OFFSHORE CHANNEL

WORLD TREND & TECHNOLOGY FOR OFFSHORE ENERGY SECTOR

Offshore Renewable Energy

- Wind Energy
- Wave Energy
- Tidal Energy
- Solar Energy

Mar & Apr 2022

Farshid Ebrahimi
Responsible Director

Offshore renewable energy consists of many different sources that are abundant, natural and clean, like Wind, Wave , Tidal and Solar. Unlike traditional fossil fuels, this energy will never run out. Renewable energy is essential for reducing the potentially devastating effects of climate change, and protecting the natural environment for future generations. Offshore renewable energy includes offshore wind, wave, tide and solar, where the strength of the wind, the pull and rise and fall of the tides, and the movement of waves, produces a vast amount of power that can be harnessed by modern technology.

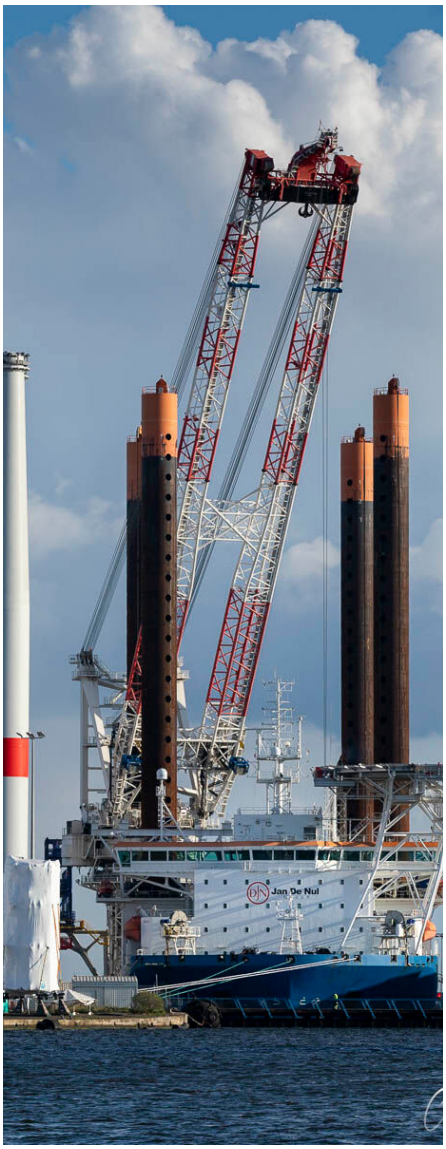
The energy of the oceans can be harnessed by modern technologies without emitting any greenhouse gases, making offshore renewable energy a potential cornerstone of the clean energy transition all around the world.

Offshore Channel Magazine reports on innovative engineering projects around the world, profiling the key players making a difference to the engineering profession. It's our flagship publication and our main channel for keeping our members up to date on what's happening at the offshore industry.

Offshore Channel Magazine is the flagship publication of the international Society of Professional Engineers. Published six times per year, Offshore Channel Magazine covers news and commentary on professional issues: licensing, engineering ethics, employment, legislative and regulatory issues, education, and many others that have a direct impact on professional engineers.

JAN DE NUL KICKS OFF TURBINE INSTALLATION FOR VERY FIRST OFFSHORE WIND FARM IN FRANCE

Jan De Nul's Offshore Jack-Up Installation Vessel Vole au vent has kicked off her mission on the Saint-Nazaire Wind Farm project in France. In total, she will transport and install 80 units of 6 MW Wind Turbine Generators (WTG) for the construction of the very first offshore wind farm in French waters. This wind farm will have a total capacity of 480 MW, which equals 20% of the Loire-Atlantique's electricity consumption needs.



INSTALLATION OF FIRST OFFSHORE WIND TURBINE NACELLE IN SAINT NAZAIRE

This nacelle, which contains the generator, is the first in a series of 80 Haliade 150-6 MW wind turbines produced for the Saint-Nazaire offshore wind farm to be assembled by GE Renewable Energy at the Montoir-de-Bretagne production site.

THE FIRST FRENCH OFFSHORE WIND TURBINE WAS INSTALLED OFF SAINT-NAZAIRE

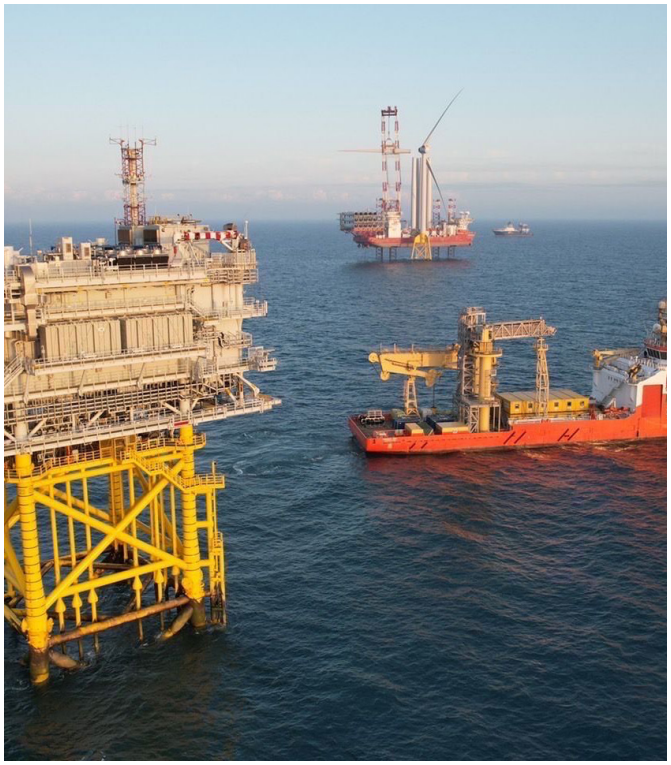
France is currently one blade short of having its first commercial offshore wind turbine as the team on board the vessel Vole au vent is completing the installation of the first GE Haliade 150-6MW unit at the Saint-Nazaire offshore wind farm site.

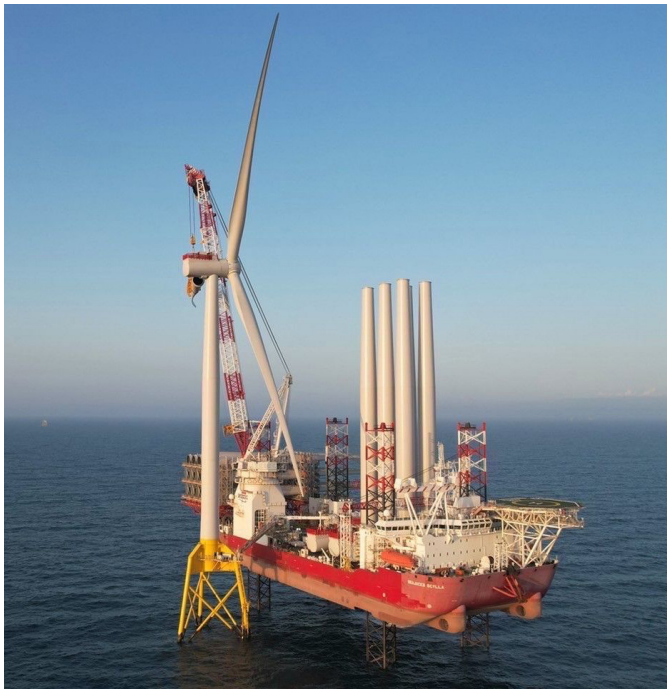
Jan De Nul's jack-up vessel sailed out of the Nantes-Saint Nazaire Port last week, loaded with the first four sets of offshore wind turbines for the first commercial-scale offshore wind farm in France, being built between 12 and 20 kilometres off the coast of the Guérande peninsula.

The 480 MW Saint-Nazaire offshore wind farm, scheduled to be commissioned this year, is owned and developed by Eolien Maritime France (EMF), a consortium of EDF Renouvelables, Enbridge, and Canada Pension Plan Investment Board.

FIRST TURBINE STANDS AT GREATER CHANGHUA 1 & 2A OFFSHORE WIND FARM

The first of the 111 Siemens Gamesa SG 8.0-167DD wind turbines has been installed at the 900 MW Greater Changhua 1 & 2a wind farm project offshore Taiwan.





TAIWAN'S BIGGEST OFFSHORE WIND FARM GENERATES FIRST POWER

Ørsted announced the successful delivery of the first power from the Greater Changhua 2a Offshore Wind Farm. This represents a big achievement for Ørsted and the industry as Greater Changhua 1 & 2a is the largest offshore wind project in Taiwan and the company's first large-scale offshore wind farm in the Asia-Pacific region.

Located 35-60 kilometres off Taiwan's west coast, Greater Changhua 1 & 2a has a total capacity of 900 MW, making it the largest and first far-shore wind farm in Taiwan. Once completed, the wind farm will significantly support Taiwan's fast-track build-out of renewables and provide the green energy much needed by export industries and by Taiwan to achieve its net-zero goal.

TENNET

In the coming days, the red lifting platform of Fugro can still be seen off the coast of Wijk aan Zee / Heemskerk. From the platform, the last targets for the research into unexploded explosives (NGE's) are uncovered on the route of the submarine cables for Hollandse Kust (noord) and (west Alpha).

In the investigation of the as yet unknown objects in the seabed, the WaveWalker1 is assisted by the Starfish. This high excavator from contractor Jan De Nul Group is specially intended for underwater excavation work. With all this equipment in the flood line, lovers of offshore technology can indulge themselves in the coming days.

The 1,400-tonne offshore substation topside has been installed on its monopile foundation at the 342 MW Kaskasi offshore wind farm in the German North Sea.

The topside was installed by the heavy lift, DP 2 installation vessel Gulliver, operated by DEME's subsidiary Scaldis Salvage & Marine Contractors.

Kaskasi is RWE's sixth wind farm off the German coast and is being built 35 kilometres north of the island of Heligoland.

HOLLANDSE KUST WEST ALPHA SUBSTATION STARTS TAKING SHAPE

EIFFAGE SMULDERS

Smulders has announced that both parts of the jacket for TenneT's Hollandse Kust (West Alpha) substation were upended at the Heerema yard in Vlissingen, the Netherlands.

The first part was upended last week, while the second one was upturned on 11 April.

According to Smulders, the jacket structure is 49 metres high, approximately 2,300 tonnes heavy, and will be ready this summer.

It will be installed in 28 metre water depth to support a topside which is currently under construction at the Smulders' facility in Hoboken, Belgium.

The transformer substation for Hollandse Kust (west Alpha) is scheduled to be fully offshore commissioned in the third quarter of 2023.

The jacket structure is part of the second substation for the Hollandse Kust Noord & West Alpha project.

Seaway 7 is pleased to announce that Seaway Strashnov has successfully installed the first monopile foundations on Dynamic Positioning (DP) on the Kaskasi project offshore Germany this month.

This is the world's first commercial monopile installation on DP mode. Installation of monopiles on DP will significantly reduce installation time and cost by avoiding the need to anchor on each location. Following a multi-year R&D programme, we first successfully demonstrated this technique in 2019, now coming full circle with installation on a commercial project.

Seaway 7 also utilised innovative vibro pile driving technology to reduce underwater noise emissions, benefiting the marine environment in particular. We have achieved this together with CAPE Holland, who built and provided the world's largest Vibro Lifting Tool for the project.

WORLD'S LARGEST FLOATING OFFSHORE WIND FARM FOUNDATIONS BEING TOWED TO BE FULLY ASSEMBLED

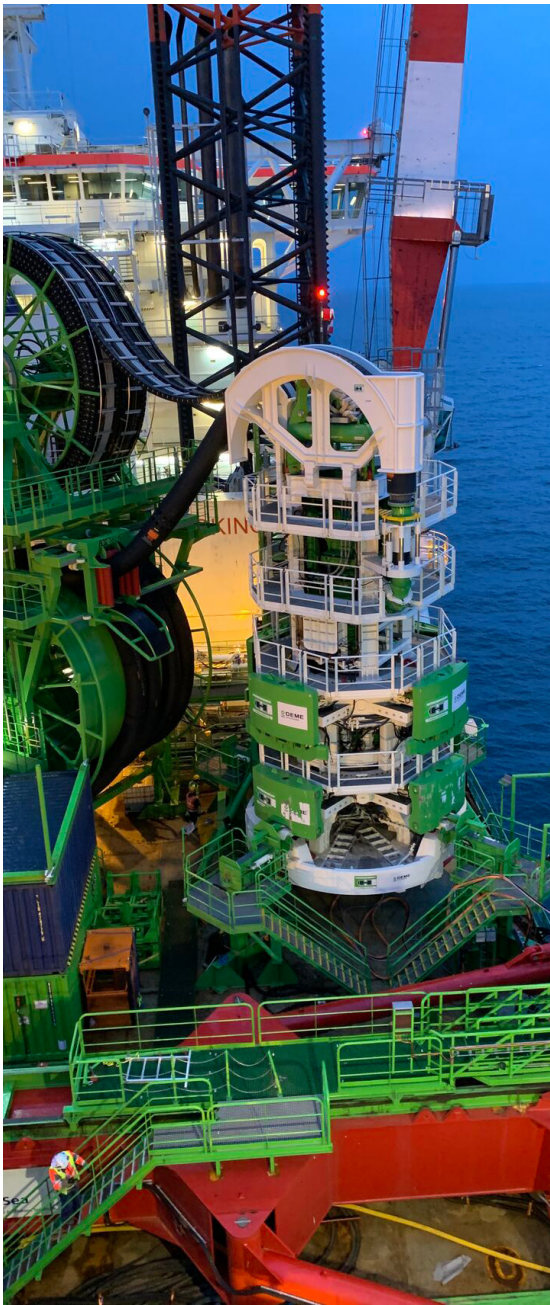
The towing of 11 concrete SPAR-type floating foundations for the 88 MW Hywind Tampen offshore wind farm from Dommersnes to the assembly site in Gulen, Norway, has started.

THE HERRENKNECHT OFFSHORE FOUNDATION DRILLING IS CURRENTLY THE LARGEST OFFSHORE DRILLING RIG AND IS SUCCESSFULLY USED BY DEME TO INSTALL MONOPILE FOUNDATIONS AT SAINTNAZAIRE.

A total of 73 monopiles with a diameter of 7,700 mm have to be excavated at depths between 6 and 24 m.

This new machine offers significant ecological and economic advantages over traditional methods.

The Saint Nazaire offshore wind farm is the first offshore wind farm in France. It is also the first offshore wind farm in the world where rock drilling for XL monopiles is one of the essential installation techniques.

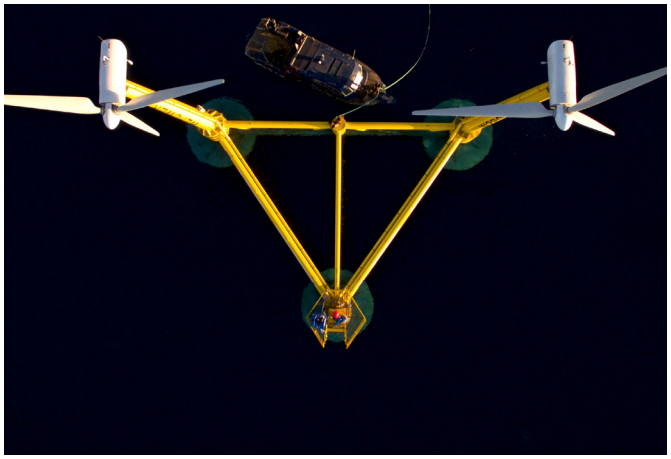


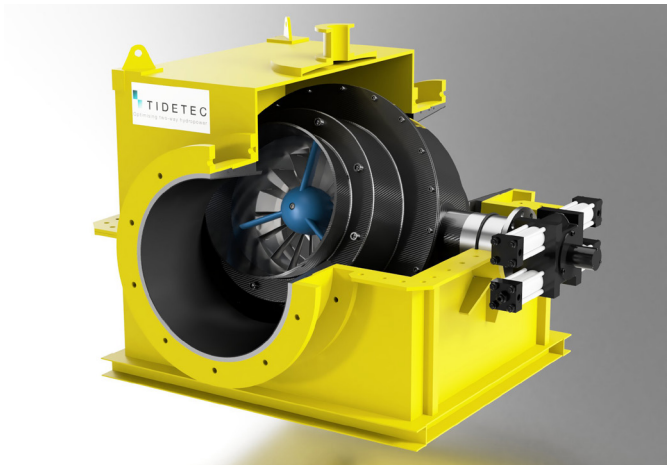
FIBREGY

FIBREGY PROJECT

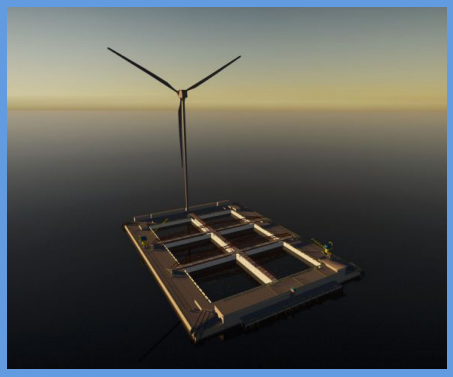
The overall objective of the FIBREGY project is to enable the extensive use of FRP materials in the structure of the next generation of large Offshore Wind and Tidal Power (OWTP) platforms.

In order to achieve this objective, the project will develop, qualify and audit innovative FRP materials for offshore applications, elaborate new design procedures and guidelines, generate efficient production, inspection and monitoring methodologies, and validate and demonstrate advanced software analysis tools.

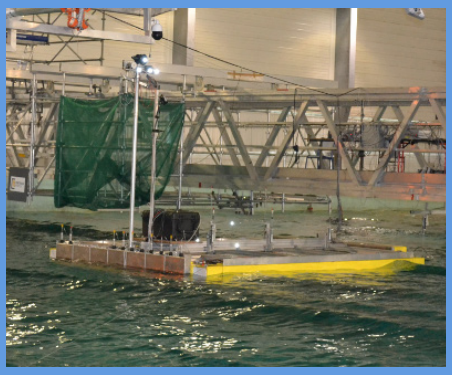


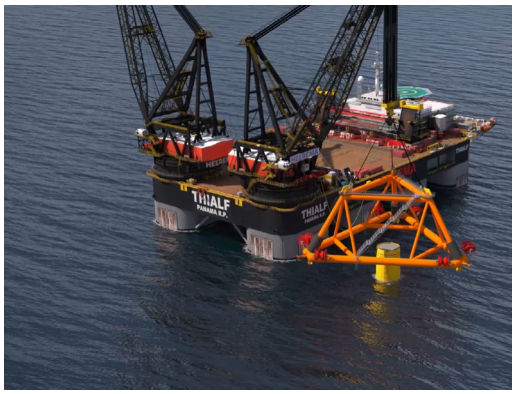


theBlueGrowthfarm



The Blue Growth Farm project, designs an automated, modular and multi-functional infrastructure for open sea installations. During the project development, two scaled prototypes, one (1:40) for indoor (wave tank) testing, and the other (1:15) for outdoor (sea) testing, have been designed and validated by the BGF Consortium at Ecole Centrale (Nantes, FR) and at NOEL (Reggio Calabria, IT), respectively.





MARINE CONTRACTORS

FLOATING TO FLOATING OFFSHORE WIND INSTALLATION METHOD

Introducing Heerema's novel floating wind installation method to upscale the commercialization of offshore floating wind

Heerema's Floating to Floating installation method was developed to deliver solutions to industry challenges, such as efficient use of resources like steel and port infrastructure, offshore logistics and maintenance, and reaching the required scale and rate of installation.

Currently, there are various proposed methods that involve assembling floating foundations (floaters) in port before wet-towing to the field. This presents logistical challenges, as well as there being pressure on the number of suitable harbors.

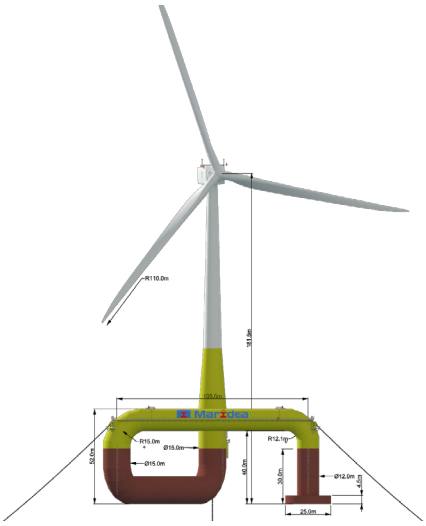
Therefore, Heerema has developed an alternative method that does not require a wet-tow and removes the need for marshalling yards. Using the floating to floating installation method floaters can be constructed on land before being dry-towed on a transport vessel to the location. After arrival, they will be installed using Heerema's floating installation frame to lift the floaters from the vessel. After that, they will be installed on location. Heerema's floating installation frame will submerge the floaters down by weight, removing the need for high-tech ballasting or tensioning systems and reducing installation duration. The bottom foundation work can be executed in parallel by optimizing the capabilities of Heerema's semi-submersible crane vessels.

MAERSK SUPPLY SERVICE TO CONSTRUCT PIONEERING WIND INSTALLATION VESSEL FOR EQUINOR & BP TO OPERATE IN THE U.S. MARKET

Maersk Supply Service has been developing an innovative concept for the installation of offshore wind turbines, using a new design for a Wind Installation Vessel. This leading-edge method will be 30% more efficient than using conventional jack-up vessels due to the Wind Installation Vessel's unique feeder capabilities. Supporting the newbuild investment, Maersk Supply Service has been awarded a firm contract with Empire Offshore Wind, a joint venture between Equinor and bp, for the installation of U.S. offshore windfarms Empire 1 and 2. For the transport and logistics, Maersk Supply Service has partnered with Kirby Offshore Wind, a subsidiary of Kirby Corporation, one of the U.S.'s largest operators of offshore barges and towing vessels, who will provide the feeder barge spread in compliance with The Jones Act.

MASS PRODUCTION ENABLED DESIGN – MORAY BASE

Author: Christiaan Schuiling
Company: Maridea BV



To reduce Levelized Costs of Energy (LCOE) of floating offshore wind, reduction of the CAPEX of the foundation is required. Mass series production enables for the desired cost reduction. Like the bottom fixed monopile, floating foundations should be produced, assembled, and installed in series. Contradictory to competing designs, the Moray Base, a floating wind foundation suitable for turbines of 15 MW developed by Maridea, avoids the shipbuilding process and facilities that are generally intended for one-off production. The Moray Base leans for its mass-production on this existing and proven industrialized monopile manufacturing and utilizes the inherent mobility of a floating structure during it final assembly like an assembly line in a factory.

The market potential for floating offshore wind is huge, but only if floating wind is capable to produce at competitive LCOE in line with alternative green energy sources. Achieving a competitive cost level requires a highly efficient process from production, transport, to installation and a high turbine efficiency. Economics of scale must be exploited; the wind turbines will therefore increase in size and the number of installed floating units will be high.

The above has been the driver of the design of the Moray Base.

In view of mass production (reducing costs and allowing large production volumes), the Moray Base is a most promising design for several reasons:

- The production of the sections is industrialized to a high degree. Traditional shipbuilding processes are avoided. A cost effective “monopile fabrication” process is applied for the bulk of the structure;
- The 4 sections of the foundation are easily transportable by general cargo ships as such mobilizing on a large potential transport fleet rather than relying on the limited number of submersible deck carriers;
- Series-assembly of the sections and turbine erection afloat in a harbour close to the project location with shore based equipment enables local content;
- It is highly scalable for future designs of turbines, and;
- The complete life cycle avoids the use of drydocks, which are expensive, limited in availability and might restrict sizing.

Moray Base – patent pending

Although most of the steelwork is performed in a dedicated factory, the still large scope of assembly and turbine erection allows for local content.

Besides efficient fabrication, the large diameter and thick-walled tubes deal easily with the turbine loads during severe storms and maximum turbine thrust. The long radius segmented elbows have superior strength and fatigue behaviour compared to the joints of traditional submersibles or truss floaters. This makes the structure less prone to fatigue and hence requires limited inspections and avoids offshore repairs. The corner location of the turbine allows for access with crane vessels for turbine repair and maintenance.

JACKET LIFTING TOOL IN THE MAKING FOR SAMKANG

EAGER.ONE

The Eager.one team is eager to announce that we are awarded the design and supply of a remote operated Jacket Lifting Tool for South Korean offshore wind specialist Samkang M&T.

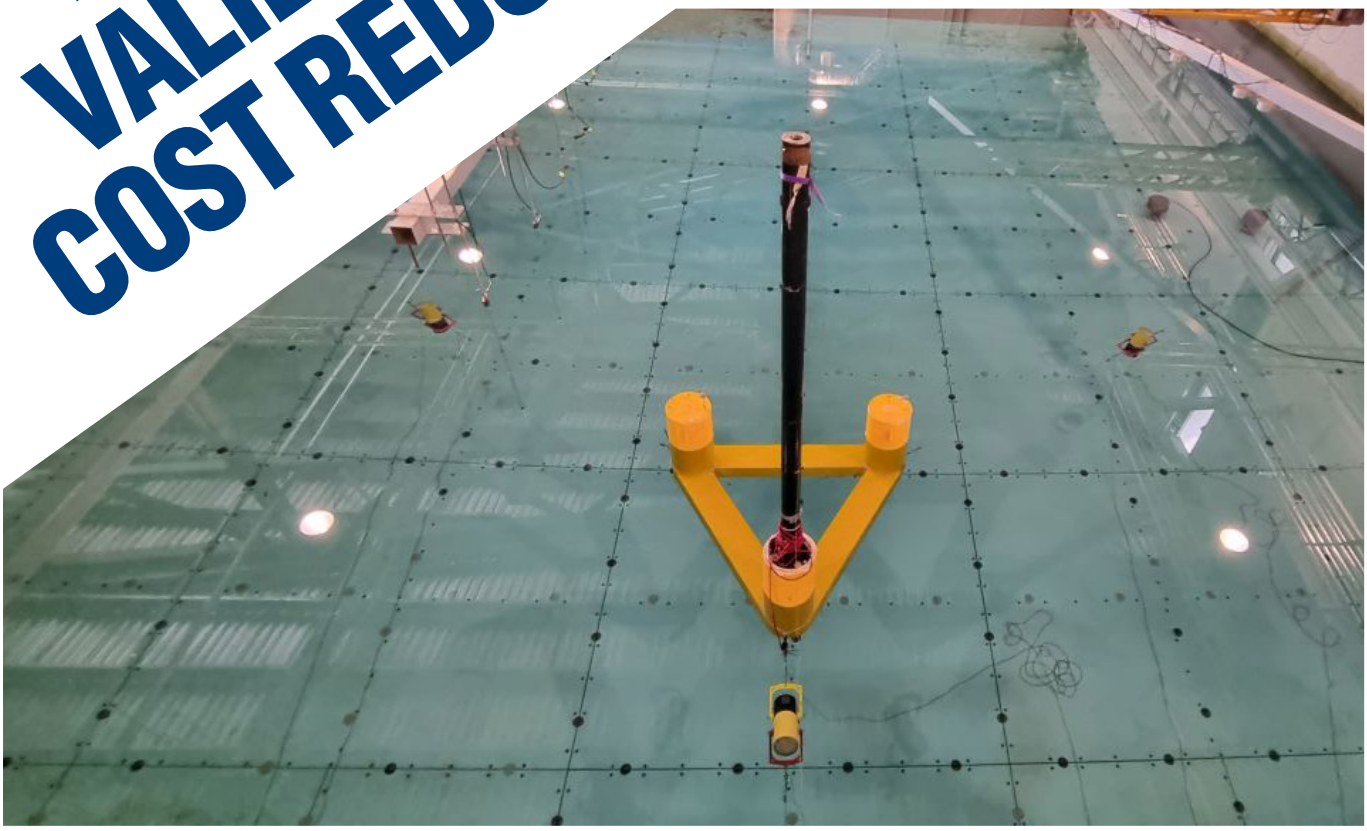
Eager.one was awarded by Boskalis to design and fabricate a specialized Jacket Lifting Tool (JLT). The JLT was specifically designed for the installation project of an offshore wind farm near Taiwan. It will be used during loading, unloading and installation of 62 jackets.

During the installation work, the tool will be used for load-out from the quayside on board the heavy lift vessel. In addition, it will be deployed for lifting the jackets from the heavy lift vessel to the final installation position.

The jacket lifting tool measures approximately 8 by 6 by 5 meter and has a total working load limit (WLL) of 2,233 tons. The tool is designed with 6 clamps, that will jointly lift the jacket.

Dublin Offshore

TANK TEST VALIDATES HUGE COST REDUCTION



Dublin Offshore have released a summary report outlining the results of ongoing development of the Load Reduction Device (LRD) at the Deep Ocean Basin in the Lír National Ocean Test Facility (NOTF) at MaREI. This testing campaign, supported by Sustainable Energy Authority of Ireland (SEAI), focussed on challenging and aggressive sites with known mooring challenges for Floating Offshore Wind. These aggressive sites are representative of the Atlantic conditions that will be experienced by Offshore Wind developers off the west coast of Ireland.

The conclusions from the testing are:

The testing has provided further validation that the LRD delivers major load reduction across LRD integrated catenary and ITM configurations.

The peak load reduction measured is 48% load reduction from baseline catenary load obtained by implementing the Inclined Taut Mooring System. This reduction was achieved during a 1 in 50 year storm event.

The anchor radius was substantially reduced from 852m to 355m. The overall platform footprint area has reduced by 83% and there are no longer any mooring lines in contact with the seabed eliminating thrashing and the associated seabed / mooring line damage.

Similar platform heave and surge response for catenary systems and inclined taut systems. This is a design choice made in specifying the test based on maintaining the baseline envelope. Further design choices can reduce excursion if required as identified by dynamic cable design. The reduced pitch and platform accelerations will also reduce loading on the dynamic cable.

Nacelle accelerations are significantly reduced by use of ITM systems.

CSBC-DEME INAUGURATES TAIWAN BUILT MAIN INSTALLATION VESSEL GREEN JADE

The construction of Green Jade began in September, 2020, three months after CSBE-DEME commissioned CSBC for this giant vessel dedicated for offshore wind.

CSBC Chairman Cheng Wen lon said the delivery of Taiwan's first and only MIV is earlier than expected. He also highlighted that Green Jade is Taiwan's largest (world's second largest) MIV and the "most expensive" commercial ship ever built in CSBC history.

Cheng also said the completion of this MIV could also indicated that Taiwan could be more "self reliant" in offshore wind farms construction.

GERMAN AIRWAYS & WINGCOPTER AGREE TO COOPERATE & DRIVE THE USE OF DRONES WITH OFFSHORE DELIVERIES

- Zeitfracht Group orders 17 Wingcopter delivery drones and signs an option to purchase another 115 until 2023.
- Rostock Airport will be used for development cooperation and as a test field.

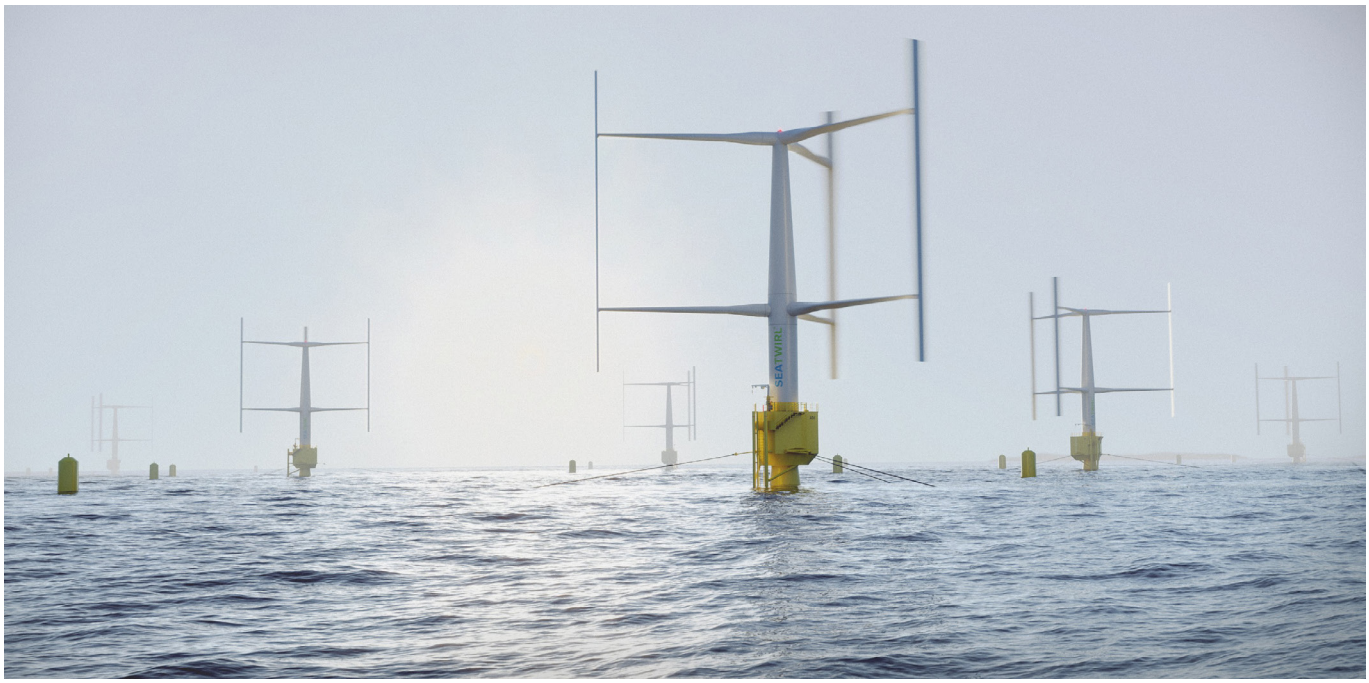
Berlin, Weiterstadt, Cologne/Bonn, March 30, 2022 — German logistics and aviation holding Zeitfracht Group and its subsidiary German Airways will be among the first companies worldwide to commercially deploy drones in logistics. In a joint letter of intent with the German drone manufacturer Wingcopter, the companies have agreed to purchase 17 Wingcopter 198 delivery drones and acquire options to order an additional 115 drones in two further tranches by the end of 2023. The aircraft are to be deployed from the second half of 2024 - initially offshore, for example for the delivery of spare parts to wind farms.

SEATWIRL RECEIVES AN APPROVED CONCESSION IN NORWAY

SeaTwirl has received an approved concession for the installation of the floating wind turbine S2x in Bokn municipality, Norway. The approval marks an important milestone for the Company.

SeaTwirl, together with Marin Energi Testsenter AS (MET) applied for a concession period of five years. The installation site for S2x is planned to be located in Boknafjorden, northeast of Lauplandsholmen.

The facility is to be located approximately 700 meters off the coast with a sea depth of up to 130 meters. The site intended for the installation of S2x was previously a fish farm. It is planned that S2x will be connected to an existing onshore transformer substation, and it has been confirmed that there is sufficient capacity in the transformer substation to handle the power generated. SeaTwirl has already reported that Haugaland Kraft will purchase the electricity produced.



ORION ARRIVES AT DEME OFFSHORE'S BASE

DEME's new offshore installation vessel Orion, which suffered heavy damage after a crane accident shortly before it was planned to be put into service, has arrived at DEME Offshore base near Vlissingen in the Netherlands after sailing out of Bremerhaven, Germany.

Equipped with a 5,000-tonne crane and a Motion Compensated Pile Gripper, Orion is designed to handle the next generation of wind farm components, the vessel owner pointed out.

At the beginning of last year, Parkwind awarded DEME Offshore with an EPCI contract for the foundations at the Arcadis Ost 1 offshore wind farm in the German Baltic Sea, with DEME saying the company would deploy Orion for the task.

OFFSHORE CHANNEL

DHSS

FIRST SG 11.0-200 DD TURBINE UP - FIRST WORLD'S SUBSIDY-FREE OFFSHORE WIND FARM SITE - FIRST HELICOPTER FLIGHT.

Installation vessel Wind Osprey received the first helicopter on deck one day after number 1 of 140 turbines has been erected at offshore wind farm Hollandse Kust Zuid.

In close collaboration with all involved operators, logistics teams, marine coordination center and our suppliers a solid air bridge is established for crew transfers by helicopter, next to the daily CTV runs out of Port of IJmuiden by various involved construction companies.

DHSS, the logistical provider of a wide range of services for the Offshore Energy Industry.

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SPS SUPPLY AND DISTRIBUTE THE HIGH STRENGTH, LOW TEMPERATURE STEEL USED IN THE OFFSHORE ENEREGY INDUSTRY

Offered as plate and sections to the exacting requirements both in terms of product and quality assurance, required by todays ever demanding industry. All material is manufactured by globally reputable steel mills, rolled to industry standard or bespoke specifications as required.

Our stock range of offshore, marine and high strength structural grades in plates, sections and tubes, together with our relationships with mainstream European producers ensures that we are ideally placed to provide all steel requirements from project start-up to completion.

Our experienced and knowledgeable team are on hand to give further help and advice, please do not hesitate to contact us.

SEALFORLIFE Industries

SEAL FOR LIFE PROFILE

With more than 60 years of experience Seal For Life Industries offers the most diversified coating solutions in the market for superior infrastructure protection. Seal For Life is made up of fourteen distinct brands offering products from self-healing coatings to heat-shrink sleeves, anti-corrosion tapes to liquid coatings, cathodic protection to intumescent coatings, anti-corrosion thermoplastics to pipeline logistic solutions; all servicing multiple industries across the globe.

We work in a variety of industries including infrastructure protection, renewable energy, water and desalination, energy and commodity pipelines, district heating/cooling, safety and integrity and offshore.

In the rapidly growing sector of renewable energy, Seal For Life is active with a number of brands providing the vital protection the industry infrastructure needs.
Their goal: To make renewable energy truly sustainable.

SYNERGYXR™

FIDAR Offshore Animation

Signing a cooperation agreement between SynergyXR and Fidar Offshore Animation for the development of VR&AR technology in the offshore renewable energy industry.

SynergyXR is a powerful cloud platform that lets companies train employees, deliver maintenance and offer remote support across all XR devices without having to write a single line of code.

PHOTOGRAPHE OFFSHORE
CHRISTOPHE BEYSSIER

OFFSHORE PHOTOGRAPHER

AN IMAGE CREATION SPECIALIST WITH THE NECESSARY CERTIFICATIONS TO ACCESS MARINE SITES, TO DOCUMENT THE ACTIVITIES OF THE OIL & GAZ AND MARINE RENEWABLE ENERGY INDUSTRIES

Many photographers specialize in industry, but the offshore environment has more requirements in terms of risk management. All personnel who need to access sites, whether by CTV or helicopter, must be trained in the inherent dangers. This is of course also the case for photographers.

From exiting a helicopter that has landed on the water, to evacuating a smoky wind turbine from the outside of the mast, OPITO (opito.com) and GWO (globalwindsafety.org) have created training standards to prepare personnel for these eventualities.

The industry is reinventing the world of tomorrow with marine renewable energy.

Offshore photographers document these historic moments.

After providing your company's HSE managers with the necessary certificates to access the sites, the photographer will focus on creating images, safely.

To find your offshore photographer:

- www.linkedin.com/company/offshorechannel-photographers/
- Christophe Beyssier
- Photographer – France
- www.photographe-offshore.com
- To work with me : cbeyssier.photography@gmail.com
- Whatsapp : +33(0)6 11 97 56 50

CORPOWER OCEAN PARTNERS WITH SUBSEA COMPOSITE SPECIALIST DIAB

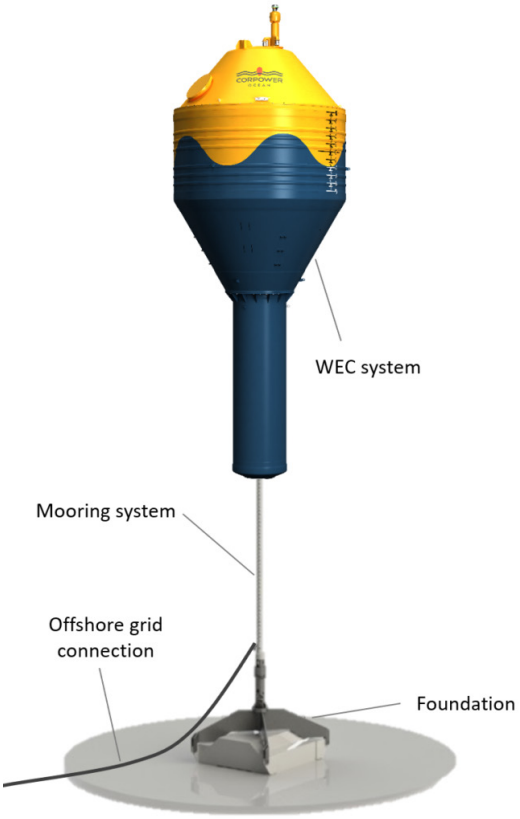
CorPower Ocean has partnered with subsea composite specialist Diab for the construction of its first commercial scale Wave Energy Converter (WEC).

The ocean energy developer is currently fabricating its next generation C4 WEC, with dual build-out operations in Sweden and Portugal.

Part of the flagship HiWave-5 Project, the WEC will ultimately join a four-system wave energy array, located off the coast of Aguçadoura in Portugal, forming one of the world's first grid-connected wave farms.

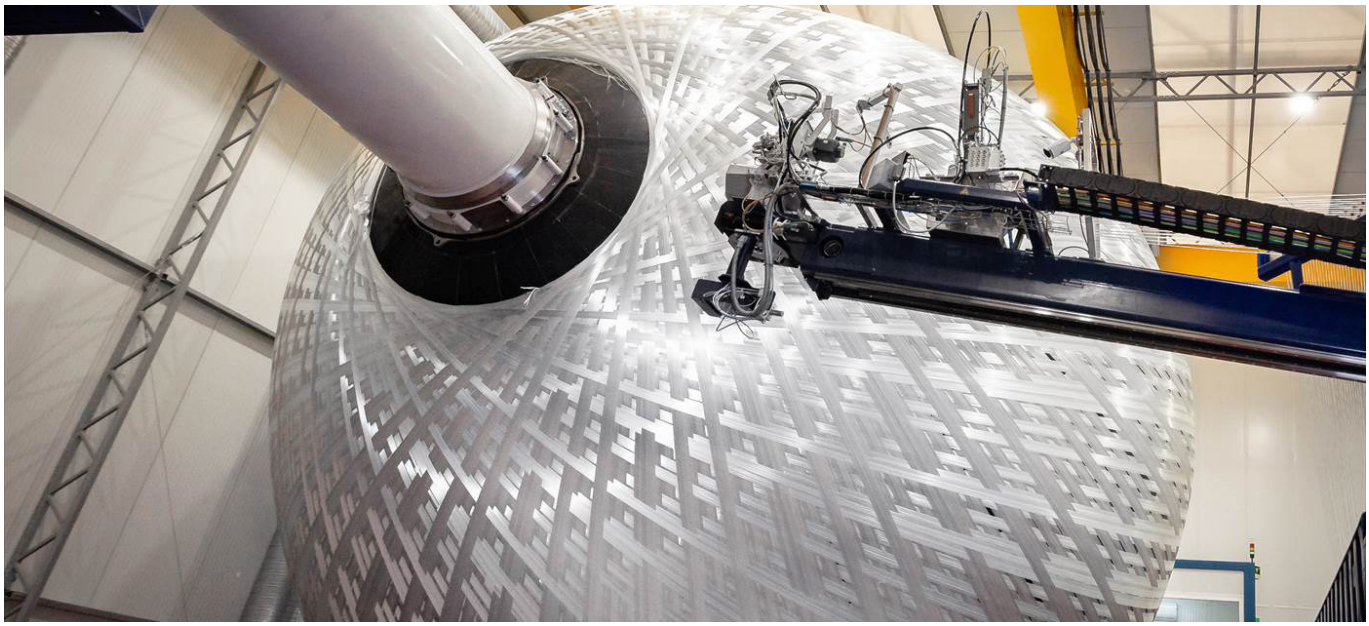
Following several months of process characterization on ¼ scale models, CorPower Ocean is now nearing completion of the first commercial scale hull at its Portuguese base in Viana do Castelo.

The site is also demonstrating the firm's 'mobile factory' concept designed to enable rapid roll-out of WEC hulls in port facilities near wave energy sites across the globe.

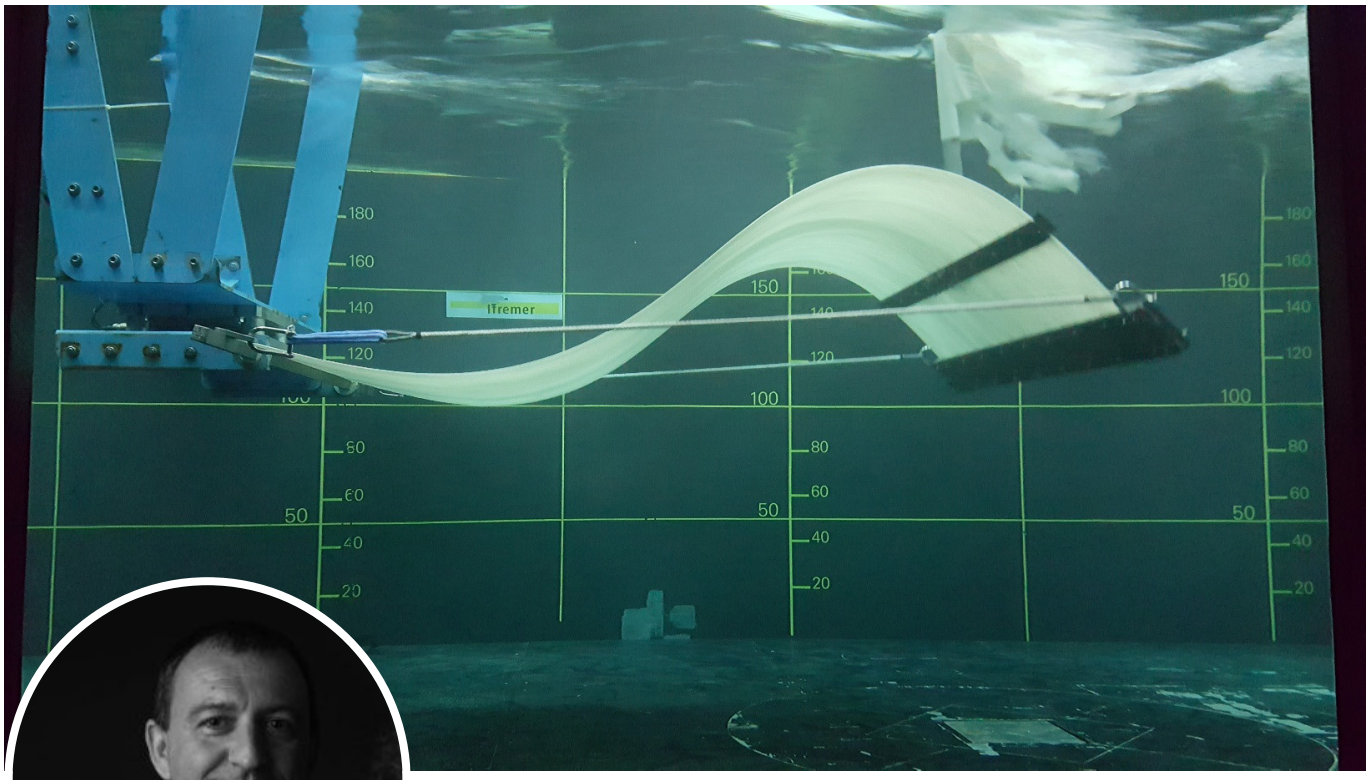


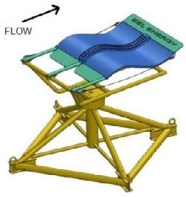
A key element to the hull's sandwich structure involves the core material which provides strength and stiffness. Produced by Swedish firm Diab, the unique Divinycell H grade material brings a raft of benefits including high strength, durability and impact resistance combined with light weight and buoyancy performance properties.

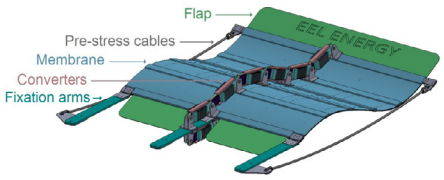
"Diab's technology is an ideal match for our composite hull structure, meeting all requirements with relevant certifications," said CorPower Portugal Managing Director Miguel Silva. "The Divinycell H sandwich composite is particularly well suited to WEC devices being designed specifically to withstand major fatigue, slamming and impact loads. Other important features include excellent adhesion strength and chemical resistance, with low water absorption and strong thermal insulation."



BLUE-GIFT BACKS THREE MORE MARINE RENEWABLE ENERGY TECHNOLOGIES







The Interreg Atlantic Area funded Blue-GIFT programme has awarded recommendations for support to three marine renewable energy projects under its third and final call to test and validate technologies in real sea environments.

Two technology developers were recommended for support to access the SEENEOH test site, these include French tidal energy developer EEL Energy, whose design is inspired by bio-mimicry, and Dutch tidal energy company Hydrokinetic Power Generation Systems (HPGS), who will trial their vertical axis tidal turbines at the site. The third technology developer recommended for support is RW Power AS, a Norwegian company who will test their floating offshore wind powered desalination pump at the PLOCAN test site. This will be their second time accessing the site, their previous project tested a wave powered desalination pump.

The successful applicants represent a final opportunity for Blue-GIFT to support trial and demonstration of marine renewable energy devices in the remaining months of the project. We believe that these three developers are ready to contribute to the project's goal of supporting eight technology deployments over the course of the project lifetime, and in turn help move marine renewable energy technology closer to commercialization

Resen Waves

RESEN WAVES SCORES INTERNATIONAL AWARD FOR WAVE POWER SOLUTION

Danish company Resen Waves has been bestowed an international award for its wave energy-powered smart buoy and its potential for the integration with other offshore industries.

Resen Waves won the award dubbed 'Integration of Marine Renewable Energy Sources at Feeding Platforms', at recently held BLUE DEAL Business Forum in Valencia.

The company has developed the Resen Waves Power Buoy, which is a small-scale wave power generator with real-time data connectivity that can generate around 300W of continuous power during average wave activity.

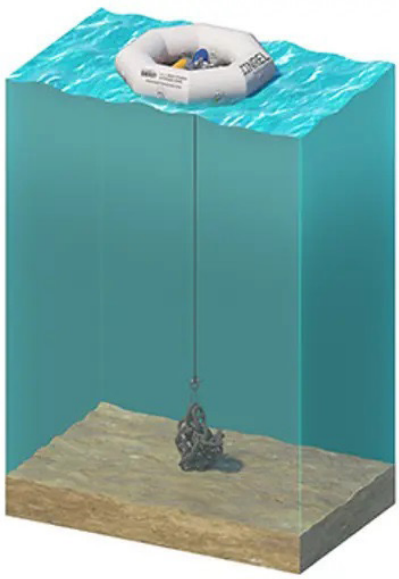
The wave buoy can act as a solution for powering instruments and machinery in the oceans, according to Resen Waves, which also claims it is suitable for applications in many different markets, from oil and gas to carbon capture storage (CCS), desalination to monitoring life in oceans.

DOE ANNOUNCES WINNERS OF WAVE ENERGY-POWERED DESALINATION PRIZE COMPETITION

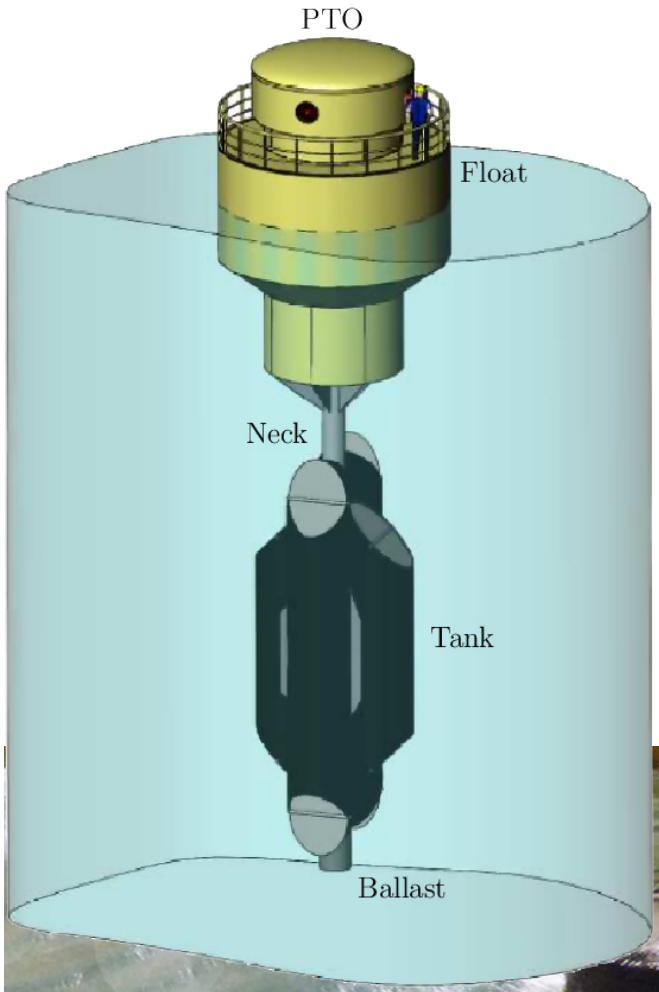
The U.S. Department of Energy (DOE) today announced the winners of $1 million in cash prizes in the final stage of the Waves to Water Prize, which challenged competitors to design, build, and test devices that use wave energy to produce clean drinking water from ocean water. Oneka Technologies won the grand prize of $500,000 for its device Oneka Snowflake.

“Competitors in the Waves to Water Prize have demonstrated innovation and creativity in capturing wave-powered energy, and have also demonstrated the additional humanitarian benefits of marine energy as a key resource to increase access to clean drinking water,” said Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy Kelly Speakes-Backman. “Renewable, wave energy-powered systems could supply clean water to water-scarce, remote, or island communities that are already particularly vulnerable to the effects of climate change. These easily shipped desalination systems may also prove to be a crucial lifeline to support resilience and recovery in the face of worsening natural disasters.”

The five-stage Waves to Water Prize, which is funded by DOE’s Water Power Technologies Office (WPTO) and administered by the National Renewable Energy Laboratory (NREL), challenged teams to develop small, modular, wave energy-powered desalination systems and awarded $3.3 million total over the last three years. This prize represents the first time DOE supported a competition to develop and test devices that can turn ocean water into drinking water using the natural energy in the ocean itself. The prize is part of DOE’s Powering the Blue Economy Initiative, which seeks to develop marine energy systems to support the power needs of coastal and ocean applications.

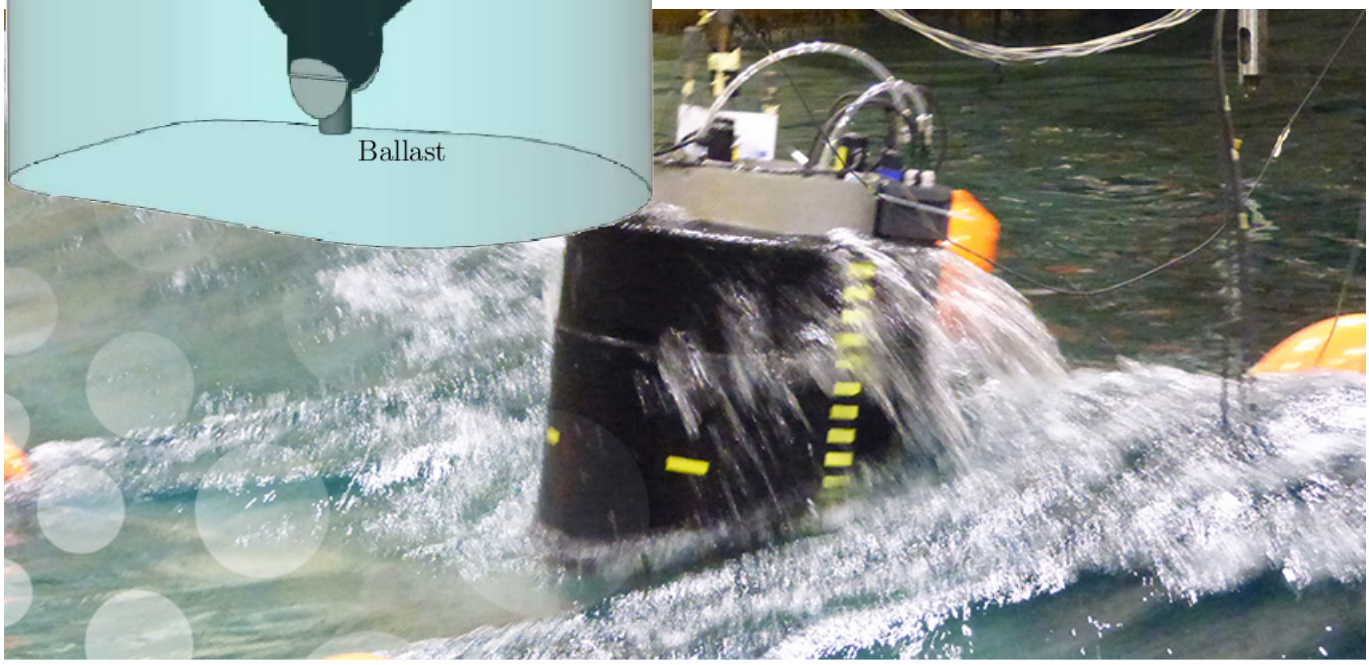


WAVERAM



The Waveram is a single-bodied, seaworthy, spar buoy, designed for utility-scale arrays in the most energetic deep-water offshore sites, such as the Atlantic off the West of Ireland and similar ocean sites in the Americas and Australasia.

A surface-piercing float supports a neutrally buoyant inertial mass of seawater and the ballast required for the design displacement. This combination of buoy, inertial mass and ballast is arranged to hold an internal column of seawater, open at the bottom and enclosed at the top within the float. An air plenum between the two is connected to a high-pressure accumulator. As the spar buoy oscillates in heave it reacts, via the air plenum, against the internal column of water. This action pumps air into a high-pressure air accumulator, sufficiently large to ensure a close-to-steady air flow through air turbines. These turbines will operate at high rpm , driving switched reluctance generators, thus providing simple, compact, and robust power trains. All moving parts will be securely housed above the waterline, and suitable for in-factory servicing and quick replacement.



EUROPEWAVE
Phase 1 Awards

WAVERAM
Lead company

4c Engineering Technology
CoreMarine
tecnalia
Other consortium partners

THE WAVERAM

B-Fluid
Rockall Research Limited
FloWave
Subcontractors

MINESTO SHARES FIRST GLIMPSE OF THE DRAGON 4

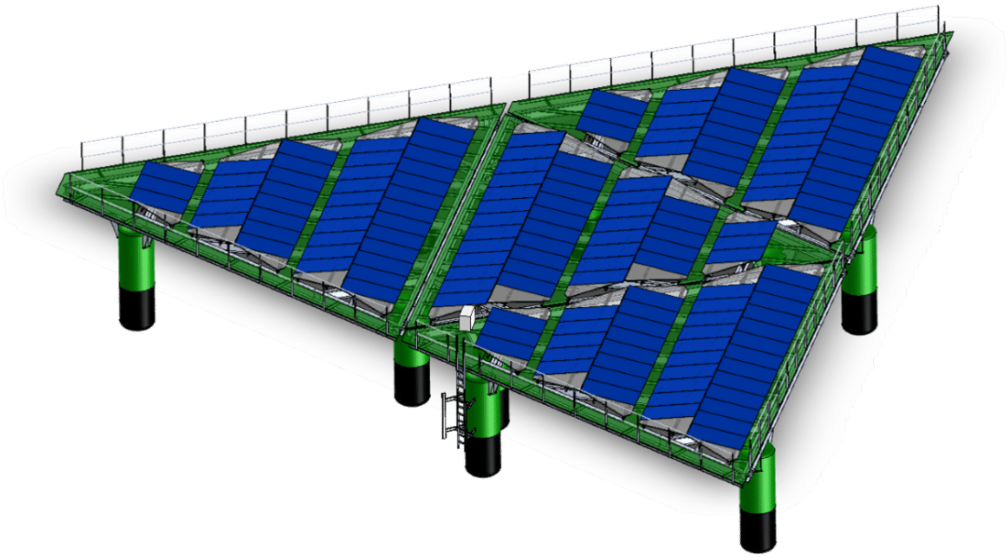
Minesto shares first glimpse of the first Dragon 4 unit. The Dragon Class line is designed for increased performance, reduced costs, and scalable for commercial installations. It is the new range of power plants of Minesto's Deep Green marine energy technology, having developed from the grid-connected Deep Green systems installed and operated in Vestmannasund, Faroe Islands.

Product models are distinguished by the size of the wing. The current product range in development stretches from Dragon 4 (~4-meter wing) to Dragon 12 (~12-meter wing), with rated power ranging from 50 kW to 1.2 MW.

MARIN

BETTER SHIPS, BLUE OCEANS

The experimental tests were performed on SolarDuck offshore floating solar platforms by Maritime Research Institute Netherlands



FRESHER PROJECT

innovative moorning solutions for floating solar energy

The European funded FRESHER Project aims to demonstrate and validate innovative mooring solutions in a full-scale floatingsolar plant that is 50% more efficient compared to standard solutions.

The main goal of the FRESHER project is to demonstrate and validate a new innovative mooring solution for floating solar arrays which implies a step change in the LCoE and performance of the Solar Power, ensuring that more renewable energy units can be built. The design is based on lessons learnt from previous tests and commercial deployments as well as experience from the industrial and offshore sector.

Consortium: Seaflex | EDP | ISIGENERE | RISE Research Institutes of Sweden

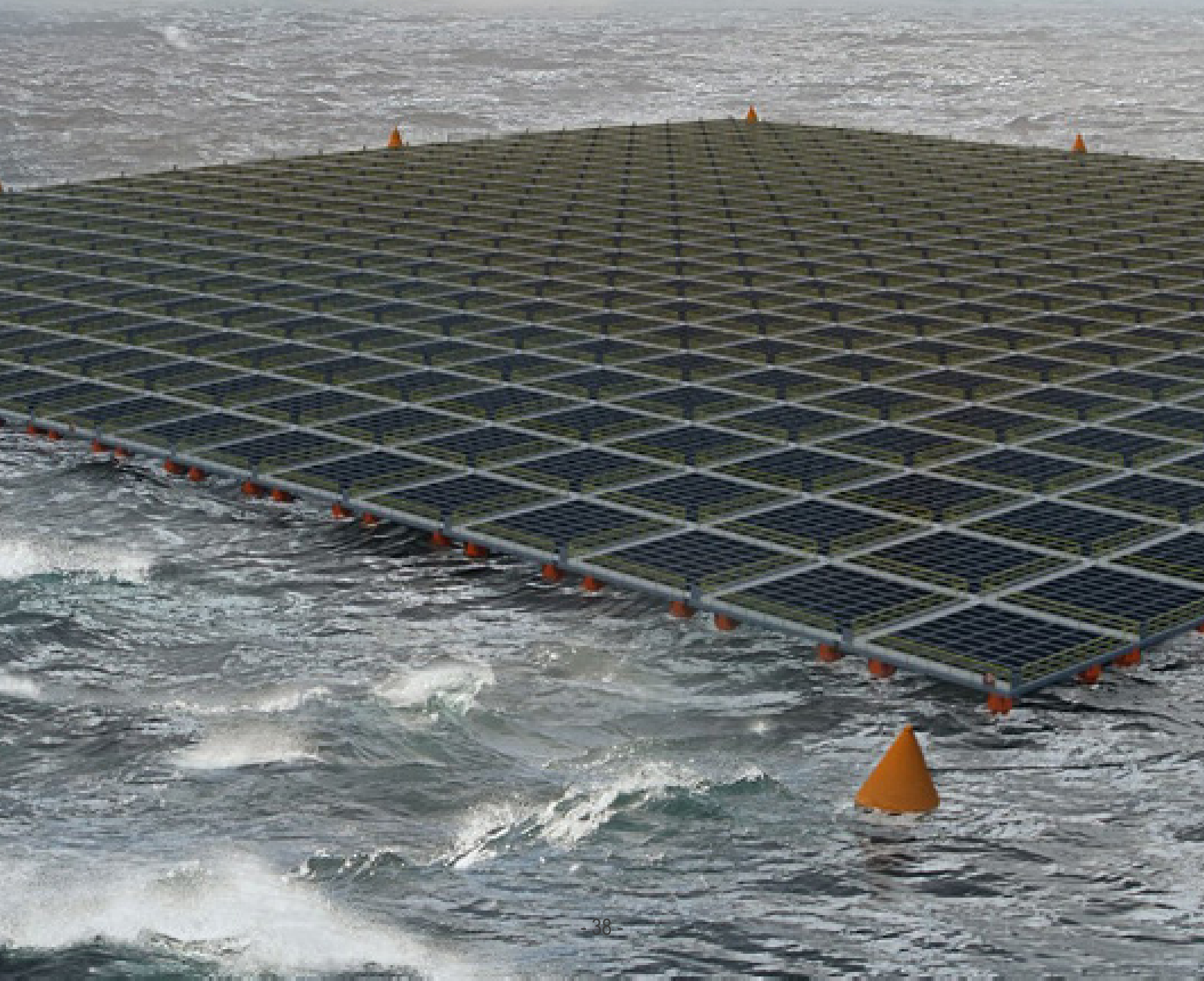
RISK ASSESSMENT OF OFFSHORE FLOATING PHOTOVOLTAIC SYSTEMS

METHODOLOGY FOR TECHNOLOGICAL RISKS


Ivardi Daroen


Pieter Van Gelder


Sebastian Schreier



ARE SOLAR PVT EVACUATED TUBES THE FUTURE OF THE OFFSHORE FLOATING SOLAR PANELS?

Matthias Herberich

Farshid Ebrahimi

Looking to the future, we need to be open to new ways to we can make our contribution to climate protection effectively.

In the currently available PV floating systems, they use framed standard photovoltaic modules and these are today more than 2 sqm and flat. But the size of the modules increases more and more with increasing performance. In the countryside this may be an advantage, but on the water, this is a big disadvantage. The static load caused by snow and above all wind and high waves are a major risk factor. The load on the material is therefore very high.

“Our innovative TUBE MODULE has addressed this problem”, explains the developer of this tube Matthias Herberich.

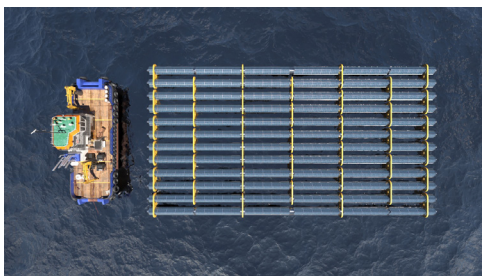
The round shape reduces the possible snow load. Wind and waves have less attack surface. Thus, many photovoltaic projects can from a static point of view with classic modules on land and on water realized only at high cost.

Not to forget the design, because the power generation by Photovoltaics can also look good.

The prototype in the field of floating PV has already been successfully tested in practice. The next steps are optimization of size and performance and after this the test in wind and wave tunnel for the preparation of pilot plants at sea and on land.

Founding of a start-up. Investors are welcome.

Contact: entwicklungsbuero-herberich@email.de



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Fidar Offshore Animation Company is ready to advertise your company with the best quality and the lowest price. In fact, we are a young and creative team that specializes in producing industrial animation (Offshore Energy Sector), Architectural animation, motion graphics and web design. The Fidar Offshore Animation works in the business world with the message “Pay less, Get the best”.

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