

# POWER Offshore Wind Supply Chain Study for the East of England

## Executive Summary

### DOUGLAS-WESTWOOD

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### EXECUTIVE SUMMARY & CONCLUSIONS

The UK is poised to become the world's largest market within the emerging offshore wind sector. A structured national development strategy has resulted in many projects being proposed with the first two of these now operational and two further projects currently under construction.

A total of over 10 GW of offshore wind capacity is currently planned off the UK which is expected to result in over £11.2 billion in expenditure. Two of the Government's three offshore wind strategic development areas (the Thames Estuary and the Greater Wash) are within the East of England's area of influence and the region is, therefore, well-poised to capitalise on these projects.

Given the economic development potential of the UK offshore wind industry, early engagement with this emerging market and full support of regional companies wishing to explore the supply chain opportunities inherent in the growth of this sector is, therefore, of tremendous importance to the region.

#### 1. East of England Supply Chain Assessment & Analysis

The East of England cannot currently offer a complete service to the offshore wind industry but it can offer a substantial one. Indeed, the East of England has the core skills, experience and capabilities to service a significant proportion of the offshore wind supply chain, with the development and operations phases of offshore wind being key areas of competence. Further opportunities for diversification into offshore wind are, therefore, wide-ranging, with the region's comprehensive offshore engineering and oil & gas experience particularly applicable.

The services that the East of England can potentially offer have already been profiled within the region's first offshore wind farm, Scroby Sands.<sup>1</sup> Key areas of regional content included environmental monitoring and assessment, surveys, onshore installation, onshore pre-assembly and operations and maintenance. Manufacturing and the majority of offshore installation (other than cables) work are, however, not currently met by regional companies as the region has limited proven capability for both turbines and foundations. However, this is not just a regional problem.

<sup>1</sup> Ref: Scroby Sands Supply Chain Analysis - a detailed assessment of the supply chain to Scroby Sands carried out by Douglas-Westwood Ltd and ODE Ltd for Renewables East (see Section 2.5.1)



**Table 1: East of England Proven Offshore Wind Capability – Scroby Sands**

High	Medium	Low
Environmental Monitoring	Commissioning	Detailed Design
Onshore Installation	Project Management	Development Design
Onshore Pre-Assembly		Insurance / Legal
Operations & Maintenance		Procurement & Manufacturing
Surveys		Offshore Installation
		Transport & Delivery

In its present state, there are difficulties in entering the offshore wind sector. Despite the opportunities identified by regional companies for potential involvement, there is currently an acknowledged imbalance between risk and reward. Of the companies interviewed almost 60% had experienced problems of varying degrees working on offshore wind projects to date. Project economics, specifically overly tight margins, is the most frequently cited problem. Indeed many contractors, including regional ones, have taken losses by working on the first major offshore wind projects. Analysis of contracting strategies used on these projects suggests that the future marketplace will become more competitive and that the use of alternative contracting strategies, by developers and EPIC (Engineering, Procurement, Installation and Commissioning) contractors, will redress the balance between risk and reward.

Delays on UK projects have also caused problems for both national and regional suppliers. Relatively few projects are currently being constructed each year and, although this situation is expected to improve from 2006, market confidence and economies of scale have yet to be fully developed. At present UK suppliers are struggling to compete with their European counterparts who are believed to be benefiting from a larger quantity of repeat business, in some cases due to existing relationships from well-established onshore wind supply chains.

There are signs that early market entry, albeit often at a loss, will be beneficial in the long-term as a result of both the relationships formed and the lessons learnt. A high-level of awareness of the opportunities and challenges of the Scenario 2<sup>2</sup> type developments exists within the region with the majority of companies confident that the regional supply chain can meet the requirements of such projects and that levels of regional content will increase in turn.

**Table 2: East of England Potential Capability**

High	Medium	Low
Environmental Monitoring	Project Management	Development Design
Surveys	Offshore Installation	Procurement & Manufacturing
Insurance / Legal		Transport & Delivery
Detailed Design		
Onshore Installation		
Onshore Pre-Assembly		
Commissioning		
Operations & Maintenance		

Industry awareness and opportunities available to regional companies are promoted well by the region's business support, economic development and industry support agencies (such as EEEGR and Renewables East) which have provided a major stimulus to the regional supply chain. A more co-ordinated approach is, however, necessary to maximise benefit to companies seeking entry into the offshore wind market.

<sup>2</sup> Scenario 2 developments are defined as having a turbine capacity in excess of 4 MW & located at sites in water depths of more than 25 m. Scenario 1 developments use up to 3.9 MW turbines and are located at sites in water depths of less than 25 m.

## 2. Forecast Regional Content in East of England Projects

The figure and table below show forecast expenditure relating to the development and construction for all Scenario 1 and Scenario 2 projects within the East of England's geographical area. No data for operations and maintenance has been included at this stage. Cost is attributed to the year the project is scheduled to come online.

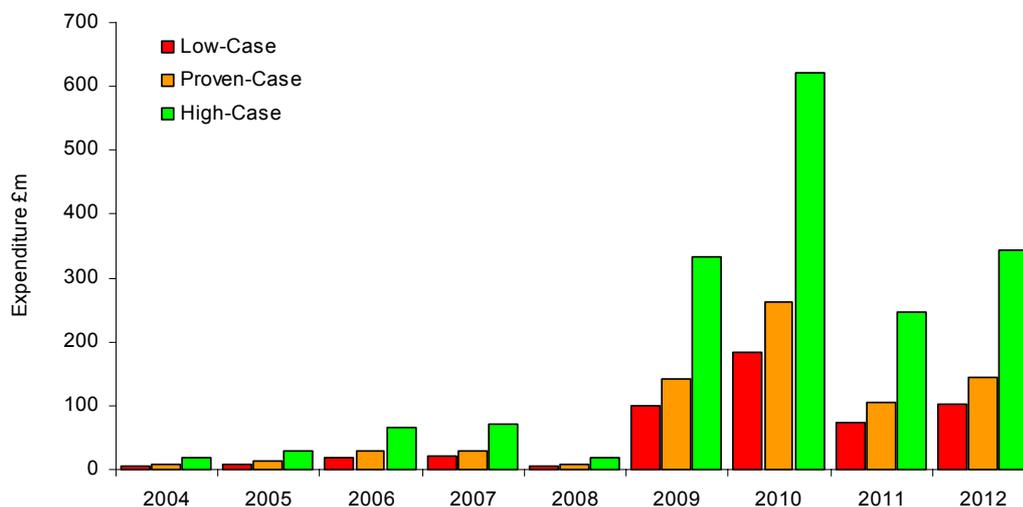


Figure 1: Forecast Regional Content in East of England Projects (£m)

Table 3: Forecast Regional Content in East of England Projects (£m)

£m	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Low-Case	6	9	19	21	5	99	184	73	102	518
Proven-Case	8	12	28	30	8	142	263	105	145	741
High Case	19	29	65	70	18	333	620	247	343	1,746
Total E of E £m	75	113	250	270	70	1,285	2,390	954	1,320	6,727

The development and construction of offshore wind developments within the East of England is forecast to involve a total expenditure of £6.7 billion. Using three case-based scenarios, the value of such contracts attainable by regional companies is forecast to be between £518 million and £1.7 billion. Proven regional content (assuming levels demonstrated on the Scroby Sands development in 2004 are replicable on future projects) gives a total regional value of approximately £740 million for the period to 2012.

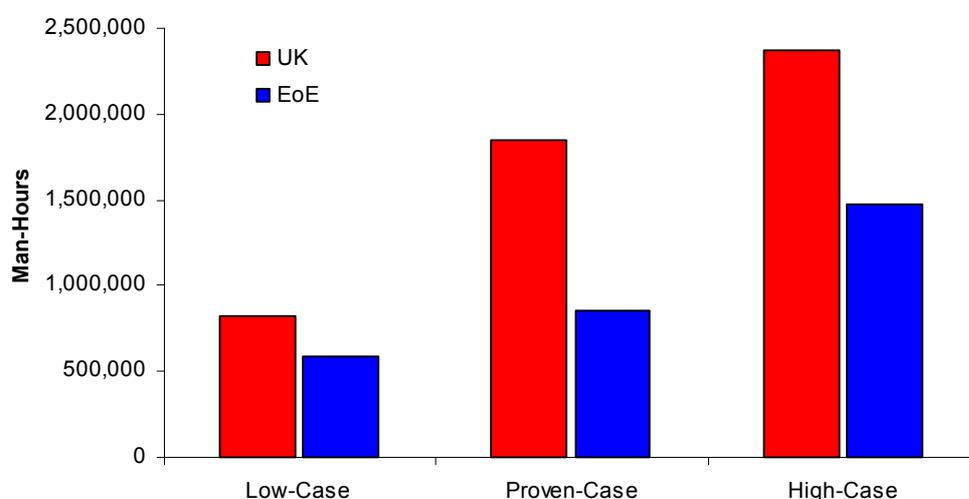


Figure 2: UK and East of England Man-Hours for a Typical Round 2 Project

**Table 4: UK and East of England Man-Hours for a Typical Round 2 Project**

Man-Hours	UK	EoE
Low-Case Content	826,516	588,827
Proven-Case Content	1,847,101	850,106
High-Case Content	2,372,175	1,478,132
Total Typical R2 Project	2,659,663	

Note: These figures do not include operations and maintenance

Total man-hours on the development and construction of a typical Scenario 2 project of 500 MW are forecast to total over 2.6 million, of which the East of England is forecast between 0.59 and 1.5 million hours. As such the total man hours for all Round 2 projects around the region is forecast to total approximately 32.4 million hours. The key areas in which the UK and East of England can achieve maximum content are mainly the most time-consuming ones such as detailed design, project management and onshore installation.

### 3. Conclusions

The challenges of Scenario 2 type developments should not be underestimated. Whilst the region has the capability to maintain regional content in many areas of the project development cycle, it will be increasingly difficult to gain a foothold in areas where there is currently a low capability. This, therefore, suggests that targeting regional experience and capabilities on existing high-content areas of the supply chain will be the most profitable and sustainable future strategy.

Accessing the areas of the supply-chain that are currently 'off-limits' to the East of England supply should, however, be investigated as fully as possible with the aim of attracting manufacturing and installation capability to the region. It is accepted that regional capabilities in these areas will not be of significance in the near future, but with so many future projects in the region, the East of England should seek to realise some level of future involvement. The region would, for instance, provide a suitable base for a manufacturer working on projects in the vicinity.

Going forward a realistic assessment of regional capabilities and targeted and joined-up strategic approach are vital in fostering industry awareness and promoting the region if future regional content is to be maximised.

**The full report will be available for download on the  
POWER website at [www.offshore-power.net](http://www.offshore-power.net)**

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#### **POWER – Pushing Offshore Wind Energy Regions**

The POWER project establishes a high profile North Sea competence network for offshore wind energy, with partners in Germany, the UK, Denmark, the Netherlands and Belgium. The project looks at environmental issues of offshore wind farms, the development of a reliable regional supply chain for the sector, and skills development issues. The East of England is represented in the project by Suffolk County Council, the East of England Energy Group, Waveney District Council and Renewables East. POWER is co-financed by European Regional Development Funding through the Interreg IIIB North Sea Programme.

