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World's largest hammer makes an impact at Suffolk wind farm

- ***Latest innovation in hydraulic impact hammers***
- ***Equivalent in weight to seven blue whales***
- ***Used to successfully install foundations at the Galloper Offshore Wind Farm***

The team building a new wind farm off the coast of Suffolk are putting the world's most powerful hydraulic hammer to work.

The S-4000 Hydrohammer - the latest innovation in hydraulic impact hammers - is being used to install the foundations at the Galloper Wind Farm, about 27 km off the coast. The wind farm represents an investment potential of around £1.5 billion and construction is being led on behalf of the project partners by innogy SE.

The Hydrohammer has a strike power of 4,000kj, which means it can hammer extremely hard, and weighs 750-tonnes, the equivalent to nine Endeavour space shuttles. It is on lease from IHC to the main foundation contractor GeoSea and is only the second time the hammer has operated in UK waters.

The Galloper Offshore Wind Farm will be home to 56, 6MW Siemens turbines and will generate up to 336MW of energy when it starts operating in Spring 2018, equivalent to the approximate domestic needs of up to 336,000 UK homes¹.

Mark Wainwright, Galloper foundations manager, said: "The Hydrohammer is 6.3m in diameter and at 750 tonnes is a really heavy piece of kit. We've found it to be the most cost and time effective way of carrying out the turbine foundation installation process, and the safest technique for the environment we're working in. Hammer selection is very much driven by ground conditions and foundation physical size and penetration depth. The ground at the Galloper offshore site has one or two metres of sand and then it's solid clay, with which the selected hammer works very well."

During operation the monopiles lie horizontally on the deck of a vessel along with the Hydrohammer. The piles are lifted into a vertical position at the location with a crane on the same vessel. The piles are then lowered down into the sea bed, held in place by a gripper on the vessel, then driven into the sea bed using the Hydrohammer.

The hammer contains a large anvil that is forced down on the monopile using a combination of gravity and hydraulic force. The piles reach a maximum depth of over 40m into the sea bed, with each monopile taking two to three hours to install.

Mr Wainwright said: "While the Hydrohammer is in use we monitor the subsea conditions and the noise levels. Much of it is a remote operation, so there is minimum manual interaction, but there are specially trained riggers, hammer operators and surveyors in attendance to ensure the installation proceeds safely.

"The new, larger, hammer sizes are following industry demand. Naturally we have seen the size of the foundations increase because turbine sizes and water depths have increased."

ENDS

For more information about the Galloper Wind Farm visit:

www.galloperwindfarm.com

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Footnote

¹Energy predicted to be generated by the proposal is derived using wind speeds monitored in the local area and correlating to suitable reanalysis weather data providing longer term data. The calculations are based on an installed capacity of up to 336MW. The energy capture predicted and hence derived homes equivalent or emissions savings figures may change as further data are gathered. Equivalent homes supplied is based on an annual electricity consumption per home of 4500 kWh. This figure is supported by recent domestic electricity consumption data available from The Digest of UK Energy Statistics and household figures from the UK Statistics Authority.

Notes to editor

Galloper Offshore Wind Farm is an extension of the existing and fully operational Greater Gabbard Wind Farm off the coast of Suffolk. The wind farm represents an expected investment potential of around £1.5 billion. It is estimated that the average annual generation expected at the site will be equivalent to the approximate domestic needs of around 336,000 average UK households. Following Financial Close of the project in October 2015 the GWFL project announced the equal joint equity partnership of 25% each between RWE Innogy UK (now innogy SE), UK Green Investment Bank, Siemens Financial Services and Macquarie Capital.

About innogy SE

innogy SE is Germany's leading energy company, with revenue of around €46 billion (2015), more than 40,000 employees and activities in 16 countries across Europe. With its three business segments Grid & Infrastructure, Retail and Renewables, innogy addresses the requirements of a modern, decarbonised, decentralised and digital energy world. Its activities focus on its 23 million customers, and on offering them innovative and sustainable products and services which enable them to use energy more efficiently and improve their quality of life. The key markets are Germany, the United Kingdom, the Netherlands and Belgium, as well as several countries in Central Eastern and South Eastern Europe, especially the Czech Republic, Hungary and Poland. In renewable power generation, the company is also active in other regions, e.g. Spain, Italy and the MENAT region (Middle East, North Africa and Turkey), with a total capacity of 3.6 gigawatts. As a leader of innovation in future-oriented fields like eMobility, we are represented in the international hot-spots of the technology industry such as Silicon Valley, Tel Aviv and Berlin. We combine the extensive expertise of our energy technicians and engineers with digital technology partners, from start-ups to major corporates. With planned capital investments of around €6.5 billion (2016-2018), we are building the power market of the future and driving forward the transformation of the energy market. innogy was formed from the restructuring of the RWE Group and started operations on 1 April 2016. Its IPO in October 2016 made innogy SE Germany's most valuable energy company. innogy is colourful, flexible and full of energy – let's innogize!

Renewables

innogy is number three worldwide in offshore wind (as at March 2016), with an installed capacity of more than 900 megawatts. In onshore wind too, we are one of the major operators in Europe, with over 1800 megawatts. We plan, build and operate plants to generate power and extract energy from renewable sources. Our aim is to take the expansion of renewables in Europe further in the short term, both on our own and working with partners. We believe that working together in this way is the key to making the energy transition a success. Currently, we are particularly strongly represented in our home market, Germany, followed by the United Kingdom, Spain, the Netherlands and Poland. At the moment we are focusing on continuing to expand our activities in onshore and offshore wind power as well as reinforcing hydro-electric power generation. We are also looking at entering new markets and technologies, such as large-scale photovoltaic plants, even beyond our core European markets. For further information: www.innogy.com

