Boskalis
Dredging & Marine Experts

PROJECT SHEET

DOLWIN 2
TRANSPORT & INSTALLATION OF THE DOLWIN BETA HVDC PLATFORM

BOSKALIS ENERGY SOLUTIONS

Boskalis is a leading global dredging and marine expert. With safety as our core value we provide innovative, sustainable and all-round solutions for our clients in the energy market. Realizing projects in remote locations with a heightened environmental focus is one of our specialties. Under brands such as Boskalis, Dockwise, SMIT, Fairmount, VBMS and Smit Lamnalco we offer more services than any other company in our industry, making us your next one-stop solution provider.

We support the development, construction, maintenance and decommissioning of oil and gas import and export facilities, fixed and floating exploration and drilling facilities, pipelines and cables, and offshore wind farms.

DOLWIN 2 PROJECT

The DolWin beta platform is a High Voltage Direct Current (HVDC) converter platform that is as large as a soccer pitch, 100 meters tall and weighs approx. 15,000 tons. Today, DolWin beta is the world's most powerful installation of its kind, enough to power around 1,000,000 households with clean energy. DolWin beta was built as a floating and submersible structure and has been installed at 30 meters water depth in the German Bight of the North Sea. Boskalis was contracted by Aibel and ABB to transport and install the platform for their client TenneT.
The DolWin 2 project encompassed a huge range of tasks, like dry transportation, rock placement, towage, surveying, anchoring, installation, ballasting, diving and ROV works.

SAFETY

Safety is our first priority during the execution of a project. The Boskalis NINA (No Injuries No Accidents) program was implemented in all facets of the project and adopted by the client and all

FEATURES

Client	Aibel, ABB, TenneT
Location	Dubai (UAE), Haugesund (Norway), German Bight (North Sea)
Period	Transport: June - August 2014 Seabed preparation: September - October 2014 Offshore installation: Augustus - September 2015
Vessels	Mighty Servant 1, Union Manta, Rockpiper, Fairmount Sherpa, Fairmount Expedition, Fairmount Alpine, Union Sovereign, Protea, Seahorse


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A Transport onboard the Dockwise Mighty Servant 1 to Haugesund, Norway
B Tow with Fairmount Expedition and Fairmount Sherpa to German Bight
C Rockpiper arrived for the solid ballast operations while the platform is being installed by Fairmount Expedition, Fairmount Sherpa, Fairmount Alpine and Union Sovereign


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subcontractors. All personnel involved in the operations were trained in the NINA program resulting in a high level of safety awareness and commitment. The project was completed without incidents or accidents.

PLATFORM TRANSPORT

In the summer of 2014, the Dockwise Mighty Servant 1 transported the DolWin beta platform from Dubai (UAE) to Haugesund (Norway). The voyage took around Africa, before arrival at Aibel's yard for the final outfitting of the platform.

SEABED PREPARATION

In 2014, the Union Manta installed cardinal buoys and the Rockpiper a filter and armour layer. As the platform had to be installed on top of this filter layer and within the armour boundaries, both layers had to be installed with extremely high accuracy.
A purpose-built fallpipe was used to allow for accurate placement of the relatively large armour rocks (up to 1m).

TOW & INSTALLATION

On the first of August 2015, DolWin beta left Aibel's yard in Haugesund, Norway. Following a four-day tow by the Fairmount Expedition and Fairmount Sherpa, the platform arrived in the DolWin wind cluster in the German Bight. At the installation site, the Union Sovereign had already installed the temporary mooring anchors. Together with the Fairmount Alpine, the platform was positioned on the exact location and submerged to the seabed.

SOLID BALLASTING

After set down, the Rockpiper pumped approx. 60,000 tons of solid ballast material in the platform to ensure stability during heavy North Sea storms. The ballast material was dry during transportation and then mixed with water on the Rockpiper. This mixture of water and rock was pumped into the platform pontoon and column tanks hydraulically by the purpose-built solid ballast equipment onboard the Rockpiper. Multiple bulk carriers were used to optimize the overall project schedule, i.e. reducing critical offshore installation time.

SCOUR PROTECTION

Scour protection had to be installed around the platform to protect the platform against erosion. The Protea accurately installed concrete mattresses and rock bags in close vicinity of the platform cable entrances, after which the Seahorse completed the scour protection using installing large rock using its Rock Side Dump Unit.

PROJECT CHALLENGES

The main challenges, which were dealt with effectively during project preparation and execution, were:

- Coordination of all the vessels involved; getting them in time, at the right spot.
- Simultaneous operations; optimizing sequence of close-to-platform activities and managing interfaces.
- Accurate platform, rock and mattress installation; strict horizontal and vertical tolerances.
- Engineering; converting theoretical questions into practical solutions.

MISSION COMPLETED

Seamless coordination, precision timing and teamwork were vital for a successful transport and installation of DolWin beta. We are delighted to have lived up to the high expectations of the client. Thanks to a great performance of all involved, we were able to complete the DolWin 2 project safely, successfully and ahead of schedule. The broad deployment of many different disciplines and of our versatile fleet made this project a prime example of our capabilities. The DolWin2 project shows Boskalis' expertise in providing clients a one-stop shop for highly complex multidisciplinary offshore projects.


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D Rockpiper, Seahorse and Protea working simultaneously
E DolWin beta and Rockpiper: a great couple
F Creating a new horizon

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