embryonic nature of the sector and its fragmented supply chain.
- There was reluctance amongst some consultees to ask for further public intervention on skills issues, arguing that what was most required from the state was greater certainty for the industry's regulatory framework. However, others expressed a desire for some central coordination of the industry's activity with regard to employment and skills and thought governments were best placed to provide the necessary leadership.

## Locating the potential for growth

The study used a number of sources to map locations with potential for employment growth, and to identify where possible the limitations to, and opportunities for, maximising employment in those areas. Key findings were as follows:

- Several factors influence the location of employment opportunities in the offshore wind energy sector, including proximity to Round 3 zones, port infrastructure and access to key suppliers.
- Proximity to Round 3 zones may well contribute to some local employment opportunities, but alone it is unlikely to lead to substantial local employment growth. A supportive environment is vital for the exploitation of opportunities. A supportive environment may include investment in appropriate physical infrastructure (such as port and other facilities), availability of existing skills in the workforce, access to research and technological expertise and an existing relevant business base.
- The working patterns and arrangements for Round 3 wind farms, which will be a long way from the coast, may limit the potential for local employment as operation and maintenance staff are located on offshore rigs.

- A number of locations likely to see employment growth associated with the offshore wind energy sector in the UK have been identified using quantitative mapping work, based on existing concentrations of activity within the supply chain or within related sectors and sub-sectors. The areas include: the east coast of Scotland, the Glasgow-Edinburgh belt, the North of England (notably around Leeds, Sheffield, Manchester, Hull and Humber, Cumbria and parts of the North East), the Midlands (especially around Birmingham) and the South West and South Wales (in particular around Bristol). There are also other pockets of activity, for example in East Anglia and the South of England associated with wind farms such as the London Array.
- This suggests that there may be some clustering of activity, but one or two locations are unlikely to come to dominate employment in the sector's supply chain as it relies on existing patterns of business location. The locations identified through the mapping work align with policy objectives to rebalance the economy spatially (i.e. away from reliance on London and the South East) as many of the concentrations of activity are outside the South East of England, although the scale of jobs that may be created in offshore wind represent only a very small contribution to spatial rebalancing.
- In order to support the sector's development (and spatial rebalancing), there are potential implications from the analysis for national and sub-national policy-making, local economic development and training provision. In particular, there may be arguments for creating or developing physical and soft infrastructure that can support employment growth in key clusters. This may include port facilities and supply chain initiatives that lie beyond the scope of this study.

## Implications for action

Drawing on all the evidence gathered, suggestions for action to help maximise employment and skills opportunities in the offshore wind sector have been developed. These suggestions were developed in response to the following tests:

- Is there a case for government spending or intervention e.g. due to a 'market failure'?
- Is there a role for non-government actors and local or sub-national bodies, e.g. in undertaking activity to meet national or sub-national labour market needs?
- Is there potential for government support to encourage or enhance market and voluntary activity, e.g. links between employers and training providers, which would become sustainable once the approach had been tested?

The tests were informed by the stated spending and policy priorities of the UK government and devolved administrations and the institutional capacity at national and sub-national levels to lead employment and skills initiatives and promote sector development. Based on this approach, a number of actions were identified for government (in this context UK governments and national government agencies); employers and training providers; and, over time, sub-regional partnerships, such as Local Enterprise Partnerships (LEPs).

## Potential actions for government

Two actions were highlighted for government, and a third where intervention could enhance the actions of others:

- First, there was broad consensus on the need for government action to **create certainty for the sector in relation to regulation, pricing and planning arrangements** (potentially including support for physical infrastructure), which would facilitate skills and workforce planning in the sector.
- The second specific government action highlighted by consultees was to **enable flexibilities in the funding for apprenticeships,** for example flexibility to allow small firms in the supply chain to 'share' apprentices (apprentices would not have a named employer at the start of the scheme, as normally required). This could potentially increase the absorptive capacity of the sector by working with small firms, rather than relying mainly on large employers.
- There was also some evidence to suggest that, given uncertainties over the sector's growth path (due in part to uncertainty over industry regulation and the planning system), there **may be a case for government support to scale-up industry-led skills development initiatives**. This would signal government support for the sector in the long term and assist in addressing barriers to employment and skills growth in the short term. In practice, the most cost effective means of providing such short-term support are contestable 'challenge funds' (e.g. Growth and Innovation Fund), where employers and training providers have to demonstrate the additional impact government support could provide, relative to what they would achieve on their own.

The extent to which governments may decide to intervene is likely to vary between the four nations. The Scottish Government, for instance, is particularly committed to renewable energy as a sector of economic growth, and has earmarked funds to be invested in physical infrastructure (such as ports) and may be keen to enhance the actions of industry-led initiatives working with development agencies (e.g. Scottish Enterprise, Highlands and Islands Enterprise and Skills Development Scotland).

## Potential actions for employers and training providers

The consultations and workshops highlighted areas for action by employers, employer bodies, and education and training providers, sometimes in partnership. In some cases, these built on existing initiatives or examples of good practice that could be shared. Key actions for this group include:

- The development of **employer networks** to share information, and/or operate 'peer reviews' of employment and skills practices to generate a culture of learning and investment in workforce development in the sector that may contribute to the development of 'high performance workplaces'.
- **Greater coordination between employers and external training providers** to address a range of key issues, including providing timely labour market information (in conjunction with sector bodies) to facilitate the development of course packages, the use of external training providers to ease issues over absorptive capacity and lack of capacity to deliver in-house training, and the investment in shared training facilities.
- **Coordination between education and training providers** in order to enable them to specialise in certain aspects of a learning programme and therefore share the costs of provision.
- **Minimum professional standards developed on a voluntary basis** (through employers and employer bodies) or through formal licensing schemes that mean providers keep down course development costs and individual members of staff avoid repeating similar courses.
- Continuation (and scaling up as required) of existing **initiatives on sector attractiveness**, both generally and that target particular groups (e.g. ex-forces personnel).

## Potential actions for sub-regional partnerships

Finally, the potential role of sub-regional partnerships, such as LEPs in England, was raised during the course of the study. The responsibilities, resources and capacity of each LEP will vary from partnership to partnership, and those LEPs where the offshore wind energy sector is prevalent could help to establish, bottom-up, local initiatives to help maximise employment and skills in their areas. Potential actions may be in relation to: promoting the sector as a source of employment; encouraging supply chain development (possibly in conjunction with other LEPs); attracting inward investment (e.g. through enterprise zones), and making the case to central government for funding for infrastructure and/or employer-led initiatives (e.g. via the Regional Growth Fund in England).

Executive Summaries present the key findings of the research produced by the UK Commission for Employment and Skills. More detailed analytical results are presented in Evidence Reports and all outputs are accessible on the UK Commission's website www.ukces.org.uk

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