



An energetic Odyssey in Rotterdam

To realise the climate targets set out in the Paris Agreement, over the next few years, we will be seeing a strong increase in the number of offshore wind farms in the North Sea. This will create all sorts of new opportunities for the offshore wind industry. PES spoke to Joost Eenhuizen, Business Manager Maritime & Offshore Industry at the Port of Rotterdam Authority, about the role the port of Rotterdam can play in the development of wind farms at sea.

“The port of Rotterdam is highly suitable as a smart base of operations for innovation and the construction, assembly, installation and decommissioning of offshore wind farms,” says the business manager. “Collaboration is a key factor in this market and it is important to surround yourself with the right players. When it comes to collaboration, the port of Rotterdam offers all kinds of interesting possibilities.”

During the UN Climate Change Conference in Paris in December 2015, 195 countries signed an agreement to keep the rise in temperature worldwide below 1.5 degrees Celsius. Europe’s contribution to this entails the reduction of greenhouse gas emissions by at least 80% compared to 1990. One of the ways to achieve this is an energy transition to wind energy.

Growing number of wind farms at sea

Wind Europe, the former EWEA, is expecting considerable growth in offshore wind energy in European waters, on average around 22 per cent per year. In 2030, the industry association for wind energy estimates that a total of 150 GW in offshore wind energy will be in European waters.

The Rotterdam project ‘2050 - An Energetic Odyssey’ included a detailed study into what would be involved in achieving the proposed reduction in greenhouse gases through the large-scale realisation of new wind power facilities. The conclusion of the investigation: we need to install 25,000 wind turbines in the North Sea between today and 2050. A consortium formed by the Dutch Ministry of Economic Affairs and



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a number of major Dutch companies, environmental organisations, designers and ports– including Shell, Van Oord, Eneco, RWE, Tennet, the European Climate Foundation and the Port of Rotterdam Authority – presently endorse ‘2050 - An Energetic Odyssey’.

The project, which is primarily intended as a stimulus to boost concrete action, has already pushed ahead with an international plan for wind farms at sea. In order to meet the increasing demand for clean energy, larger wind farms will be necessary, which will also be located further and further offshore. Therefore, governments of Germany, Belgium, Luxembourg, France, Denmark, Ireland, Sweden, Norway and the Netherlands agreed in June to collaborate on the planning and construction of wind farms in the North Sea.

Port of Rotterdam as an ideal operating base

There are a large number of developments and plans for increasing the number of wind farms in European waters and the North Sea and a smart operating base is needed to achieve this. The port of Rotterdam is highly suitable to serve as a hub for offshore wind farms. The port facilities with large-scale sites, high pressure loads, the availability of deep-water docks and an open connection to the North Sea are unrivalled.

Eenhuizen: “The offshore wind sector can continue to build upon the existing maritime and offshore cluster. Rotterdam acts as a home base for major maritime contractors such as Heerema, Allseas, Van Oord, Boskalis, Jumbo, and Seaway Heavy Lifting, etc. The region offers a broad range of maintenance and repair facilities, ample room for assembly and serves as home base for a variety of maritime and logistics service providers. Various organisations have mobilisation and demobilisation facilities there such as the Rotterdam Offshore Group, Broekman Logistics, Franklin Offshore, Rhénus Logistics etc. You can also find a number of high-quality training and educational facilities for offshore personnel in Rotterdam.”

All of these are important criteria in getting the offshore wind business off the ground. Which explains why the Sif Group, market leader in monopile production, has chosen Maasvlakte 2 for their new production facilities, for example. The company has started producing the first offshore wind foundations at this site in the third quarter of 2016.

In addition, Rotterdam has excellent opportunities to offer as an energy centre for all wind farms,” says the business manager. “The port is already the number 1 energy hub in Europe. Here you will find everything that is involved in energy, from power stations to steam production and

hydrogen. It can be a landing point for cables from which electricity can be distributed across Europe or can be stored. Within the existing energy cluster, the possibilities of transformation from power-to-gas and power-to-liquid are already being investigated. If this is going to succeed anywhere, it will be here.”

Rotterdam Offshore Wind Delta

On top of that, the Rotterdam offshore cluster is not sitting still. It sees great opportunities in the further development of offshore wind and steps are being taken collectively to further enhance the role of the port of Rotterdam. In June 2016, Van Oord, Boskalis, Mammoet, Ampelmann, Falck, Sif, Eneco, Marsh, Keppel Verolme, STC-Group, Rabobank and Jules Dock signed a manifesto to turn the Rotterdam region into the Offshore Wind Delta, so that it can take the lead in the roll-out of offshore wind farms in the North Sea and beyond. Together, these parties are engaging in acquisition, innovation, education and training, policy and lobbying and marketing. The Port of Rotterdam Authority, the Municipality of Rotterdam and Rotterdam Partners have also joined this initiative.

Space available for offshore wind

Also physically speaking, there is room for offshore wind in the port of Rotterdam. Port of Rotterdam Authority is currently



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investigating the possibilities of constructing a top location for the offshore industry on the outer edges of the Rotterdam Maasvlakte. The Offshore Center Maasvlakte alongside the deep-water quay of the Prinses Alexiahaven, the home port of the Pioneering Spirit, the largest ship in the world. The centre will accommodate the various offshore markets such as the oil and gas sector, the decommissioning of oil and gas rigs and, above all, offshore wind. With an expandable surface area of 70-80 hectares, there is plenty of room. The proportions of the quay will also be extremely large in terms of length, depth and load, and will include the possibility of jacking close to the quay.

Innovations at Maasvlakte 2

In addition to offering space to the industry, the Port Authority is also supporting innovations to further develop this growing market. “We have created a pilot location on Maasvlakte 2 where experiments with smart applications can be carried out for the offshore wind sector.” One start-up, Vizionz, is currently testing methods of examining the behaviour of monopiles during use. Delft Offshore Turbine (DOT) has recently constructed a trial set-up of a wind turbine which pumps water to generate power. Prior to this, the start-up, Fistuca, experimented there with a new piling technique, where falling columns of water are used to drive piles into the seabed for the foundations of wind farms

and for oil and gas rigs in a quieter and cheaper manner.

A wind start-up also collaborated in Port XL, the port of Rotterdam’s start-up accelerator programme. During this 100-day programme, participating start-ups are coached by mentors from the industry in order to help them develop their businesses. Participant, Fibersail, has developed a way in which to monitor the shape of the rotor blades continuously and in real time so that the maximum potential of the wind turbines can be exploited.

Joost Eenhuizen: “The port of Rotterdam is a port where the traditional offshore sector, focussed on oil and gas, plays an important role. But we, as the Port Authority, are looking ahead and putting considerable effort into the transition to sustainable sources of energy. We do this by offering space, supporting innovations and, equally importantly, we are able to bring the right parties together. The existing maritime and energy clusters are vitally important to the further development of offshore wind. As Port Authority, we see it as our responsibility to ensure that these sectors know where to find each other. Together we can move ahead.” ■

Would you like to know more about offshore wind in the port of Rotterdam? The Port of Rotterdam Authority has a stand (1.134) at the Offshore Energy 2016 Exhibition in Amsterdam on 25 and 26 October.

