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OUR  
VALUES



Safety



Integrity



Sustainability



Performance



Collaboration



Innovation

# Hollandse Kust Zuid Project

## Project at a glance

*Full project information overleaf*

In April 2020, Seaway7 was awarded the contract for the transport and installation of monopile foundations and inner-array grid cables for the Hollandse Kust Zuid (HKZ) offshore wind farm, off the Dutch Coast in the North Sea. Seaway7 offshore works commenced in 2021, and in 2022 Seaway7 introduced their revolutionary approach to foundation installation in Dynamic Positioning (DP) mode. Efficiency and output significantly increased as a result and the remaining 106 of the total 139 foundations were installed within a five-month installation campaign. The final cables were laid at the close of January 2023.

## Windfarm Information

Hollandse Kust Zuid (HKZ) is the largest subsidy-free wind farm under construction in the world today.

Located about 18-35 kilometres off the Dutch coast, spanning 225 km<sup>2</sup>, HKZ received first power in Summer 2022 and is scheduled to be fully operational in 2023.

When completed, the 1.5 GW wind farm will comprise 139 Siemens Gamesa 11.0-200 DD wind turbine generators. The generated power, transferred to the onshore grid via two TSO TenneT offshore transformer stations, will provide clean energy equivalent to the consumption of over 1.5 million Dutch households.

The project is being developed by Vattenfall and is owned by Vattenfall, BASF and Allianz.



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Information and figures accurate at time of writing



# Hollandse Kust Zuid

## Project

Hollandse Kust Zuid

## Location

North Sea, Holland

## Water depth

17-28m

## Project type

Integrated T&I

## Date awarded

April 2020

## Completion date

Q3 2023

## Vessels

Seaway Strashnov,  
Seaway Aimery,  
Seaway Moxie  
and various other  
3rd party vessels

## Scope of Work

- **Integrated project management**
- **Foundations and transition pieces**  
Transportation and installation of 139 WTG monopile foundations (7-8m diameter, 750-925MT) and secondary steel - including scour protection and noise mitigation.
- **Cables**  
Transportation, installation and burial of 315km of 66kV inner array grid cables. All associated termination, testing and pre-commissioning.

## Project Milestones

- First foundation campaign commenced July 2021.
- Second foundation campaign commenced April 2022.
- First monopiles installed on DP April 2022.
- Cable installation commenced April 2022.
- Foundation installation completed September 2022.
- Final cables laid January 2023.



## Technology and Innovation

### Monopile Foundation Installation on DP.

In 2022, following a multi-year innovation programme, Seaway7 performed the world's first commercial monopile foundation installation in Dynamic Positioning (DP) mode. An industry breakthrough which significantly reduces installation time and cost by avoiding the need to anchor on each location.

Since the successful validation of the technique in 2019, Seaway7 has further developed the integrated motion-compensated gripper, capable of installing repetitively in a production environment. The new gripper was fitted on the *Seaway Strashnov* in 2022, ready for deployment offshore.

Installing on DP significantly increased installation efficiency for the 2022 HKZ campaign. Including loading and transits, an installation rate of more than one monopile per day was achieved.

This technique reduces installation cycle times, as well as the overall project duration and associated cost. This approach also brings environmental benefits, decreasing greenhouse gas emissions, and mitigating the impact on the seabed and local infrastructure.

### Bubble Curtains – Co-operating to Minimise Environmental Impact.

In order to reduce noise levels and minimise the impact to the marine environment, our client opted to implement a complex Double Big Bubble Curtain (DBBC). This consisted of two separate rings of perforated hoses, blowing air from the seabed to the water surface, producing 'shields' of air bubbles at predetermined distances from the monopile.

The bubble curtains, deployed by Seaway7, were highly effective, keeping actual underwater noise well below anticipated thresholds during both campaigns.

### Optimising Interfaces and Design by Collaborative Contracting Principle.

The contract was the first in the offshore renewables market on the basis of collaborative contracting principles. All stakeholders agreed to cooperate in optimising interfaces and design to maximize the business case for the project in a sustainable manner without compromising on health, safety and environment.

## Worksites and Assets

- Monopile foundations for HKZ were transported by heavy lift vessel, *Seaway Strashnov*, from Sif fabrication yard, Maasvlakte, Rotterdam.
- For the foundation installation campaign in 2022, Seaway7 contracted the Jumbo Fairplayer for the secondary steel installation, also transported from Sif fabrication yard.
- Cables for this project were fabricated by TKF and Prysmian at their factory in Lochem, the Netherlands and stored at the WIND facility in Velsen-Noord, North Holland. When the time came, they were loaded out onto the cable lay vessel *Seaway Aimery*.
- Cable installation was supported by installation support vessels, *Seaway Moxie*, and *Siem Dorado* – followed by the *Acta Orion*.