

Offshore wind innovation delivering more for less

2016 was a year of many surprises with seismic political changes for the UK, Europe and the US – not to mention the fallout from the introduction of the 5p bag! When it comes to innovation however, 2016 will be remembered for major progress in technology and manufacturing – from driverless cars to VR and 3D printing. This year, the pace of change is unlikely to slow down.

In offshore wind, innovation has played a huge part in helping the technology become an integral part of the UK's renewable energy mix. Last year, almost a third of new wind turbines constructed in Europe were offshore, a significant increase from 5-10% in 2011. This leap has meant that the share of wind energy in the European Union's electricity supply rose from 2% in 2000 to 12% today.¹ Since the millennium, UK offshore wind has grown rapidly from zero to almost 6 GW operational – over a third of the world's total offshore wind capacity. Innovation has driven this progression, from increased turbine sizes to developments in foundations and cable manufacture, the industry continues to develop and adapt.

Bigger wind farms using larger turbines have helped offshore wind establish its place as a leading source of renewable energy for UK homes. Far from being alternative energy, as it was once called, this is now mainstream technology. Work is being undertaken to make savings and develop technology at every stage in the wind farm development cycle – from design right through to construction and operation. Turbine weight has dropped significantly, allowing manufacturers to build taller and lighter towers to harness stronger winds at greater heights.

Nothing illustrates this progress better than what is happening right now in Liverpool Bay. Last September, DONG Energy installed the first ever 8MW wind turbine at the Burbo Bank Extension offshore wind farm. Only ten years ago the largest offshore wind turbine was 3.6MW. To put this into perspective, the new MHI Vestas 8MW turbines are 195 metres tall – higher than the Gherkin tower in London. Their blades have been designed, tested, and manufactured on the Isle of Wight and then assembled at the manufacturer's pre-assembly facility in Belfast. They are the first locally built blades to be installed at a UK offshore wind farm.

As the industry progresses, cost reductions through innovative technology and economies of scale have been met by a similarly maturing UK supply chain. In only the last couple months, we have seen several positive developments: a new Siemens blade factory opened in Hull and at the end of last year, DONG Energy announced a significant investment in the UK's first-ever tower manufacturing facility in Campbeltown, bolstering the number of UK-manufactured components in offshore wind turbines. Having taken the lead in developing offshore wind, the UK supply chain is also now also beginning to export with many companies gaining a foothold in expanding markets throughout Northern Europe and beyond.

Significantly, the industry is now in a position to complement Government's upcoming industrial strategy. It creates long-term highly skilled jobs in coastal regions away from London and provides an opportunity for niche manufacturers, as well as engineering and marine specialist service companies looking to make up for lost orders from the oil and gas sector. Over the next decade,

¹ <https://windeurope.org/>

many UK offshore wind manufacturers and specialist service companies hope to see continued growth at home due to Government's commitment to further auctions for offshore wind and other less mature renewables. In the wake of the Brexit vote, the challenge will now be to deliver this commitment and ensure the nation's energy demands are met, as traditional generation sources are retired and new green technologies adopted to support the transition to a low-carbon economy.

- Humphrey Laidlaw, DONG Energy

For the YEP Forum.