

A better way to build

High-voltage direct-current systems are more efficient and cost less than existing offshore power transportation solutions, but installing the often large platforms is a major challenge. Andreas Rosponi, managing director of **Overdick**, explains how the latest self-installation techniques can overcome the logistical difficulties and significantly cut costs.



Self-installation allows platform components that would exceed the capacity of the largest barges to be assembled cost-effectively.

Could you please briefly introduce Overdick?

Andreas Rosponi: Founded in 1996, Overdick is an engineering company involved in designing marine structures and naval architecture. It also carries out engineering activities related to offshore marine operations.

Overdick works closely with its clients to realise offshore marine projects. It provides the initial concept, then steers the project through the various stages of approval to its completion. It also offers installation services and digital engineering.

How have offshore platforms changed recently?

As the number and size of wind farms to be built offshore grows, the industry needs to find more efficient ways of feeding power into the grid. High-voltage direct-current (HVDC) systems have lower electrical losses over a long distance. But there are also challenges with HVDC. One important concern is the size of the platforms: those in the 900MW range are huge and extremely heavy.

Two of the five platforms currently operating in Germany were installed by crane, and one of them outweighed the capacity of the world's biggest crane-barge. It had to be installed in stages. The other three platforms were put in place using self-installing technology.

Is self-installation the future of HVDC platforms?

In principle, if you want to have an HVDC platform completely fabricated and outfitted onshore, then it will exceed the capacity of the largest crane-barge available on the market. Self-installation therefore becomes mandatory, due to the platform's size and weight. It is also much more efficient financially, as it saves on the cost of hiring expensive heavy-lifting equipment. Also, this

equipment is often in very high demand and only available for a limited time; this can lead to firms installing an unfinished platform offshore purely because if they don't do it immediately, they will lose the crane. They will then have to finish building the platform out at sea, which costs five or six times what it does on land. Self-installation technology, on the other hand, allows firms to keep their schedules flexible. Overdick has carried out a number of self-installation projects in the North Sea, East Asia and West Africa.

What self-installation technologies do you offer?

One of Overdick's key products is pre-pile technology. It's been developed specifically for installing turbine foundations as quickly and efficiently as possible. A single ship will install the piles, one by one. Following separately behind it, another vessel then arrives with the jacket. This second vessel is able to lift and then stab the jacket into the piles. The work is thus split between two jack-up barges, allowing the foundations to be installed extremely rapidly. This approach generates large economies of scale when installing a high number of turbines.

Overdick has designed two jack-up barges to perform these operations, one of which is the largest jack-up barge currently in operation. She's capable of installing a foundation every 30 hours. The company has also designed and installed three HVDC platforms in Germany's North Sea, with a fourth in the pipeline.

How do you see this market developing?

The industry is not going to develop quickly enough unless there is more international cooperation, creating greater economies of scale. Currently, offshore wind projects are quite expensive. They are also dependant on political will, in the form of guarantees for the price of power they produce, and subsidies.

Every country's allocation system is different, however. Whereas if there was more international cohesion and agreement, especially between the countries around the North Sea, it would be much easier to make things more cheaply.

The other problem at the moment is that nobody is willing to invest long-term in the tools and methods needed to make these developments happen more quickly and for less money, because the projects are all one-offs. And that's because there's a lot of uncertainty about the future. The sector needs longer forecasts. That's what needs to be changed. ■

Further information

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