

Cable lay-up.

Subsea power cables at the double

In today's topsy-turvy offshore world the smart supplier is one capable of servicing the needs of the oil & gas and renewable energy sectors without missing a beat. Among the leaders of this ambidexterous pack is JDR Cable Systems, which recently enhanced its market offering by opening a combined umbilical and subsea power cable factory in the UK. **Meg Chesshyre** talks to managing director Patrick Phelan about the company's achievements and aspirations.

JDR's new deepwater quayside manufacturing facility at Hartlepool dock in the north of England, which opened for business mid-July, represents a major investment in the company's growth. According to managing director Patrick Phelan the overall investment was around £20 million with £3-4 million being spent on converting the former timber warehouse, before the installation of the heavy equipment. The project also received an £850,000 support grant from regional development agency One North East.

A feature of July's official opening of the 100,000ft² facility was an endorsement

by video link from British entrepreneur Sir Richard Branson, chairman of the Virgin Group, who has taken a keen interest in the company's rapid development into the renewable energy sector. 'It is commendable that the JDR team has made this investment, especially in troubled economic times, and I applaud their vision and their determination,' said Branson. 'I am a strong believer that we can all reduce the impact of climate change and the world needs companies like JDR to step up and provide the technology at a price we can afford.' There has been talk of a cable link between Richard Branson's two

Caribbean islands, but this is still in the discussion stage.

From Hartlepool JDR can supply cables weighing up to 2200t which can be spooled directly from the factory to offshore cable laying vessels. The company's strategically located facilities on the UK's east coast are well positioned to service the multiple offshore wind farm projects in the region, offering lifecycle engineering and technical support to the evolving renewables market and providing fully verified electrical and optical packages for a diverse range of applications. JDR lays claim to being the only site in the UK designed specifically



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Patrick Phelan

to manufacture subsea power cables for the oil and gas sector and the burgeoning offshore renewables market.

'The new JDR Hartlepool facility has been built in response to a significant growth in demand from customers for our products and a move to expand our offering to the renewable energy sector,' says Phelan. 'The development of the offshore renewables industry, combined with the need to recover more oil and gas reserves from existing fields, has led to an increase in demand for highly specialised subsea power cables.'

'The new site in Hartlepool has been designed specifically to manufacture these products, along with long-length step-out umbilicals for oil and gas projects. The response from the market has been very positive with booked orders and an advanced stage of tendering for many other projects.' JDR counts BP, Shell, Eni, Saipem, Hyundai, Fluor, FMC, Cameron, Aker Solutions, GE Vetco, Expro and Schlumberger among its existing clients worldwide.

The new facility already has three manufacturing projects under its belt. The first is for the supply of 70 separate inter-array subsea cables totalling 120km for currently the world's largest offshore wind farm, Greater Gabbard, off the east coast of England. The project came in two phases; phase one, comprising the delivery of 70 cables totalling 100km, was carried out by the company's Littleport plant in Cambridgeshire. Delivery of the

second phase is between now and March 2010.

It was confirmed just after the Hartlepool opening that JDR has also been awarded a £7.6 million contract for the supply of subsea power cables for the ground-breaking 'Wave Hub' project by the UK's South West RDA (regional development agency). Wave Hub is a major marine renewables infrastructure project that will create an electrical 'socket' on the seabed in some 50m of water around 10 miles off the coast of Cornwall in southwest England. Connected to the National Grid via a subsea cable, it will have an initial maximum capacity of 20MW but has been designed with the potential to scale up to 50MW.

The scope awarded to JDR includes 25km of 33kV three-phase power cables, weighing over 1500t, which will provide the link between the Wave Hub and the onshore control room. The Wave Energy Convertors are connected back to the Wave Hub by four additional 300m three-phase power cables and dry mate connector sets. All cables include fiber optics and will be subject to rigorous integration testing. JDR will also supply the Wave Hub assembly consisting of subsea terminations and a complete subsea protection structure. The package of equipment will be delivered in the second quarter of 2010 from Hartlepool. The first wave energy devices are expected to be deployed in 2011.

The third contract, from Saipem, is for a 14km long subsea power cable for the Total Libondo project off the Republic of Congo, due for completion in December 2009.

The opening of the new Hartlepool facility provides a welcome boost to employment in the area. An initial crew of 25 factory workers from JDR's Littleport headquarters, near Cambridge, have been seconded to Hartlepool and the company is currently recruiting for 50 local staff, who will gradually take-over from the Littleport staff, who will then move back. The company expects to recruit a further 50 staff next year.

Deeper and hotter

Phelan says: 'We have invested in a lot of research and development to ensure that we have a range of hoses which can operate at the highest pressures and temperatures available in the market and that's particularly important as the oil companies seek to extract oil from deeper and deeper water depths.'

'In terms of the power cables, we've developed an innovative range of terminations and pull-in aids in order to minimise offshore installation time. On an offshore wind farm such as Greater Gabbard, where there are 140 power cables; that's 280 terminations and if you can minimise the time for an offshore installation vessel with that number of ends to pull-in then it creates real savings for the customer.'

JDR's average revenue growth has been 40% per annum for the past two years. The company featured in *The Sunday Times Buyout Track 100* of the UK's top private equity-owned businesses – ranking twelfth on the annual list of 100 companies and emerging as the fastest growing original equipment manufacturer on the list.

JDR came into being 15 years ago following the merger of two established cable manufacturers, Jacques Special



The new JDR facility's 9.2m reels with Greater Gabbard cables.



The state-of-the-art facility in Hartlepool Dock was officially opened by local MP Iain Wright on 10 July. Also pictured (left) is Steve Parfitt, general manager of the Hartlepool facility.



The new factory has 900m of quay with water depths of 8.5m. Pictured alongside is the Helix vessel MV Express.

Cables in the UK and De Regt Special Cable in the Netherlands. JDR was acquired by the private equity firm, Bridgepoint Capital back in 1998, then by Vision Capital, in 2007 with Goldman Sachs in the fund. HSBC provides bank facilities.

Technip Duco and Oceaneering Multiflex are strong competitors in the UK on thermoplastic hose umbilicals, but in terms of subsea power cable JDR now lays claim to being the only company in Britain with a factory specifically designed to make that product. It has also set up its own division of subsea cable experts, invested in state-of-the-art high voltage test equipment, and pre-qualified a range of power cores to suit subsea applications.

In addition to Littleport and Hartlepool in the UK, the company has operational sites at Krimpen in the Netherlands and Sattahip, Thailand. JDR also has sales and service facilities in Houston, Aberdeen, Bergen, Bangkok and Tianjin, China. The new facility in Hartlepool is designed to expand JDR's offering to clients and to complement its existing facility in Littleport.

Hartlepool highlights

JDR's new Hartlepool facility has been designed to produce the following products:

- inter-array cables for offshore wind energy;
- export cables for wave and tidal stream energy;
- wellhead platform cables;
- island link cables;
- subsea production umbilicals; and
- subsea power umbilicals.

The Littleport facility will remain the centre for R&D and will manufacture specialised hose and cable components for subsea production umbilicals to be delivered from Hartlepool and Thailand. Littleport will also continue to provide complete IWOCS (intervention and workover control system) umbilical and reeler packages for deepwater oil and gas projects worldwide.

'We started in Littleport manufacturing hoses and cables for divers' umbilicals in the 1970s and '80s,' explains Phelan. 'We progressed to shallow water intervention umbilicals, workover support products, and then powered reeler systems and now we are a 65% market leader worldwide in that product.' There is a very strong emphasis on quality and safety in the company stemming from the early days of making what was life support equipment for divers. 'This work ethic has remained with the company ever since,' says Phelan.

'It was four years ago that we set up our first deepwater umbilical facility at Sattahip in Thailand, he points out. 'We are the only established umbilical company manufacturing in that part of the world and we very quickly established a presence supplying the projects off the west coast of Australia, and also to customers in Indonesia, Malaysia and the Middle East.' A spate of projects offshore Australia in the last two years has included Apache's Van Gogh, Eni's Woollybutt, Coogee Resources' (now PTTEP) Montara, and Anzon's (now Roc Oil) Basker Manta.

The company's Dutch factory at Krimpen, near Rotterdam, specialises in producing seismic exploration cable and eight out of 10 seismic vessels have air gun umbilicals installed that were manufactured there. The whole JDR operation is supported by a global aftermarket team, which supports the customer with installation, providing expertise and termination assistance.

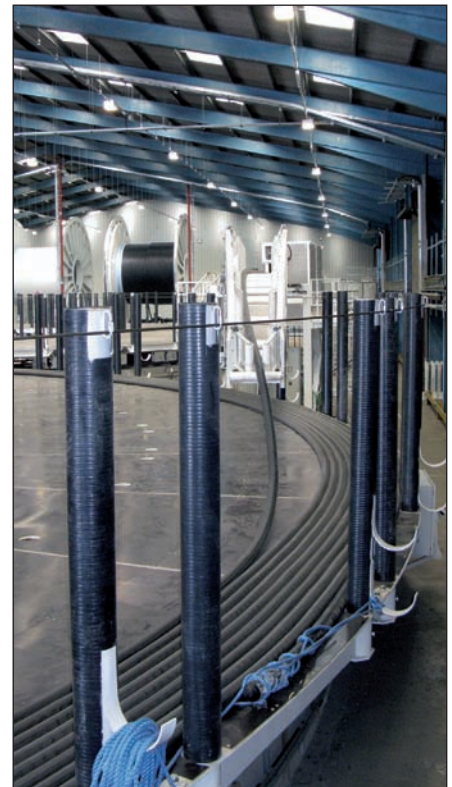
Wind of change

Phelan is optimistic about the future. 'Renewables have been uncertain for a number of years in terms of the pace of development, but we have seen a big

The factory's equipment includes: two 2200t capacity, 30m diameter carousels; 300t, 9.2m diameter process reels, two armouring lines – one for umbilicals, the other for power cable; six-carrier power cable helical and umbilical oscillatory lay-up machines, and a polymer jacket extrusion line. At the quayside, Hartlepool boasts five all-tide access berths, 900m of quay with water depths of 8.5m LAT on berths and 5m LAT in the approach channel, plus three 63t quay cranes and local hire facilities for 300t lifts.

change since the UK government's budget in April, when subsidies for offshore wind were increased significantly.' On the oil and gas side, he adds: 'There is definitely a downturn in the number of projects that are being released at the moment, but we see that as a short-term issue, because the world needs a continued supply of oil and gas for the foreseeable future. Our technology will ensure that we maintain and increase our market share.'

'In terms of the workover umbilical market we have been 65% market leader for the past two years. In Southeast Asia we were 40% market leader in the first two years of operation,' Phelan notes. 'In terms of the offshore renewable market we are using our extensive experience in offshore oil and gas termination and support to design and build cable systems for offshore wind and wave projects. These innovations have been welcomed by our clients with the award of Greater Gabbard, the largest offshore wind farm to date, and Wave Hub, the largest wave energy system.' **OE**



Spooling to 2200t carousel at Hartlepool.



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WORKOVER CONTROL
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SUBSEA POWER
CABLES

JDR is a leading worldwide manufacturer of custom-designed subsea power cables, umbilical systems and towed marine cables for a broad range of applications in the oil and gas sector and the growing offshore renewable energy industry.

For more details, please visit our website at www.jdrcables.com