

BOSKALIS ENHANCES MIGHTY SERVANT 1 WITH INNOVATIVE ‘WINGS’ TO ACCOMMODATE TENNET’S EXPANSIVE 73M WIDE DOLWIN EPSILON PLATFORM

Boskalis has been a pivotal contributor to the energy transition, leveraging their versatile fleet. Their subsea rock installation vessels, cable-laying vessels, and crane vessels have played vital roles in seabed preparation, power cable installation, and turbine foundation placement. Additionally, their semi-submersible heavy transport vessels facilitate the global transportation of subsea power cables, monopiles, jacket foundations, and offshore converter platforms.

In a recent notable achievement, the Mighty Servant 1 successfully transported the DolWin Epsilon platform, exceeding 23,000 tons in weight. This HVDC converter platform is set to export electricity generated by offshore wind farms to the onshore power grid. The exceptional aspect of this transport lies in the discrepancy between the Mighty Servant 1's deck width, measuring 50m, and the cargo width, extending to 73m—nearly one and a half times wider. To address this, the deck was expanded with four outriggers or “wings” (two on each side of the vessel), enabling the Mighty Servant 1 to widen strategically and accommodate TenneT's 82m long and 84m high DolWin Epsilon platform.



VAN OORD COMPLETES FIRST TURBINE INSTALLATION AT SOUTH FORK OFFSHORE WIND FARM

Van Oord's offshore installation vessel, Aeolus, has accomplished the successful installation of the initial turbine among the twelve planned for the South Fork offshore wind farm. This marks a significant milestone as the first offshore wind project in the State of New York. The venture, a collaborative effort between Ørsted and Eversource, stands as a substantial contribution towards fulfilling the state's clean energy and climate objectives.

Situated 35 miles east of Montauk Point, off the eastern tip of Long Island, New York, the 132 MW wind farm is poised to generate clean energy to sustain approximately 70,000 homes. Van Oord, selected for the transportation and installation of the wind turbine generators (WTGs), is utilizing a fleet of American vessels, including barges, tugs, and various support vessels to facilitate the installation work at South Fork Wind.

A notable enhancement for the offshore installation vessel Aeolus was recently undertaken through a significant crane upgrade. This upgrade encompasses the installation of a new and extended boom on its existing crane. With this new 133m long boom, the Aeolus is now equipped to install the latest generation of turbines for offshore wind projects.



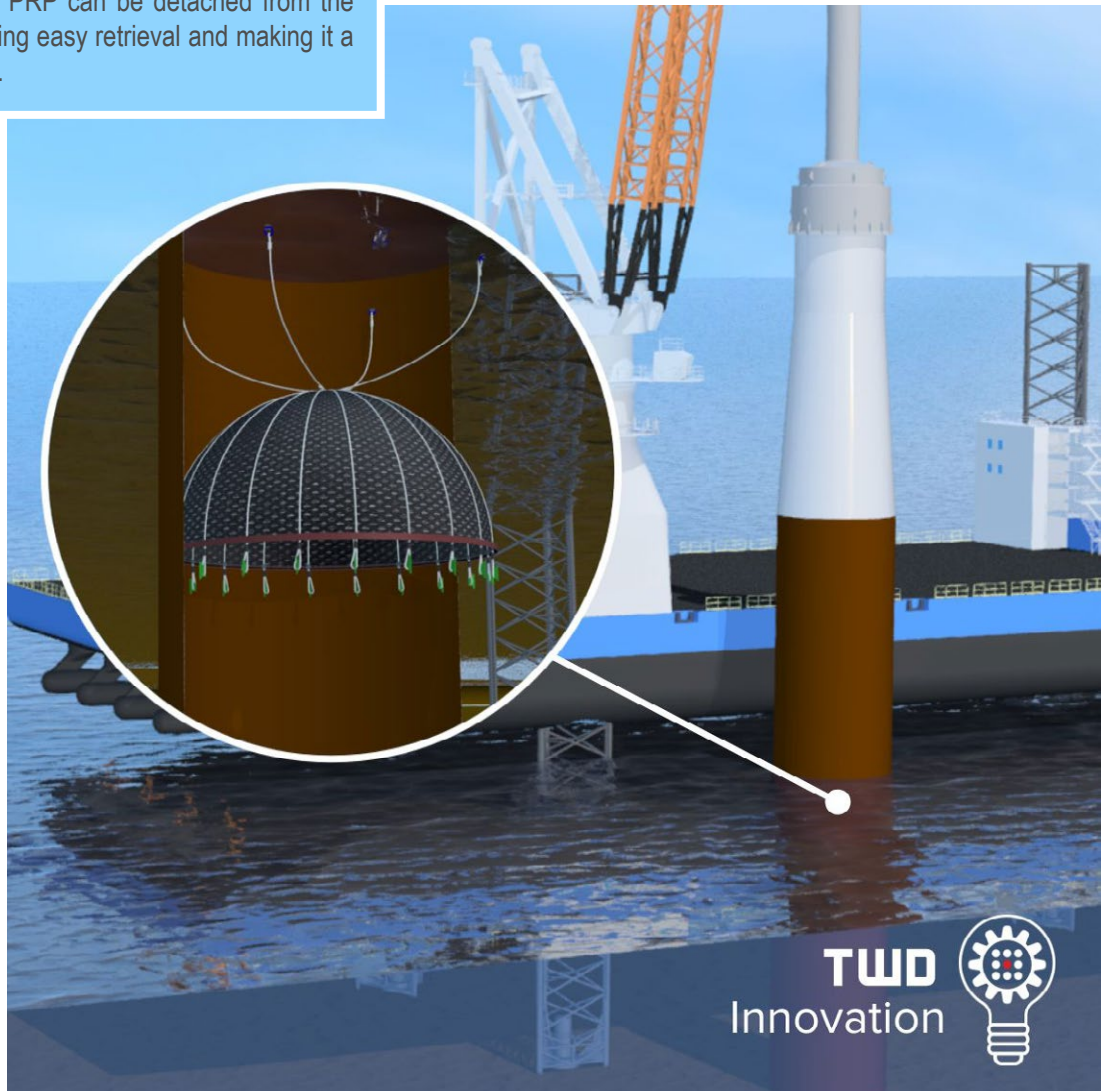
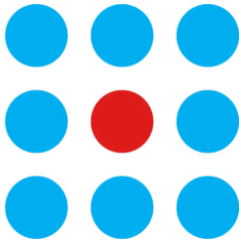
TWD

Presenting TWD's Innovative Concept: The Pile Run Parachute (PRP)

TWD's groundbreaking design, the Pile Run Parachute (PRP), ingeniously combines commonly utilized offshore materials such as steel wires and geosynthetic materials to craft a distinctive inner damper. This inventive solution serves to diminish both the velocity and depth associated with the termination of the pile run. The PRP encompasses three key features:

- Damping: The PRP effectively restricts seawater flow and manages the speed of the monopile, ensuring a safe process and minimizing the potential for damage.
- Flexibility: The PRP's inherent flexibility allows it to withstand hammer blows without experiencing any energy loss during the hammering process.
- Reusability: The PRP can be detached from the pile remotely, facilitating easy retrieval and making it a reusable component.

HOW CAN WE MINIMIZE THE RISK OF PILE RUN DURING INSTALLATION? ONE SOLUTION MAY BE TO UPGRADE THE MONOPILE ITSELF



WORLD'S FIRST FLOATING WINDFISH INTEGRATION PROJECT INSTALLED - GENERATES 16 MILLION KILOWATT-HOURS OF ELECTRICITY ANNUALLY

Groundbreaking Hybrid Floating Project Integrates Wind, Solar, and Aquaculture in China

Situated in the National Marine Ranching Demonstration Zone near Nanri Island, Fujian Province, China, is an unprecedented venture that seamlessly integrates wind, solar, and fish farming. Sustained by a three-columned, semi-submersible floating platform, the project hosts a 3.6-megawatt (MW) offshore wind turbine and 0.4 MW of lightweight, flexible solar panels. The hexagonal space beneath the central platform, with a depth of approximately 115 feet (35 meters), is designated for fish farming.

This innovative mixed energy project is a collaborative effort between the Longyuan Power Group and Shanghai Electric Wind Power Group. At its maximum capacity, it has the capability to generate 96,000 kWh of electricity daily, an amount equivalent to the energy consumption of 42,500 people. Shanghai Electric rigorously conducted nearly 200 operational tests on the project to ensure its efficiency and effectiveness.



NOVEL FLOATING OFFSHORE WIND DESIGN APPROVED BY ABS

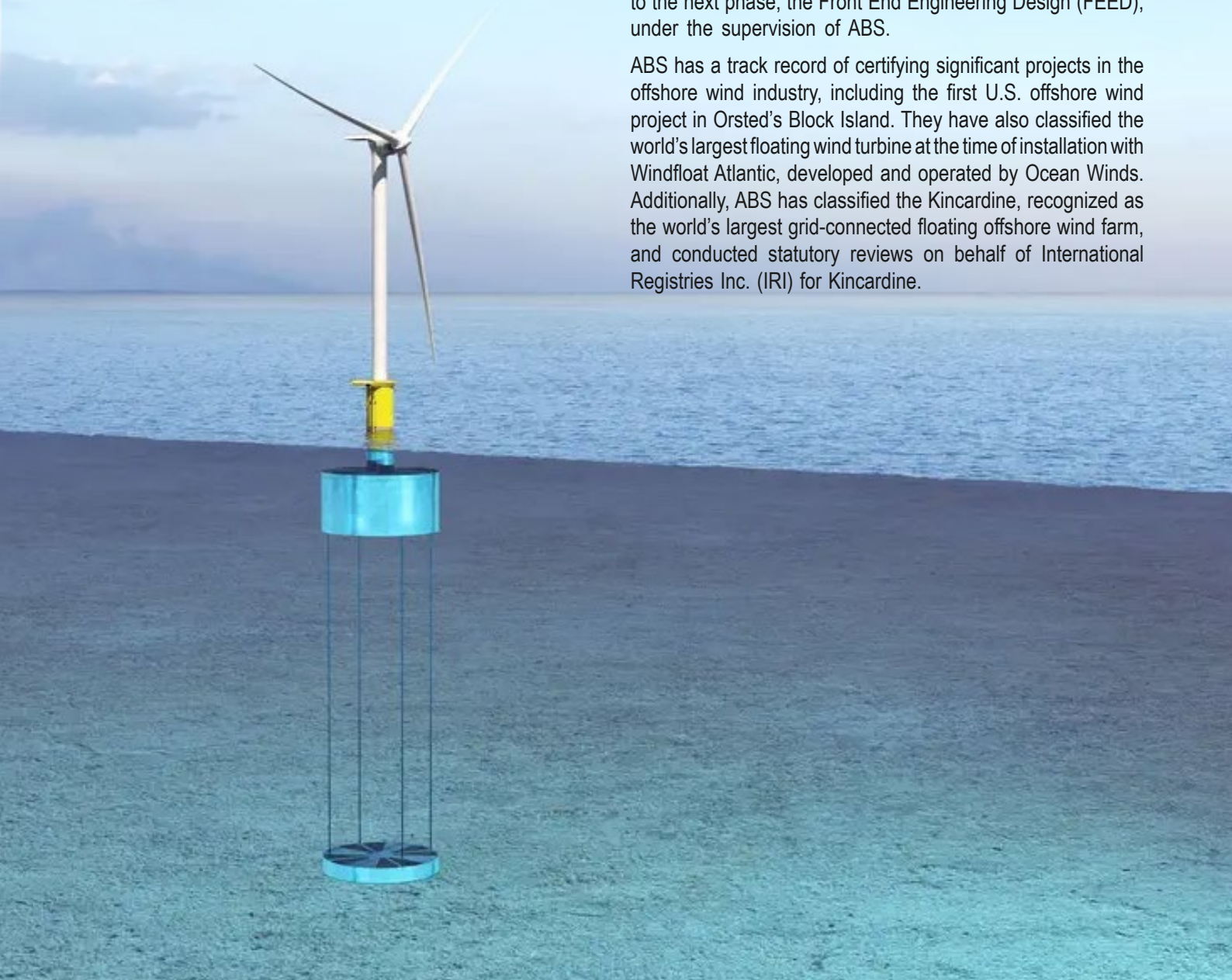
ABS Approves ECO TLP and MOCEAN-Offshore BV's Innovative Offshore Wind Turbine Support Structure

The American Bureau of Shipping (ABS) has recently granted Approval in Principle (AIP) for the floating offshore wind turbine support structure designed by ECO TLP. This distinctive design incorporates slip-formed cylindrical concrete hulls and gravity anchors. When combined with a tension-leg mooring system, it results in a more compact footprint compared to traditional structures utilizing steel column-stabilized hulls.

This advancement is crucial for expanding renewable energy generation capacity in locations too deep for fixed-bottom wind turbines. ABS takes pride in supporting forward-thinking companies like ECO TLP Inc. that are developing structures to address and overcome challenges associated with the manufacture, installation, and cost of offshore wind projects.

ECO TLP™ streamlines the floating wind installation process, reducing both capital and operational expenses while incorporating readily available, non-proprietary components and local labor support. The project is currently progressing to the next phase, the Front End Engineering Design (FEED), under the supervision of ABS.

ABS has a track record of certifying significant projects in the offshore wind industry, including the first U.S. offshore wind project in Orsted's Block Island. They have also classified the world's largest floating wind turbine at the time of installation with Windfloat Atlantic, developed and operated by Ocean Winds. Additionally, ABS has classified the Kincardine, recognized as the world's largest grid-connected floating offshore wind farm, and conducted statutory reviews on behalf of International Registries Inc. (IRI) for Kincardine.





JAN DE NUL PURCHASES AN XL CABLE-LAYING VESSEL FROM FLEEMING JENKIN



The CMHI Haimen shipyard has been tasked with constructing the Fleeming Jenkin, an exceptionally large cable-laying vessel commissioned by Jan De Nul Group. Boasting an unprecedented cable-carrying capacity of 28,000 tonnes, this vessel is poised to serve the renewable energy and subsea cable sectors by enabling the laying of cables over extended distances and in deeper waters. The scheduled delivery of the vessel is set for 2026.

Jan De Nul places significant emphasis on bolstering both installation assets and human resources in the offshore energy sector. As the scope of offshore wind farms expands, fostering interconnectivity between countries and regions becomes paramount for economic stability and energy security. Meeting the rising demand in this industry necessitates longer, stronger, and heavier cables. Therefore, Jan De Nul remains committed to investing in both installation assets and human capital to meet the needs of the offshore energy sector.

Philippe Hutse, Director of the Offshore Energy Division at Jan De Nul Group, affirms their unwavering belief in the energy transition. Following previous investments in advanced vessels

like the jack-up vessel *Voltaire* and crane vessel *Les Alizés* for installing next-gen wind turbines and their foundations, the company introduces the impressive cable-laying vessel, *Fleeming Jenkin*. With its unprecedented capabilities, *Fleeming Jenkin* is well-suited for the interconnector and export cable markets.

Jan De Nul's offshore installation fleet comprises four robust and diverse cable-laying vessels, along with two offshore jack-up installation vessels, three floating crane installation vessels, five rock installation vessels, and two multipurpose vessels. Operating such a varied fleet requires a skilled and efficient team. To support the introduction of *Fleeming Jenkin*, Jan De Nul has initiated the recruitment of additional crew and staff. This multidisciplinary team will include dynamic positioning officers, engineering technicians, tensioner carousel operators, cable-laying superintendents, various specialized offshore technicians, and engineers in civil and mechanical engineering. They will be integral members of Jan De Nul's leading workforce, specializing in offshore energy, and will benefit from an extensive in-house training program.

**ZTT PROUDLY
LAUNCHED
INNOVATIVE
'ZHONGTIAN
39' SELF-
PROPELLED
CRANE VESSEL
ON OCTOBER 29,
2023**

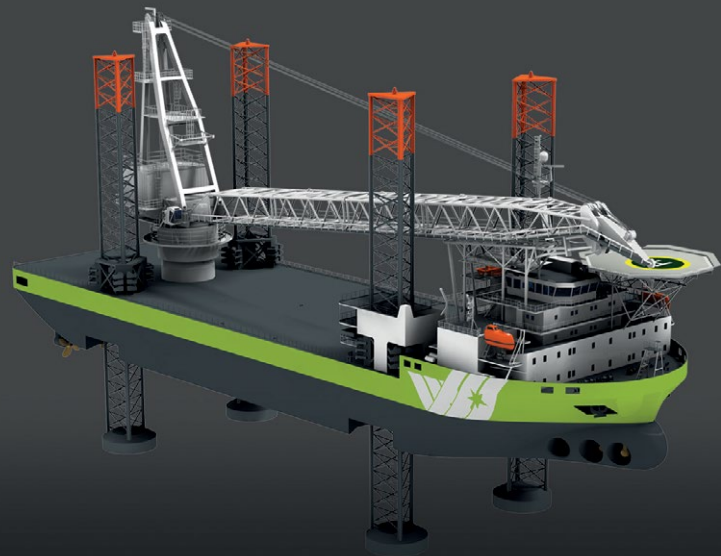
ZTT's advanced wind power construction vessel, the 'Zhongtian 39,' sets a new industry standard with its impressive dimensions of 215 meters in length and 51.8 meters in width, showcasing remarkable transportation and construction capabilities. Featuring a 360-degree rotating 3500-ton hook and a fixed stern crane capable of lifting up to 5,000 tons, the vessel can handle the lifting of 3200-ton wind turbine foundations and 4500-ton topside modules of substations. Additionally, equipped with a MENCK 3500kJ hydro pile hammer, it is well-suited for efficient piling operations.

The 'Zhongtian 39' is equipped with a DP-1 dynamic position system, enabling precise maneuvering within offshore wind farms. Its deck has the capacity to accommodate one full jacket structure or two monopiles, each with a diameter of 10 meters and a length of 120 meters. The vessel's versatility extends to various purposes, including constructing offshore oil platforms, erecting large cross-sea bridges, hoisting heavy structures, salvaging large sunken ships and objects, port loading, marine transportation, and foundation pile installation for all units of 10MW and above.

In essence, the 'Zhongtian 39' is positioned to play a crucial role in advancing wind power and offshore construction projects, making substantial contributions to the sustainable development of the industry.



AN EXTENSIVE DATABASE OF OFFSHORE VESSELS



Whether you are looking for a vessel to buy or to charter, check out our easy-to-navigate vessel database and request yours now!

Or contact us: info@grs.group





**WE ARE YOUR INDEPENDENT
SHIPBROKER FOR CHARTERING AND
S&P, SPECIALIZED IN THE OFFSHORE
RENEWABLES MARKET**

**IF YOU WOULD LIKE TO CHARTER
OR BUY, HAVE QUESTIONS OR NEED
INDIVIDUAL ADVICE**

CALL:

T.: +49 40 411 60 68 0

F.: +49 40 411 60 68 99

INFO@GRS.GROUP

WWW.GRS.GROUP

**GRS.OFFSHORE RENEWABLES GMBH
– STADTHAUSBRUECKE 7 – 20355
HAMBURG**

**MANAGING DIRECTOR:
P. SCHOENEFELD, M. MROSS, E.
RAVANO, G. RAVANO**

**COURT OF REGISTRY:
HAMBURG**

**COMMERCIAL REGISTRY:
HRB 119000 – VAT-ID: DE27813673**