Boskalis

PROJECT SHEET

BORSSELE ALPHA/BETA
EXPORT CABLES

BOSKALIS

Royal Boskalis Westminster is a leading global marine contractor and services provider. With safety as our core value, we offer a wide variety of specialist activities to the oil & gas and renewables sectors. These activities include marine installation and decommissioning, seabed intervention, marine transport and services, subsea services and marine survey. In addition, Boskalis is a global dredging contractor, provides towage and terminal services across the globe and delivers marine salvage solutions.
By understanding what drives our clients we are able to provide the solutions that enable them to meet their specific business goals. For this reason we are constantly looking for new ways to broaden and optimize our offering and are committed to expanding our proposition, supported by our financial strength.
With our committed professionals in engineering, project management and operations, 800 specialized vessels and an unprecedented breadth of activities in 90 countries across six continents we help our clients in the offshore industry push boundaries and create new horizons.

LONG-TERM DRIVERS APPLICABLE TO THE PROJECT

Generating renewable energy. Increasing energy consumption.

PROJECT CONTEXT

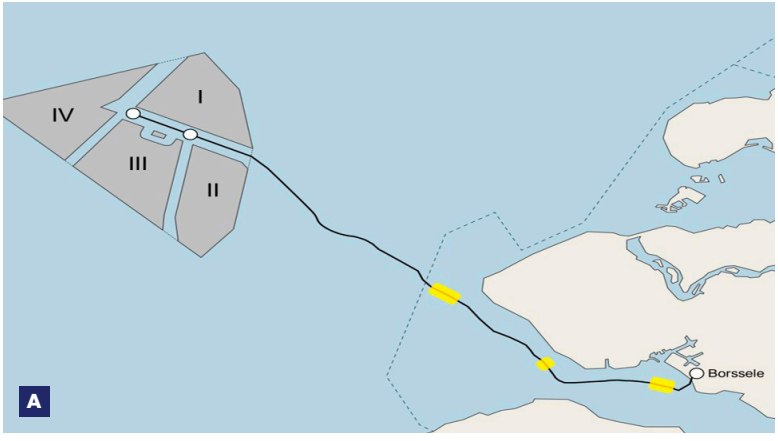
In the Agreement for Sustainable Growth from the Dutch government, it has been agreed that in 2023, 16 percent of the Dutch energy-supply needs to come from sustainable sources. To achieve this goal, the Netherlands need to generate more wind-energy, both on land and sea.

INTRODUCTION

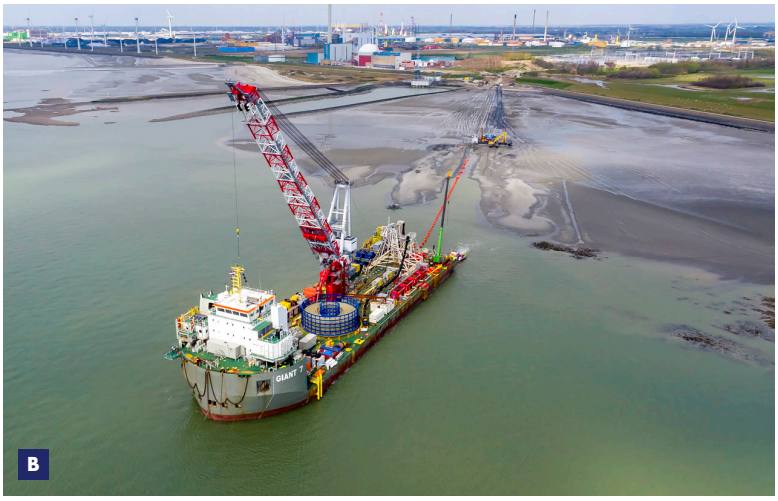
The grid connection of the Borssele offshore wind area in the North Sea consists of two 700 MW connections, called Alpha (for Borssele I and II) and Beta (for Borssele III and IV).
Boskalis Subsea Cables, in consortium with NKT, was awarded the contract for the supply and installation of 4 export cables and 1 interconnector cable. In order to execute the project in a safe and efficient manner, Boskalis has taken full advantage of the expertise and capabilities within the group. To allow the cables to be installed, shallow parts of the route are dredged and sandwaves are pre-sweeped.

FEATURES

Client	Tennet TSO B.V.
Location	The Netherlands
Period	2018 - 2020
Contractor	VBNK (consortium Boskalis Subsea Cables and NKT Cables GmbH & Co. KG)
Kind of project	Energy



A Schematic of cable route with in yellow the shallow parts/sandbanks
B Cable Lay Barge Giant 7 during the shore pull-in



BSS-III

For the project, cable burial up to 10 meters depth was required. To achieve this, a trench of 2 meters was dredged. Then the Boskalis inhouse designed burial sledge BSS-3 lowered the cable another 8.5 meter. The BSS-III is capable to bury the cables up to 8.5 m in sand and 6.5 m in hard clay. A world record for cable burial.
Using the tool, Boskalis managed to limit the amount of dredging in the NATURA2000 area Westerschelde and therefore minimizing the impact on the unique environment of this nature protection area.

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SCOPE

- Cable fabrication and transport from Cologne to Rotterdam by means of barges
- Pre-survey of route and removal of several out-of-service cables
- Dike reinforcement at cable pull-in location
- Pre-sweeping of sand-waves and dredging of flotation channels and trenches
- Cable pull-in to onshore substation in Borssele
- Installation and burial of four times 34 km 220 kV cables in the Westerschelde with cable-lay barge Giant 7 and burial tool BSS-III
- Installation and burial of four times 25+ kilometer of 220 kV cables and one time 7 km of 66 kV cable with the cable lay vessels Ndurance (burial with Trenchformer) and Ndeavor (burial with CBT2400)
- Cable jointing with the Giant 7
- Rock dumping on several locations with the Rockpiper to achieve required depth of burial

FACTS AND FIGURES

- More than 250 km of export cable was installed
- The export cables were installed up to 10 m below seabed.
- The in-house developed trenching tool BSS-III is able to bury cables up to 8.5 m deep in sand
- Almost 7.5 million m^3 was dredged for the flotation channels, trenches and during pre-sweeping
- The chain-cutter of the BSS-III is able to bury cables up to 6.5 m deep in clay
- For each cables three shipping channels were crossed, while keeping hindrance to shipping traffic to a minimum
- The shore pull-in was more than 1.5 km, included several bends and crossed a primary and secondary dike
- The soil along the route varied from peat and soft clays, to hard-packed sands and very hard clay (Boomse Klei)
- The cable route passed several very shallow areas/sandbanks. In these areas, the Giant7 was beached and moved through flotation channels
- Watch the project movie at: https://youtu.be/hLST4UmgiEk


C


D


E

C Cable Lay Vessel Ndurance during the 2nd end platform pull-in
D Prins der Nederlanden
E In-house developed burial sledge BSS-III launched from the Giant 7

Boskalis
PO Box 43
3350 AA Papendrecht
The Netherlands
T +31 78 69 69 000
offshore.energy@boskalis.com

www.boskalis.com/offshore