Overcoming Challenges for the Offshore Wind Industry and Learning from the Oil and Gas Industry

Many oil companies have transferred the operation and maintenance of offshore facilities to service companies, who are selected by competitive tender. This has led to the reduction in oil companies’ in-house offshore engineering expertise, and their ability to control the technology, equipment and procedures used to exploit their offshore oil and gas reserves. This trend has been highlighted in the recent oil spill disaster in the Gulf of Mexico, where BP had contracted virtually all the equipment and services being used to drill the well. This strategy reduces cost, but it also reduces the oil company’s ability to control the technology, equipment and procedures used. However, it does not change the company’s ultimate liability for the whole operation and leads to a situation where a company has liability but only limited control. Unfortunately, some owners of offshore wind farms are following the trend of subcontracting most aspects of developing, installing and operating offshore wind farms, preferring to place contracts on the basis of price of a per mega watt of offshore wind turbines installed.

This is probably, in the long term, a high risk strategy for the wind farm owners, especially when the relatively immature status of offshore wind farm technology is taken into account. It is probably better for wind farm owners to take more in-house responsibility for the technology on which they will rely for long term financial prosperity.

Whilst the offshore wind industry can and has learnt many things from the offshore oil and gas industry and there are areas where both industries can collaborate to their mutual advantage, the offshore oil and gas industry will compete with the offshore wind industry for resources, and because fossil fuel energy prices are likely to rise as demand rises and supply is constrained, the offshore oil and gas industry may well be able to out bid the offshore wind industry. This element of competition and the associated higher prices for resources, may prevent offshore wind from installing the planned capacity and make it harder for offshore wind energy to reduce its cost of energy.
Safety, it is monitored and improved, is an ever more important issue and particularly important in the offshore environment where there are many risks and potential hazards due to the nature of wind power supply. There is an obvious strategic requirement to reduce the EU’s reliance on imported energy, but it has no advantage of being out of sight of the general public, which makes offshore wind power more competitive in the future.

The high cost of energy generated by wind farms means there is a wide band of approximately ±20% per MW hr in Europe. Generating energy from offshore wind farms commercially viable. Subsidies are awarded by national governments and industry to ease the high cost of energy generated by offshore wind farms compared to other sources of energy. Generally, subsidies are based on the generation capacity of power output which is typically high for offshore wind farms.

The ability to raise the capital to build offshore wind farms is also hindered by the legacy of poor reliability for some early offshore wind farms, which makes offshore wind look “too risky” to investors, and the costs resulting from the global financial crisis. Although the offshore wind industry cannot control world financial issues, it is the financial sector which is responsible for the reliability of offshore wind farms and reduce the cost of energy generated by offshore wind farms. This is likely to be difficult to achieve because of the inherent cost of the financial capital required to implement offshore wind farms. This means that offshore wind farms are still seen as a high-risk venture.

There are very few suitable harbours with long term slipways, workshop facilities, storage areas for large components, and areas for assembling wind farm structures. Because most wind turbine components are too big to be easily transported by road. Because there are large developments that take a long time to plan and construct and generally require national or regional government financial assistance, there is an urgent requirement to start planning, funding and building these facilities if the EU 2020 targets for offshore wind are to be met.

There is a concern about the supply of suitable vessels capable of installing offshore wind farms. The market has responded by building new wind installation construction vessels. Most of the technology developed for offshore construction has been directly applicable to the offshore wind industry.