It's not exactly glamorous work. In fact, of all the components that come together to build offshore wind farms, the formation of large format tubes, pipes and monopiles is about as unglamorous as it gets. But without them, the larger-than-life turbine propellers that gracefully cut through the salty ocean air would simply fall into sea. It's safe to say, though not subject to much fanfare, pipe construction and foundation laying are some of the most important elements involved in erecting a stable, durable off

Laying THE Foundation

EEW Special Pipe Construction contributes mono-poles to some of the largest wind farms in the world

Colossus made out of steel—with 930 tons one of the heaviest monopile ever produced in industry.

shore wind farm. And EEW Special Pipe Construction is one of the biggest players in the monopile game.

Currently the most commonly used foundation in the offshore wind market due to their ease of installation in shallow to medium water depths, monopiles are perfectly suited for sites with water depth ranging from 0-30 meters. A large number of monopile foundations have been utilized in recent years for economically constructing fixed-bottom offshore wind farms in shallow-water subsea locations.

Based in Siegen, a picturesque university town in the North Rhine-Westphalia region of central Germany, EEW SPC has made a name for themselves not only in the off shore wind energy sector, but also in the oil and gas industry as well. As a subsidiary of the international EEW Group, an eighty-year-old association of SAW pipe mills as well as trading and representation companies, EEW SPC has contributed monopiles, foundations and expertise to some of the largest wind farm projects on the planet including the 367 megawatt Walney 2 wind farm located in the East Irish Sea, the 630 megawatt London Array, which as of 2013 is the largest offshore wind farm in the world, and Gwynt y Môr, a near-completion, 576 megawatt offshore wind farm located off the coast of North Wales.

Aerial view of the facilities and quay of EEW Special Pipe Constructions GmbH in Rostock.

But it's taken more than just one simple mill to produce such an abundance of components. "In total, we have over 6 operational sites," Karl Kloes-Hein, EEW SPC's Managing Director, told *The Prospector* during a phone interview. "Of course, we have our main mill which is really where the company started." EEW–Erndtebrück has the capability of manufacturing about 100,000 tons of 12-meter center pipes, which they mainly provide to the oil and gas industry. In addition to a few smaller mills in Siegen, the company also has mills in Korea, Malaysia, Saudi Arabia and the large facility of EEW SPC in Rostock, Northern Germany on the Baltic Sea where they manufacture thick-walled, longitudinal seam-welded

large pipes that have diameters of up to 10 meters, are up to 120 meters long, and weigh up to 1,500 tons. "We also have a worldwide sales network with offices in Singapore, Tokyo, Australia, Dubai and the UK," added Kloes-Hein.

And they aren't stopping there. EEW SPC, in partnership with Danish substation producer Bladt Industries, have opened a new manufacturing facility by the River Tees in Haverton Hill, near Billingham in North East England in hopes of strengthening their presence in the United King-

Karl Kloes-Hein, Managing Director, EEW SPC

Ready for the future to manufacture XL monopiles—the first section with a diameter of 10 metres produced at EEW SPC.

dom. Formerly the old Tees Alliance Group Energy Solutions site, the two continental companies are planning to invest in upgrading the 42 acre facility to the tune of $30 million. Once complete, EEW SPC and Bladt Industries will have more than 13,000 square meters of steel manufacturing facilities under the one roof and an additional 2,000 square meters of blasting and painting facilities.

"Since our inception in 2008, EEW SPC has become one of the world leading companies in the field of fabrication of monopiles and transition pieces for offshore wind foundations," Kloes-Hein said. "We have executed and supported more than 25 key offshore wind projects in Europe and the U.S. We will contribute our outstanding experience of serial production for large pipes and tubulars to the new UK entity, Offshore Structure (Britain) Limited. We see this as a step to further growth of our business in one of the most important markets in Europe." With six of the eleven largest wind farms in the world currently located in the United Kingdom, it doesn't take a mathematician to see the potential value in EEW SPC's latest move.

Loadout of the first monopile for the Butendiek Offshore Wind Farm.

Though relatively new to the off shore wind energy market, EEW SPC is applying what they've learned in the oil and gas industry to offer wind energy projects top of the line service and products. Perhaps even more exciting than the growth of the company's international manufacturing capabilities is the growth of their actual client list. In May of last year, EEW SPC was awarded the contract to manufacture foundations for Sandbank, an ambitious wind farm project located 90 kilometers off the coast of Schleswig-Holstein, on the German North Sea. In total, 72 Siemens wind turbines in the 4-megawatt class will be erected at the Sandbank project. With an overall capacity of 288 megawatts, the wind farm, which is majority owned by Vattenfall, is projected to start generating low-emissions power for 500,000 households by 2017.

"The Sandbank project is a very, very important project for us," Kloes-Hein told us with a hard to conceal amount of pride. "First of all, it is the first contract we've ever signed with Vattenfall. It was a long process that took about a year. We are in production right now. It really is a huge amount of tons we're doing for the Sandbank project. We're actually doing as many as four monopiles each week. We had our first load out yesterday and as of now, about 30-40% of the manufacturing is done. We're very keen to deliver the highest quality product we can, on-time." In total, 72 monopiles and transition pieces are being produced with a combined weight of 78,000 tons. The average diameter of the piles is 6.4 meters and they are to be placed at a water depth of 25 to 34 meters. And EEW SPC is subcontracting the transition pieces out to their good friends at Bladt Industries in Aalborg.

Also on the company's To-Do list is the Gemini project, a €2.8 billion, 600 megawatt wind farm planned off the coast of the Netherlands. The wind farm will consist of two stages. The first stage is an array of 75 turbines located north of the West Frisian Island of Ameland, and then another 75 turbines located 55 kilometers north of the municipality of Schiermonnikoog, an island which is also the site of the Netherlands' first national park. The 61,000 tons of steel will be processed by EEW SPC later this

EEW SPC uses state-of-the-art machines and progressive manufacturing methods to guarantee high quality

EEW SPC sets a high standards on the inspection of the manufactured pipe segments.

summer. "We're almost finished with the Gemini Project," Kloes-Hein assured us. "We've completed about 70 of 75 monopiles. It has been a very smooth process."

If all goes well, by the end of the year, the grid of fully-connected wind turbines in Europe could produce more than 284 TWh of electricity, which is roughly enough to cover 10% of the European Union's electricity consumption. The numbers are exciting and they are helping to guide the European Union's gradual move away from traditional energy sources. But every growing industry has its Achilles' Heel. "The success of the offshore wind industry over the

PROSPECTORFILE

OERLIKON

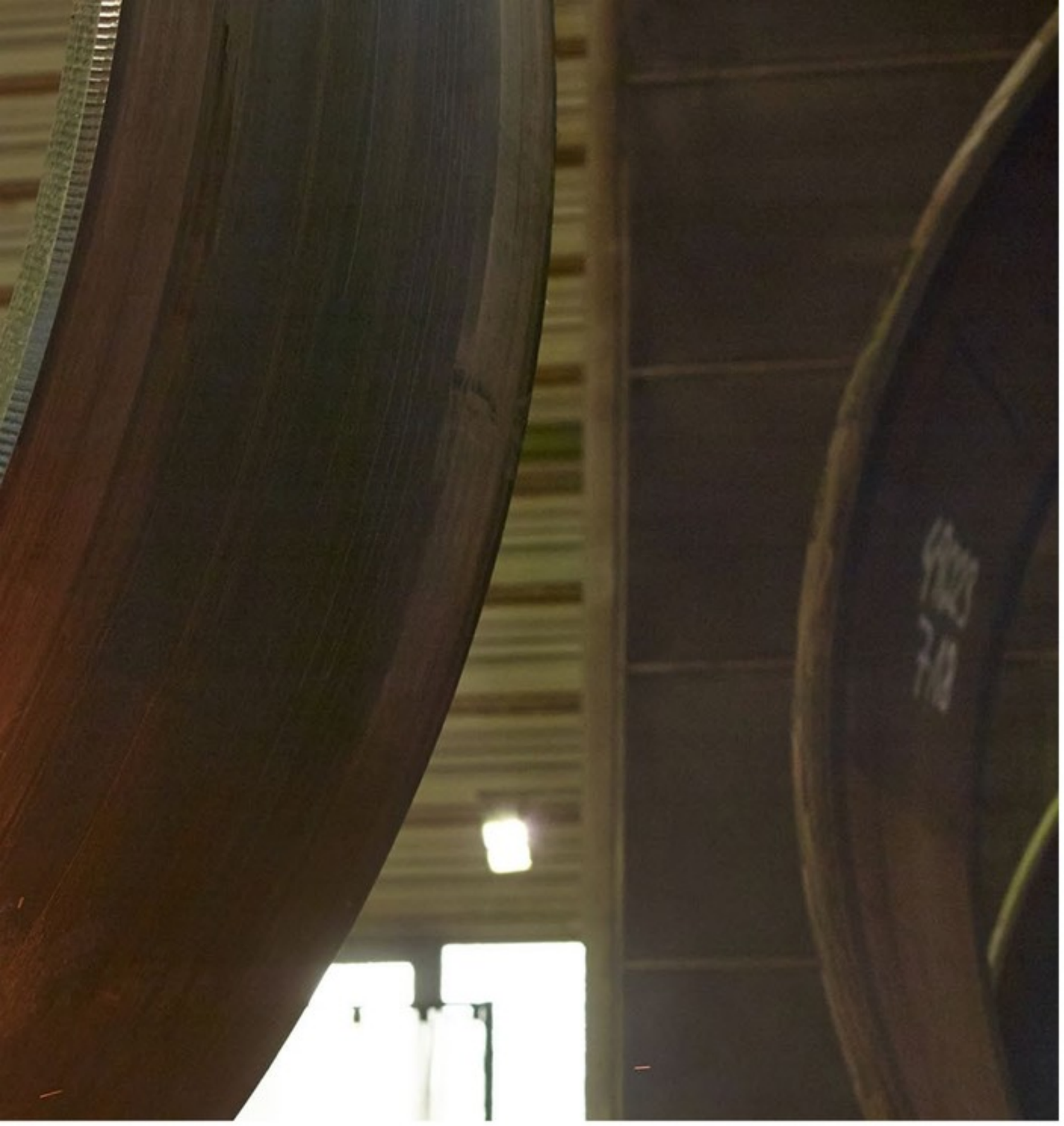
OERLIKON Schweißtechnik GmbH, member of the Air Liquide Welding Group and employing about 220 people realized a turnover of more than 60 million Euros in 2011. The group belongs to the market leaders with the most important range of solutions for the welding technique. OERLIKON offers the customers in large and heavy industries and in steel and metal working industries a complete portfolio of welding machines, automated processes and equipment, consumables and services for welding and cutting. With our international team of experts and total conformity with the European standards we can fulfil customer requirements perfectly and tailored to their needs.
OERLIKLON Schweißtechnik GmbH offers comprehensive solutions from the analysis of the customer requirement up to the customer-specific solution in welding and cutting technique.

www.oerlikon.de

"I strongly believe that offshore wind will be a competitive power source in the future."

—KARL KLOES-HEIN, MANAGING DIRECTOR

Welding process at a pipe segment.



we have seen a productivity increase of at least 30%. I strongly believe that offshore wind will be a competitive power source in the future."

If Kloes-Hein is right, it would mean some great things for him and his growing team at EEW SPC. But already, a glance at the books is a promising endeavor. "Right now, about 45% of our revenue is in the offshore wind market the other 55% is in the oil and gas market," Kloes-Hein boasted. With a total annual revenue of between $550-$600 million, wind power obviously brings in some serious coin for EEW SPC. "That 45% growth from absolutely nothing in 2008," he added. "That's big." ▲

PROSPECTORFILE

Krebs UNTERNEHMENSGRUPPE

The Krebs Group of Companies has in close cooperation with EEW SPC built up a reputation as a group of excellent offshore corrosion protection companies.

Today Krebs is also capable of handling the complete logistic around the process of blasting and painting components up to a weight of 1.000 tons.

So far Krebs has references from more than 2.000.000 m² of coated steel located in the North Sea, Baltic Sea and Irish Sea.

www.krebsgruppe.de

next few years, in my opinion, depends on cost because it still is a heavily subsidized market in almost every country, whether it's Germany, the Netherlands or even the UK." Kloes-Hein told The Prospector when asked about his thoughts on the future of wind energy.

"What I can see," he added, "based on the experience we've had with our recent projects, is that costs have come down already. And there's still a lot of potential to further reduce cost. For instance, in 2008, we were able to produce two monopiles per week and what was a lot of effort. Now, we're doing six per week. And if you look at the prices from 2008 compared to now,