OFFSHORE CHANNEL

WORLD TREND & TECHNOLOGY FOR OFFSHORE ENERGY SECTOR

Offshore Renewable Energy

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

Jan & Feb 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.

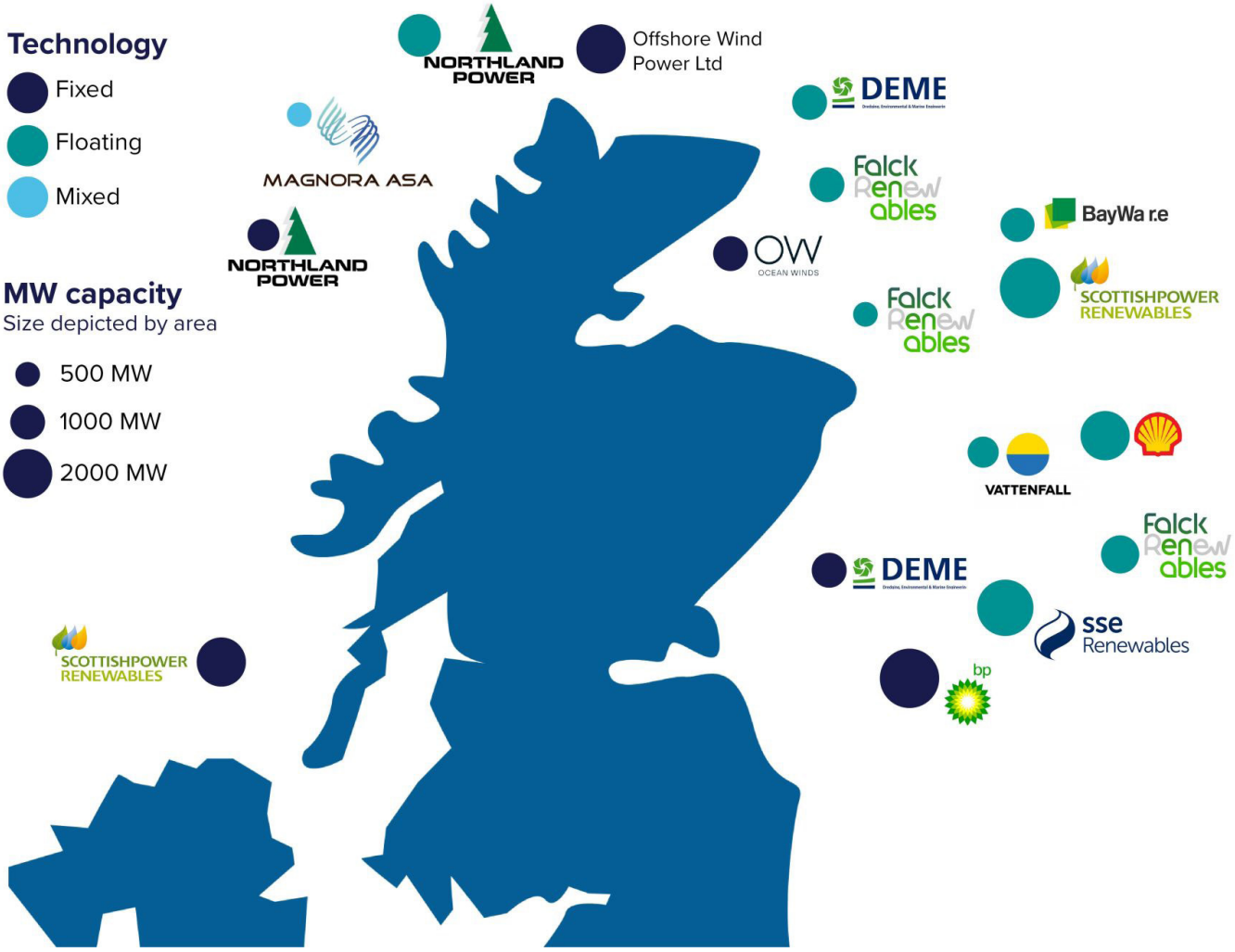
Offshore Channel Magazine reports on innovative engineering projects around the world, profiling the key players making a difference to the engineering profession. It's our flagship publication and our main channel for keeping our members up to date on what's happening at the offshore industry.

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.

ScotWind Results Jan 2022*

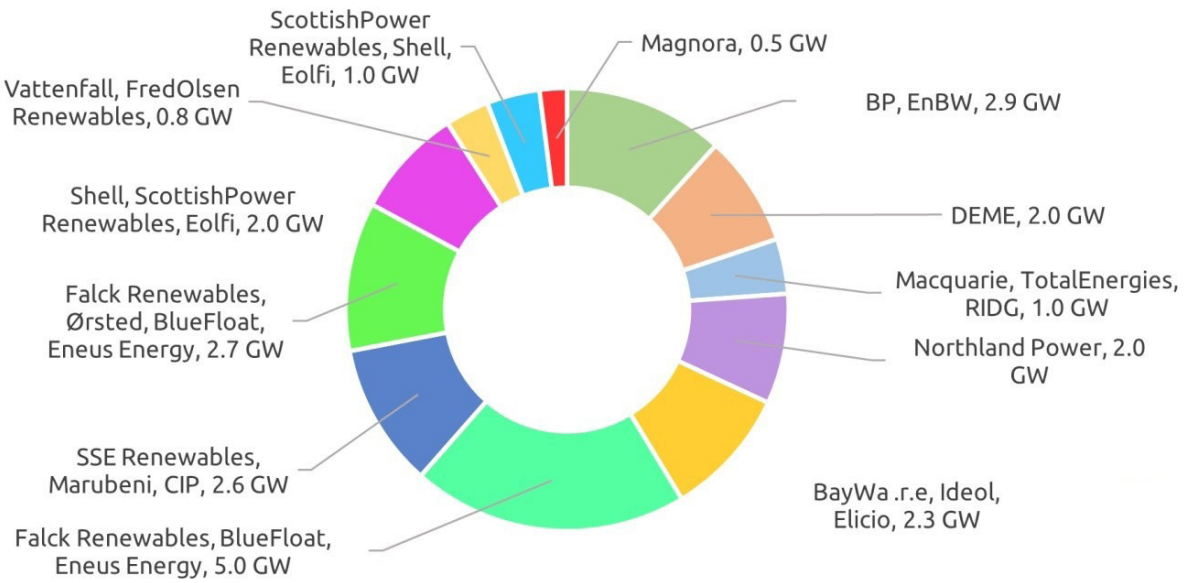
tnei

*Only lead partners shown



ScotWind breakdown by developer

17 developers (sole and partner) have secured leasing rights totalling 24.8 GW



SSE Renewables

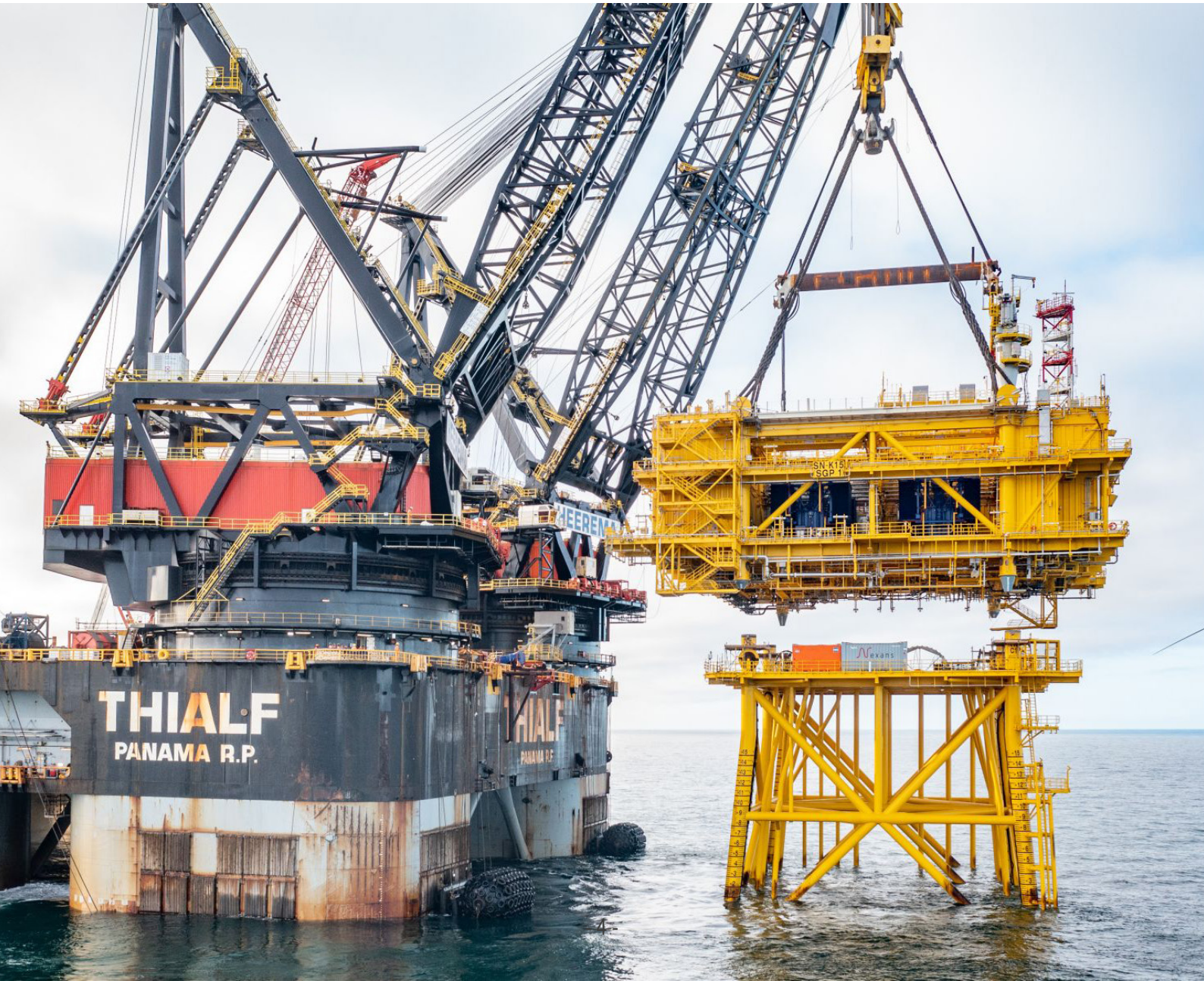
THE 4,800-TONNE OFFSHORE SUBSTATION TOPSIDE HAS BEEN INSTALLED AT THE 1,075 GW SEAGREEN WIND FARM OFFSHORE SCOTLAND

At 40 metres long, 45 metres wide, and 15 metres high, the topside will collect and manage the power generated by the 114 Vestas 10 MW wind turbines before transferring it ashore via around 60 kilometres of offshore subsea cabling.

The topside was lifted from Heerema Marine Contractors' heavy transport vessel, Thialf, and on to the previously installed six-legged jacket foundation.

The completed structure sits in water depths of around 55 metres and will be one of the largest AC platforms in UK waters, SSE Renewables, the developer of the project said.

SSE Renewables is leading the development and construction of the Seagreen project and will operate Seagreen on completion for its expected 25-year lifetime.



OFFSHORE CHANNEL

THISTLE WIND PARTNERS (TWP), A CONSORTIUM OF DEME, QAIR & ASPIRAVI, LAND 2 GW IN HIGHLY COMPETITIVE SCOTWIND OFFSHORE WIND LEASING ROUND

Weybridge, UK – January 17, 2022 - Crown Estate Scotland announced that Thistle Wind Partners (TWP), a consortium of DEME Concessions (Wind) NV (42,5%), Qair Marine SAS (42,5%), and Aspiravi International NV (15%), had been awarded 2GW worth of option areas in Scotland's highly competitive ScotWind seabed leasing process.

The consortium's successful projects are:

- Cluaran Deas Ear: a 1 GW fixed foundation project in the 187 km2 E3 plan option area;
- Cluaran Ear-Thuath: a 1 GW floating foundation project in the 201 km2 NE2 plan option area which is envisaged to be developed in two phases.

To ensure a robust project delivery, TWP conducted an extensive assessment of the environmental and technical aspects of the ScotWind project sites. Focused technology optioneering, evaluation of grid capacity development, and a comprehensive risk mitigation plan were undertaken to secure fast tracked and de-risked developments at a pace that shall accelerate even more now that the projects have been selected.

Thistle Wind Partners will bring together its partners' solid and complementary offshore wind development backgrounds characterised by fast-track delivery, stakeholder involvement, supply chain engagement, innovation in promising technologies, cost control and containment.

EQUINOR & BP SIGN AGREEMENT TO TRANSFORM SOUTH BROOKLYN MARINE TERMINAL INTO CENTRAL HUB FOR OFFSHORE WIND INDUSTRY

Under the agreement, the terminal will transform into a world-class offshore wind port capable of staging and assembling the largest, most sophisticated offshore wind technology components for the Empire Wind and Beacon Wind projects and for the growing U.S. offshore industry on the East Coast.

The agreement was co-signed by terminal operator Sustainable South Brooklyn Marine Terminal (SSBMT) and New York City Economic Development Corporation (NYCEDC).

The offshore wind projects on the US east coast are key building blocks to accelerate profitable growth in renewables and Equinor's ambition to install 12-16 GW of renewables capacity by 2030.

Equinor and bp will create an operations and maintenance (O&M) hub and staging area at SBMT, with a total investment of USD 200 – USD 250 million in infrastructure upgrades, while also pursuing the development of SBMT as a low-emissions facility. The port will become a cutting-edge staging facility for Equinor and bp's Empire Wind and Beacon Wind projects that will supply 3.3 gigawatts (GWs) of energy—enough to power nearly two million New York homes —as well as become a go-to destination for future offshore wind projects in the region.

The redevelopment will inject the Sunset Park waterfront with substantial investment from the new renewable energy economy, creating new jobs and providing an economic boost to the community. Equinor and bp's activities at SBMT are anticipated to support over one thousand jobs annually in the region.

The Italian team of MingYang Smart Energy recently celebrated the successful installation of the first MySE 3.0-135 turbine of the 30MW Beleolico offshore wind farm off the coast of Taranto, in the Mediterranean Sea, Italy.

MingYang will deliver 10 MySE3.0-135 wind turbines and the parties also signed a 25-year full O&M service contract. The Beleolico project is developed in collaboration with Renexia, Van Oord and MPI Offshore.

HUISMAN

HAS DEVELOPED THE WINDFARM INSTALLATION VESSEL (WIV); A SEMI-SUBMERSIBLE VESSEL WITH A 3D-MOTION COMPENSATED WTG INSTALLATION SYSTEM

The WIV is a 180m long and 88m wide semi-submersible, providing a stable platform even in rough sea conditions. She keeps station with a DP3 system with 8 x 4MW thrusters. The vessel has 200 beds, which can be used for the construction crew, marine crew and others.

The WIV offers a viable and cost-effective installation method for both floating and fixed-bottom windfarms. This innovative installation vessel is designed to install monopiles as well as Wind Turbine Generators (WTGs), in one piece. By assembling the complete WTG on board, off the critical path, a very high workability can be achieved.

Advantages of the WIV

Fast scale-up of offshore wind

- 85% workability during the entire year in the North Sea, enabling year round installation
- The WIV enables installation of > 100 complete WTG's and foundation combinations per year
- One vessel for the complete installation of windfarms (both foundations and turbines)

Sustainable

- Significant reduction of CO_2 emission
- Speeding up the offshore wind farm delivery, accelerating green power generation

Cost-effective

- Enabling a substantial cost reduction per installed wind farm, compared to conventional installation methods

Features

- Efficient installation: low weather dependency and high installation speed
- 3D motion compensation technology during installation of WTGs
- Capable of carrying and installing 10 monopiles (125m length x12m diameter) and transition pieces
- Capable of carrying and installing 8 WTGs
- Application of feeder vessels reduces costly port logistics

AKSELOS & TRUNG NAM GROUP ANNOUNCE SUCCESS IN TRIPOD WIND TURBINE FOUNDATION DESIGN

Akselos is experienced in providing digital twin technology that allows near real-time modelling of large and complex assets, allowing some of the world's most critical infrastructure to be designed and monitored more efficiently, using a combination of AI and traditional physics-based approaches to computational monitoring.

Thomas Leurent, CEO of Akselos, said:

"As technology pioneers, Akselos is at the forefront of innovation and making moves in new markets. Working with Trung Nam Group is an excellent example of where our technology can really make a difference in emerging markets.

"Using our technology on tripod foundations is a challenge we were excited to accept. Having worked with DNV previously, it is a testament to our working relationship and their confidence in our technology.

"Receiving DNV approval for our work on the Tripod project with TNG and APECO will help lead the way for new designs for offshore wind projects across the world and is something we are excited to be part of."

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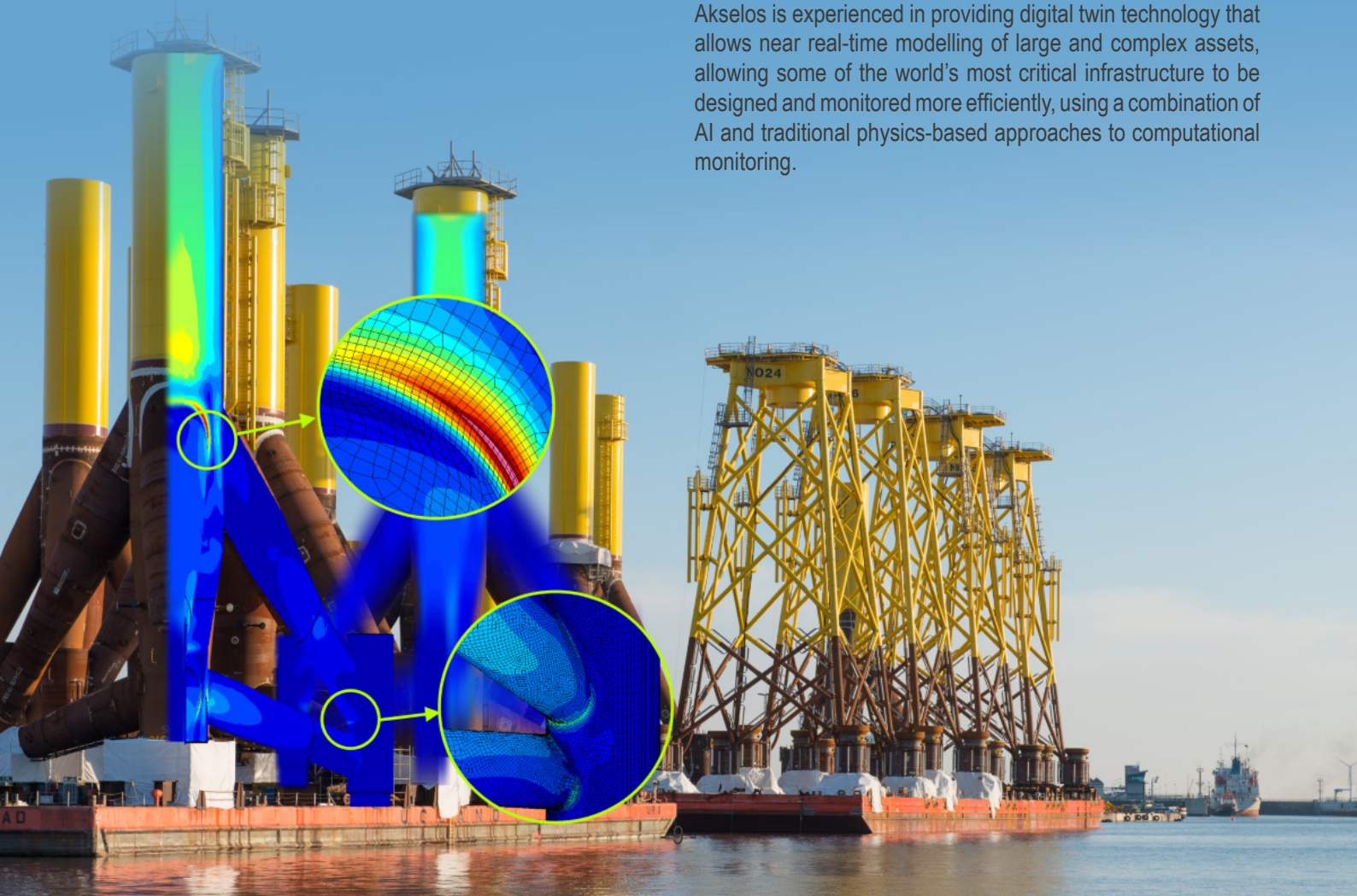
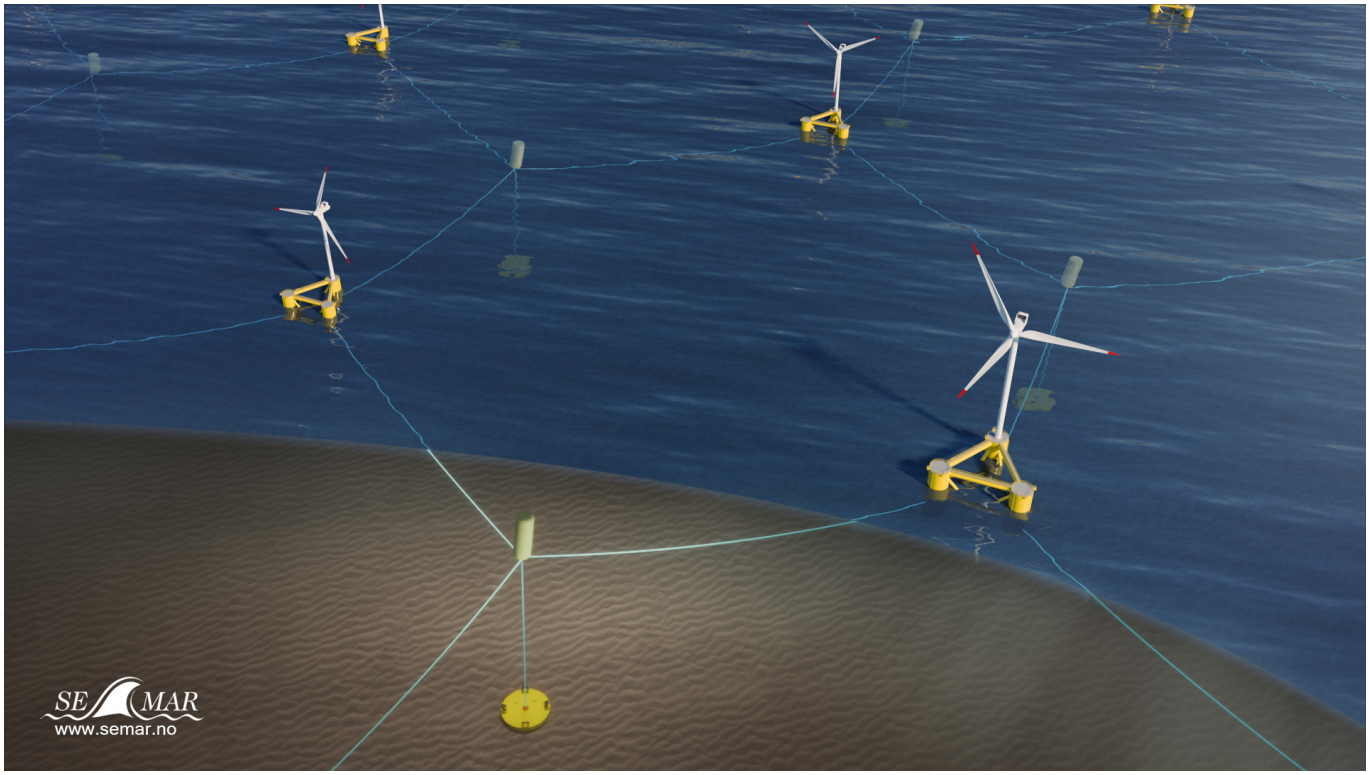


TOTALENERGIES PARTNERS WITH THE NORWEGIAN COMPANY SEMAR TO DEVELOP AN INNOVATIVE MOORING SOLUTION



Floating offshore wind turbines have removed the depth constraints but raised the challenge of cost-effective, reliable mooring. 1) Mooring design is based on the traditional technologies from mooring of oil & gas floating structures. The innovation of the Honeymooring™ technology is to connect floating wind turbines in a “honeycomb” network and enables new ways of applying well-proven mooring technology in new and more effective anchor-sharing configuration.

TotalEnergies believes Semar Honeymooring™ solution can meet this challenge by:

- Reducing the carbon footprint and impact on the seabed,
- Reducing the cost of the mooring hardware and floating wind turbine structure by reducing peak loads of the mooring system,
- Making marine operations more efficient and less costly, partly due to lower pre-tension and line weight in the mooring system, and opening the possibility of using smaller, less expensive vessels for marine operations.

THE FIRST ARCADIS OST 1 XXL MONOPILES SET SAIL FOR ROENNE

The first three XXL monopiles for the Arcadis Ost 1 Offshore Wind Project have been completed and have set sail for the Port of Roenne, the Arcadis Ost 1 wind farm marshalling harbor. This is the first set of 28 monopile units (27 WTG, 1 OSS) that will be transported to Roenne over the next months where preparations for the installation of the offshore wind farm have begun.

The fabrication of these XXL monopiles started in August 2021 at the Steelwind Nordenham factory. The OSS monopile, which is one of the first to be transported weighs just over 2.100 tonnes, measures 110m and has a diameter of 9,6m, making it one of the biggest monopile in offshore wind history and the biggest in Europe. The WTG monopiles weigh 2.000 tonnes, measure 100m and have a diameter of 9,4m.

Three cranes are required for lifting the monopiles onto the barge. The operation involves the use of two fixed quay cranes operated by SRT and one mobile crane, ensuring safe load-out operation.

Arcadis Ost 1 is a 257MW offshore wind farm developed in the German territorial waters of the Baltic Sea, northeast of the island of Rügen. Arcadis Ost 1 has been developed by Parkwind with the participation of PMV and OstseeWindEnergie GmbH , a project company of the three partners Oberhessische Versorgungsbetriebe AG ,Stadtwerke Bad Vilbel and WV Energie AG. The wind farm will begin operations in 2023 and will supply enough green energy to power an equivalent of up to 290,000 households.

Steelwind Nordenham GmbH, a Dillinger Group company, has been manufacturing monopiles and transition pieces in Nordenham since 2015, and now also produces single-piece monopile foundations with unit weights of up to 2,400 tons. The single-piece monopile foundation replaces the previous design with a separate monopile and transition piece by integrating certain parts of the transition piece into the monopile. The monopile can then be up to 120 meters long. The steel for the monopiles comes from Dillinger, Europe's leading heavy plate manufacturer, located in Saarland. SWN currently employs 275 people.

CAPE HOLLAND

The world's largest Vibro Lifting Tool from CAPE Holland that will be used in the installation of monopiles for an offshore wind farm. The transport went from Breman Machinery B.V. in Genemuiden to Rotterdam.

installing the longest monopile until so far in China offshore wind history for Huaneng Cangnan 4 offshore wind farm with the harsh sea condition.

Mono pile weight is over 2200T and pile length is 128.5m, which is breaking the record

LRD DUBLIN OFFSHORE

Dublin Offshore

The LRD is a subsea component of an offshore mooring system targeted at the floating wind market.

The LRD delivers cost reduction in offshore mooring systems by optimising the mooring system to allow a floating platform to move in compliant response to waves.

It's fully scalable and tuneable to deliver the customer's specific mooring response requirement. The component is manufactured using basic low-cost materials such as steel and concrete which have a demonstrated track record in the marine environment.

The DNV-certified component is manufactured using basic, low-cost materials such as steel and concrete with a demonstrated track record in the marine environment, enabling specification for long term moorings.

THE C1 WEDGE CONNECTION™

C1 CONNECTIONS

the high capacity connection helping wind farm developers lower the costs of energy while increasing safety.

The continuous growth in turbine size combined with harsher locations has pushed the limits of conventional bolted flanges and grouted connections.

The C1 Wedge Connection™ can be used for bottom fixed and floating wind turbines, both above and below water and is perfectly suited for floating installation.

The C1 Wedge Connection™ is the robust alternative. It is maintenance free with a load capacity that outperforms all conventional connections. Meanwhile it allows for safe, HSE friendly installation while driving down CAPEX.

DNV·GL

COMPONENT CERTIFICATE

Certificate No.: COA-DNVGL-SE-0441-07033-0 | Issued: 2021-03-05 | Valid until: 2026-03-04

Issued for:
C1 Wedge Connection – In Air
Specified in Annex 1

Issued to:
C1 Connections B.V.
Delftechpark 13,
2628 XJ, Delft,
The Netherlands

According to:
DNVGL-SE-0441:2016-06 Type and component certification of wind turbines

Based on the documents:

AD-DNVGL-SE-0441-07030-0	A-Design Statement of Compliance, dated 2021-02-19
AT-DNVGL-SE-0441-07031-0	A-Test Statement of Compliance, dated 2021-02-19
AM-DNVGL-SE-0441-07032-0	A-Manufacturing Statement of Compliance, dated 2021-03-04
FCR-CC-DNVGL-SE-0441-07033-0	Final Certification Report, dated 2021-03-05

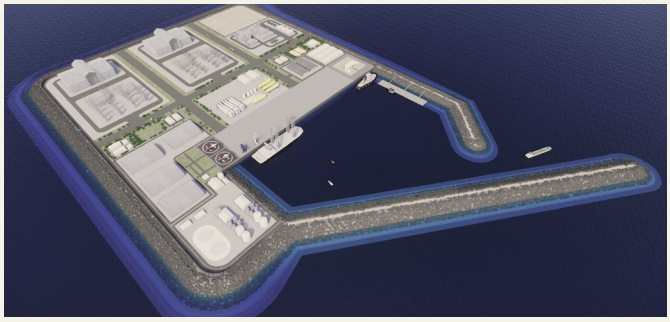
Changes of the system design, the production or the manufacturer's quality system are to be approved by DNV GL.

Hamburg, 2021-03-05
For DNV GL Renewables Certification
Bente Vestergaard
Service Line Leader
Type and Component Certification

Hamburg, 2021-03-05
For DNV GL Renewables Certification
Amol Mulve
Project Manager

The accredited certification body is Germanischer Lloyd Industrial Services GmbH, Brooktorkai 18, 20457 Hamburg
DNV GL-Renewables Certification is the trading name of DNV GL's certification business in the renewable energy industry.

MULTIFUNCTIONAL ISLANDS



There is a Dutch private initiative for multifunctional islands in the North Sea. The company Offshore Service Facilities (OSF) has used the knowledge and experience of the companies Van Oord and Boskalis and the engineering firm Royal HaskoningDHV to make designs and carry out feasibility studies. Multifunctional islands will accommodate electrical infrastructure and also other activities that contribute to the energy transition and sustainable use of the North Sea. These include the maintenance of wind farms, the facilities for the production of hydrogen and for cultivating seaweed and shellfish. For personnel who will be working at sea, islands are an almost indispensable link in terms of safety, comfort and workability. The islands are constructed in such a way that they offer opportunities for the enrichment of the natural environment of the North Sea.

From studies and surveys, OSF find out that multifunctional islands are technically and economically feasible. They form the 'stepping stones' needed to operate and maintain the tens of thousands of wind turbines that will be in the North Sea by 2050. In addition, they make shared use of the North Sea possible. The first island will have to be constructed after 2030 to serve wind farms 100 kilometers off the coast between IJmuiden and Den Helder.

The proposed island must become an icon of Dutch knowledge, skill and innovation. It will contribute to the ecological value of the North Sea (Building with Nature) and restore biodiversity where possible.

The Danish government has already taken the decision to construct an energy island some 80 kilometers off the coast near Jutland for maximum of 10 GW wind energy capacity. But what to do with all this electricity from sea. Denmark will be a green energy exporter and to avoid congestion of the national grid, interconnection with another country or with the Dutch artificial island is a solution. On the Dutch Island hydrogen can be produced with "Danish electricity" and hydrogen will be transported via the existing offshore pipelines to land.

Also a model of a second design, a hybrid energy island, with a bottom fixed part and a sheltered area for floating structures was tested in a basin of Deltares in Delft. First all he waves were measured and later the movement of the added floating units. The realization of artificial islands is ready to go.

MPS LANDS £3.5M OF FUNDING FROM UK GOVERNMENT

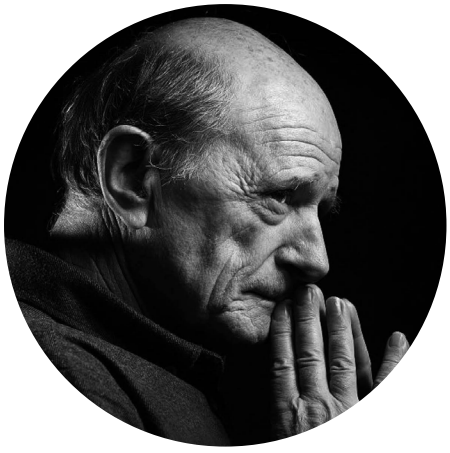
Marine Power Systems have been awarded £3.5m of grant funding through the UK Government Floating Offshore Wind (FOW) Demonstration Programme to further develop their floating platform technology and wave energy converter. They are the only UK floating offshore wind developer to be awarded this funding.

The programme supports the development of innovative floating offshore wind technologies and forms part of the UK Government Net Zero Innovation Portfolio born out of the Prime Minister's ten-point plan for a green revolution. Competition for funding is intense and only those projects that can demonstrate the most potential are awarded support. Over £31m of government funding will be matched by over £30m from industry to drive forward plans to place turbines in deep-sea areas and where the winds are strongest.

POLAR POD

The question was: what type of ship can provide comfort at work and safety in « furious fifties » throughout the year? To escape the bustle of the waves one needs a ship with a strong draft, caught in deep stable waters, and a small surface at the impact of the waves. The POLAR POD is inspired by FLIP, the US oceanographic platform, still active after 60 years in the service of research. On the same principle, the POLAR POD will be towed horizontally to the study area and tilted vertically by filling seawater ballast tanks.

This platform, which is 100 meters high and weighs 1,000 tons, is sized to tackle the biggest waves in the world. The legs of the lattice are made of steel from 38 to 50 mm thick. Bottom ballast weighs 150 tons. The structure of the nacelle is made of aluminum and the outer shell made of special steel to handle the most violent storms. The construction is certified by Bureau Veritas.



NEW CONCEPT FOR OFFSHORE WIND

INC GRUPPEN

Fjord Base wants to be a player in the assembly of offshore wind turbines and the pilot turbine from the Norwegian newly started company OceanGrid will be installed in Florø.

The INC Group could reveal the great news to the Minister of Petroleum and Energy Marte Mjøs Persen when she visited Fjord Base in Florø last week.

Floating Substructures assembled in Florø

Power supply from offshore wind has been pointed out as the solution to provide enough renewable energy, and the Norwegian newly started company OceanGrid, has developed a concept for floating substructures that will help reduce costs and shorten the time for developing offshore wind.

This is necessary for offshore wind to help meet national and international needs for renewable energy. Offshore wind is expected to be a new, Norwegian industry that can take over after oil and gas activity.

Fjord Base will assemble the offshore wind turbines from OceanGrid at their 1,000,000 m² of industrial area in Florø. Here, investments are constantly being made and the area is being expanded, thus they are now Norway's largest supply base embracing a complete business cluster consisting of 65 different companies and 675 employees.

INC Group has entered into the ownership side of OceanGrid, which will develop and sell a new type of floaters for offshore wind turbines. This collaboration means that the prototype for the offshore wind turbine will be installed at Fjord Base which has extensive experience as a complete logistics supplier, and the necessary infrastructure and location

Friede & Goldman (F&G), a world leader in jack-up vessel technology with over 70 years of experience, announced today that the classification society, American Bureau of Shipping (ABS), has granted Approval in Principle (AIP) for their wind turbine installation vessel (WTIV) BargeRack technology.

This is a testament to F&G's longstanding commitment to the offshore industry, and F&G is keen on contributing its expertise and technologies to further advance and accelerate the development of US offshore wind.

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SPS STEEL PLATE & SECTIONS
A Division of Barclay & Mathieson
Tel: +44 (0)1698 440 5860 | Email: sales@sps-bmsteel.co.uk | sps-bmsteel.co.uk

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.

ALLSEAS' JACKET LIFT SYSTEM – THE STORY

Our record breaking construction vessel Pioneering Spirit is a game-changer in offshore heavy lift. Capable of lifting entire platform topsides up to 48,000 tonnes. To enhance the vessel's versatility and capability, we have developed a second unique lifting system: the Jacket lift system (JLS). Two years after we commenced with fabrication, key components and systems are arriving from sites around the world. Engineers and crew on board Pioneering Spirit are working around the clock to install the main beams and commission integrated subsystems.

VULCAN OFFSHORE

VULCAN OFFSHORE

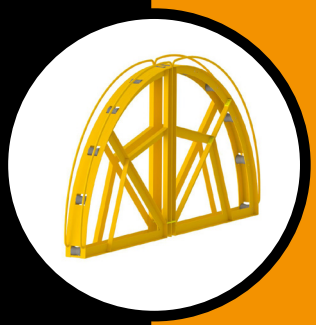
Vulcan Offshore Ltd was established in 2019 to bring a fresh and modern approach to fabrication services for clients in a variety of industries.

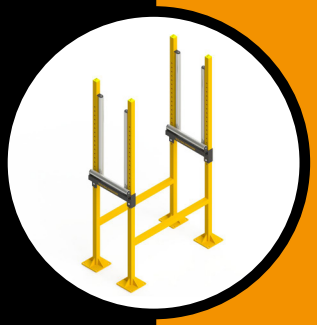
Our manufacturing staff are highly skilled and experienced in various forms of welding and fabrication and are qualified and coded.

We operate to ISO9001 standards and pride ourselves in providing high quality services every time.

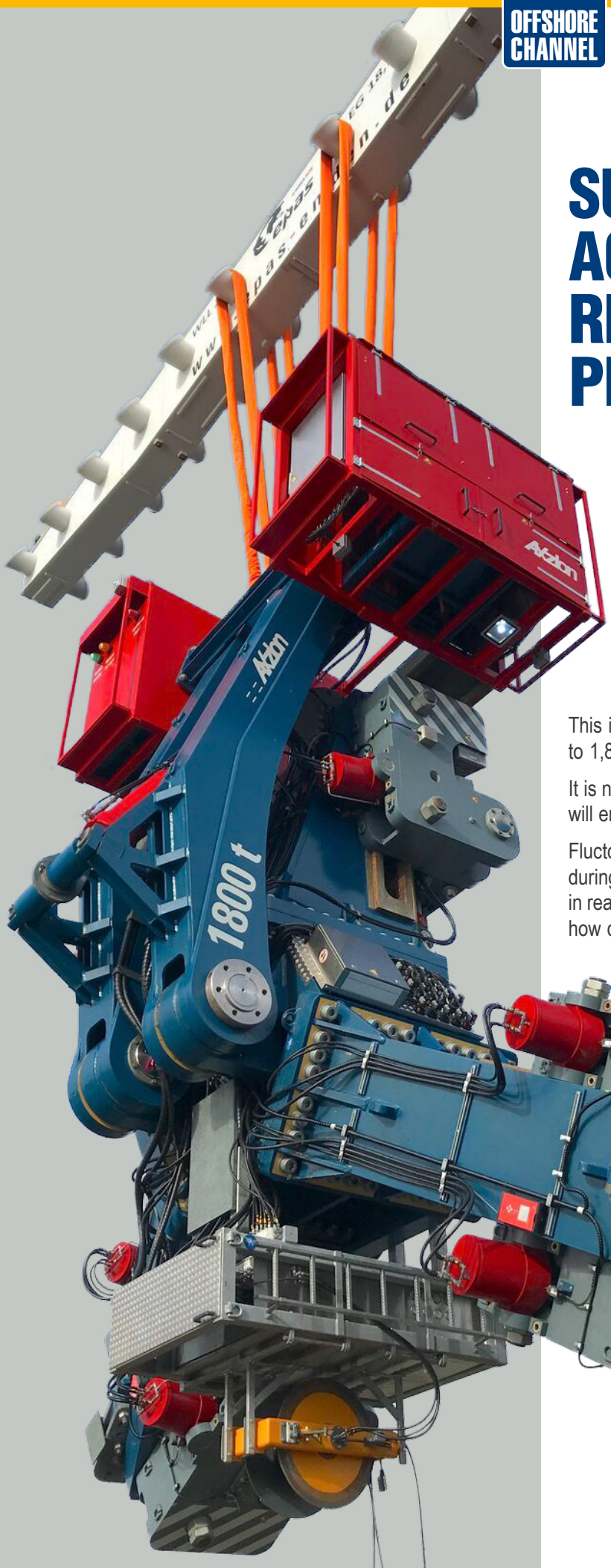
The range will be expanding over the coming months, so please get in touch with any enquiries.

- Cable Sheaves
- Deck cable chutes
- Cable rollers
- Cable laying quadrant
- Clump weights
- Gravity Corer





Jan De Nul Group launched the Voltaire, a Next-Gen Offshore Jack-Up Installation Vessel for offshore renewables and decommissioning, at the COSCO Shipping Shipyard in Nantong, China. This vessel will be the second and largest jack-up vessel in Jan De Nul's fleet, and able to support the renewable energy industry to build next generation offshore wind farms. In common with Les Alizés, the Voltaire is due for delivery in H2 2022, and will be welcomed by a global offshore wind industry that is already forecasting installation vessel shortages by mid-decade.



SUCCESSFUL SITE ACCEPTANCE TEST, READY TO BITE THE PILE

This is Axzion's new monopile upending tool which can lift up to 1,800 tons.

It is now travelling to an offshore wind farm in Taiwan. There it will erect monopiles weighing up to 1,800 tonnes.

Flucto company installation monitoring system was on board during the whole operation. The state of the tool was tracked in real-time: At which angle is the upper and the lower arm and how does the tool move?

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Power matrix and dynamic response of the hybrid Wavestar-DeepCwind platform under different diameters and regular wave conditions

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Wavestar diameter
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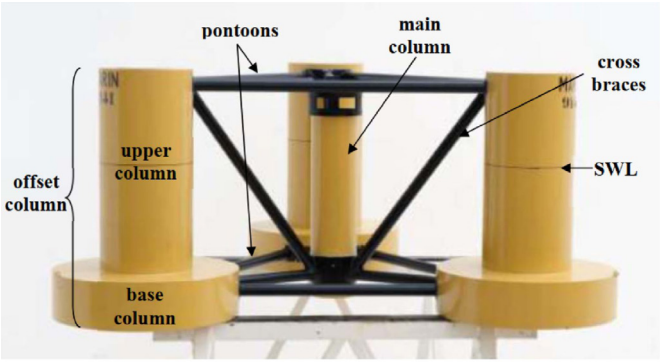
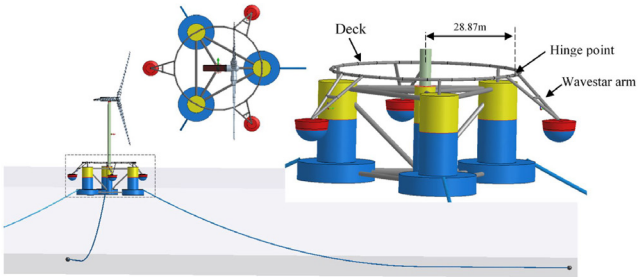
Heave response motion
DeepCwind natural periods

ABSTRACT

Power production assessment usually carried out as a power matrix, is essential for the appraisal of wave energy converter (WEC) technologies. This article proposes the hybrid Wavestar-DeepCwind platform, which is composed of Wavestar WEC and a floating wind turbine to evaluate the power matrix under different regular wave conditions and different Wavestar diameters. Firstly, the effects of the Wavestar diameter and power take-off (PTO) damping coefficient on the absorbed power of a single Wavestar placed on the fixed point are investigated using the potential flow-based boundary element method (BEM). Secondly, considering the optimum PTO damping coefficient, the effect of Wavestar diameter on the total absorbed power was found. Finally, numerical simulation is extended for different wave periods and wave heights to estimate the total power matrix and the capture width ratio (CWR) matrix under different diameters. According to the numerical results, it is indicated that the maximum absorbed power and maximum CWR are obtained around the wave periods (T = 5s and T = 6s) for all wave heights (H = 1~4m) and Wavestar diameters (D = 5–10m). The heave response of the DeepCwind and three Wavestars (WS1 (or WS3) and WS2) in frequency domains are presented and discussed at various conditions.





CHRISTOPHE BEYSSIER

"25 YEARS OF NAVIGATION AT THE SERVICE OF YOUR IMAGES"

I was born in 1970 in Sarthe, a French department that did not immediately destine me to the profession of

seaman. Photography came to me through a family friend.

When I was a teenager, I started sailing with my father who was happy to have me as a crew member, summer and winter, my mother being far from being passionate about weekends leaning at 40 degrees.

When I am on land, I spend a lot of time taking pictures, analog films at the time. During the day I cover sports or cultural events, at night I develop the films and make the prints.

At the age of 19, I moved to Paris to follow a one-year training course in illustration and press photography. I went to Romania to cover the revolution, I worked for Robe de Mariées Magazine, Télérama, the Gamma agency, I made photo albums for big companies in Paris - La Défense.

At the age of 24, I obtained my professional skipper's license. I crossed the Atlantic Ocean under sail and worked as a skipper in the Caribbean and Venezuela. Back in France, I created a company in order to run a cruising sailboat for 10 years, mostly in the English Channel.

I then went on with maritime experiences and back to school (it's never too late to study), until I became unlimited deck officer and Captain 3000 UMS. I specialize in port towing, then coastal towing, I then command an AHTS (anchor handling towing vessel) in Africa for Smit Lamnalco on the oil fields of Total Gabon.

I slowly discovered that I was passionate about all these offshore operations. Moving barges, anchoring and lifting anchors, transferring fuel, chemicals, heavy packages, under cranes that are sometimes too short. I am developing my sense of seamanship and maneuvering.

At the beginning of 2020 I find myself stuck on board for several months, like many sailors around the world, because of the health crisis. No more planes are flying and I am stuck 6000 km from home. Nobody expected this. We adapt, no choice. The relief not being able to come, and me, to leave, I continue the work and I think, I think... This virus leads to think... It is a bad for a good, sometimes.

It is during this confinement on my workplace that I decide to associate my passions of photography and my experience of the maritime environment. From all my years as a captain, I know well the meteorological, environmental, safety and security constraints as well as the management of human relationships in these closed and autarkic environments.

On my return to France, Alka Marine, a newly created French company, entrusted me with the command of its ship Alma Kappa. I develop my photographic offer in parallel.

I devote all my free time to my photographic activity. Liebherr Cranes and EDF Renouvelables have already trusted me. And I am preparing some beautiful missions planned in 2022.

I have STCW (IMO) and OPITO (BOSIET) certifications in order to be able to access offshore sites, in compliance with the rules set up by the operators. I am also a European drone pilot certified by the DGAC (Direction générale de l'aviation civile) since recently, to offer aerial images of your sites and your operations.

Liebherr Maritime cranes, Deme Group and EDF Renouvelables have ....

AWS WAVE ENERGY CONVERTER ARRIVES IN ORKNEY FOR EMEC DEMO

A new wave energy converter, developed by Inverness-based AWS Ocean Energy, has arrived in Orkney ahead of its imminent deployment at the European Marine Energy Centre (EMEC).

The 16 kW Archimedes Waveswing arrived at Hatston Pier, Kirkwall on Tuesday evening, 25 January 2022, before being transported to Copland's Dock in Stromness where it will be readied for deployment at EMEC's Scapa Flow test site in February.

Weighing in at 50 tons, the seven-metre high, four-metre diameter device travelled to Orkney by ferry following a period of dry testing undertaken by the AWS engineering team at Muir of Ord.

When deployed, the Archimedes Waveswing is moored to the seabed and sits below the surface of the sea, reacting to changes in pressure caused by passing waves. It is moored on a single tension tether. The subsea location and ability to winch low in the water column enables extreme storm loadings to be avoided so that the device can continue to operate in rough sea conditions. The Waveswing is designed to react to long ocean swell waves as well as short, wind-driven seas, for high energy capture.

The £3.4 million prototype project has been funded by Wave Energy Scotland (WES) as part of the Novel Wave Energy Converter development programme. The demonstration at EMEC is also supported by the Interreg North-West Europe's Ocean DEMO project.

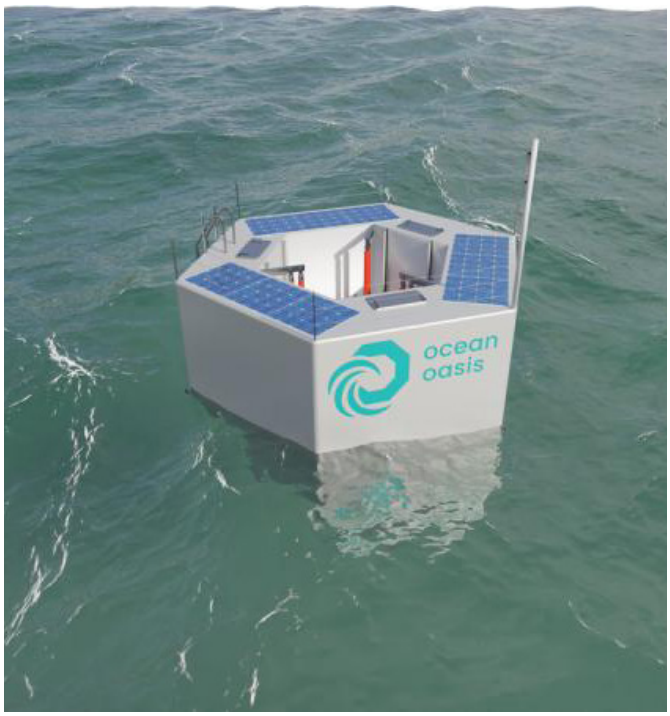
OCEANOASIS

FRESH WATER, DESALINATED OFFSHORE WITH ZERO EMISSIONS

The future of seawater desalination.

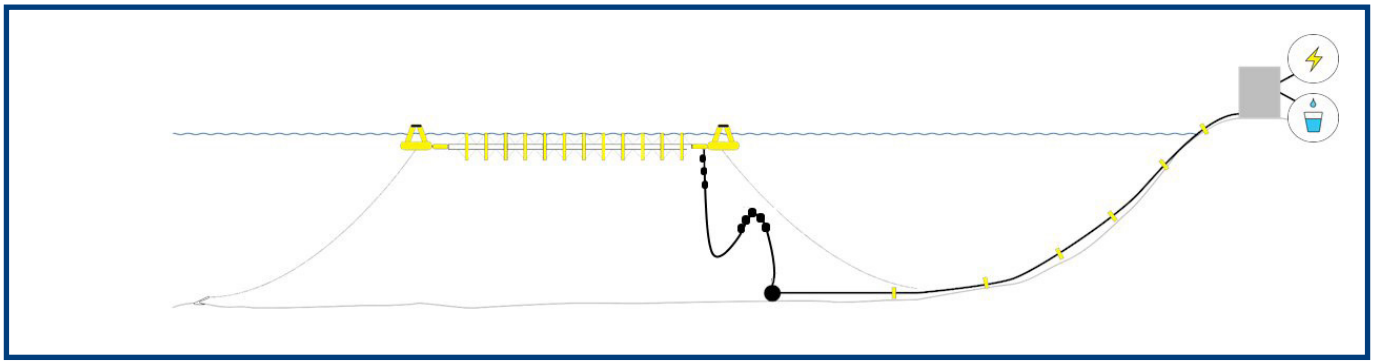
We use wave power to make sustainable and affordable water for coastal communities and businesses.Free of emissions.

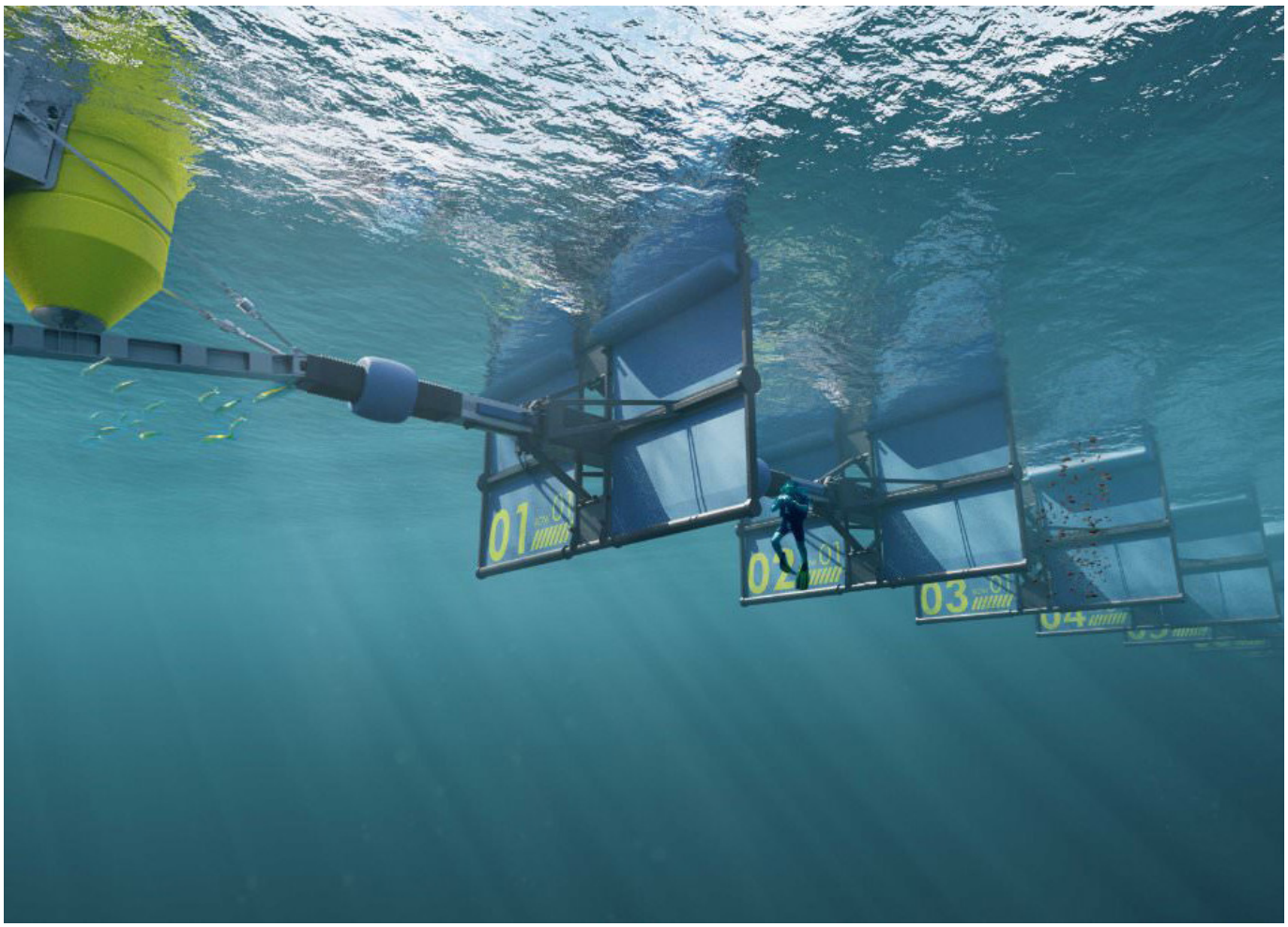
Ocean Oasis is set to receive 2.5 million euros in a grant from the EIC Accelerator, plus the opportunity for investment from the EIC Fund for scaling up.



WAVE PISTON

Wavepiston technology combines the production of clean electricity and desalination of seawater, all from the energy in the ocean waves. The whole system is light and easy to install and can be transported anywhere in the world. Deployment and anchoring can be done locally with available small workboats.





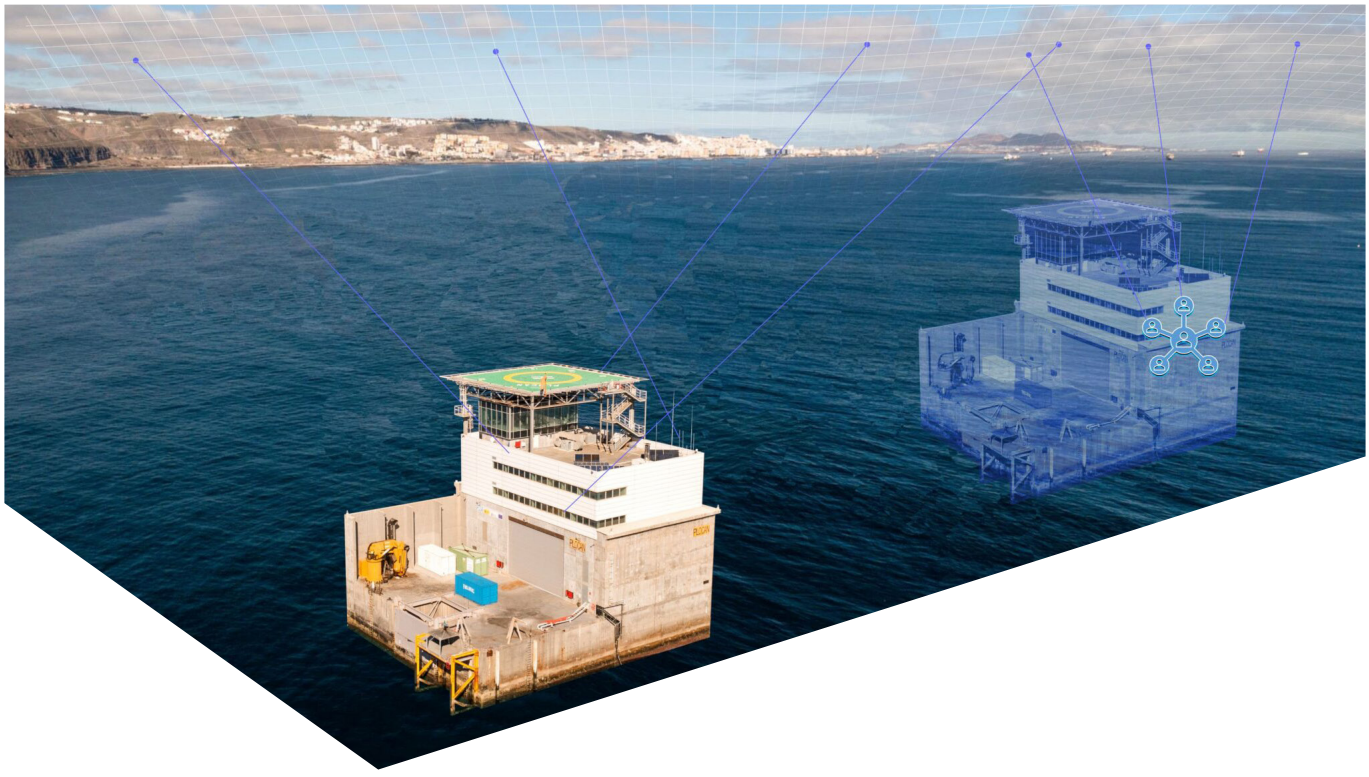
A DIGITAL TWIN OF THE OCEAN

PLOCAN Plataforma Oceánica de Canarias

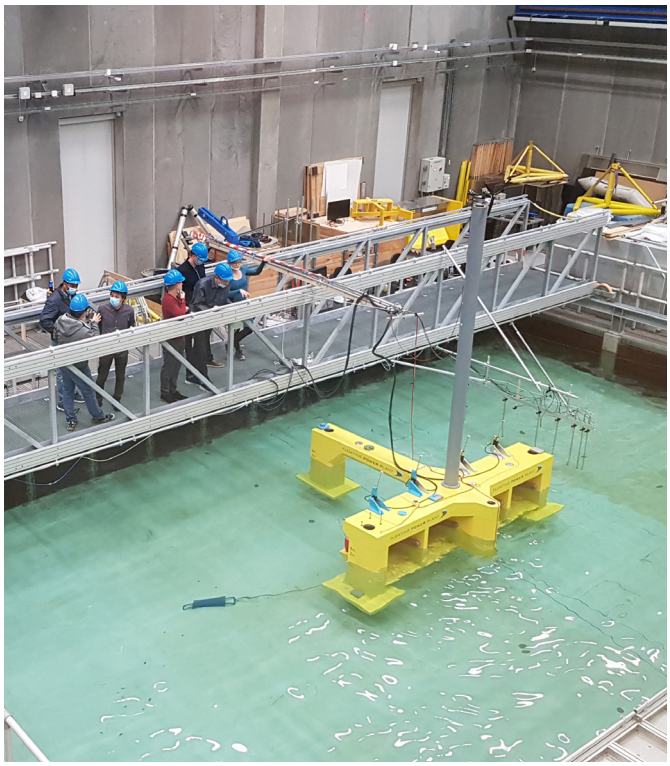
The European Union (EU) has granted the ILIAD Consortium, in which the Oceanic Platform of the Canary Islands (PLOCAN) is a partner, €17 million to develop and launch a Digital Twin of the Ocean (DTO) that will provide highly accurate predictions of the future evolution of the world's oceans.

The ILIAD project, comprising 56 partners from 18 countries in Europe, the Middle East and North Africa, received the funding under the EU's €1 billion European Green Deal.

ILIAD will develop virtual models designed to accurately reflect ocean changes and processes. It will bring to market an interoperable, data-rich and cost-effective model, harnessing the proliferation of new data provided by a variety of different land-based sources, modern IT infrastructure, including the internet of things, social media, big data and cloud computing, inter alia.

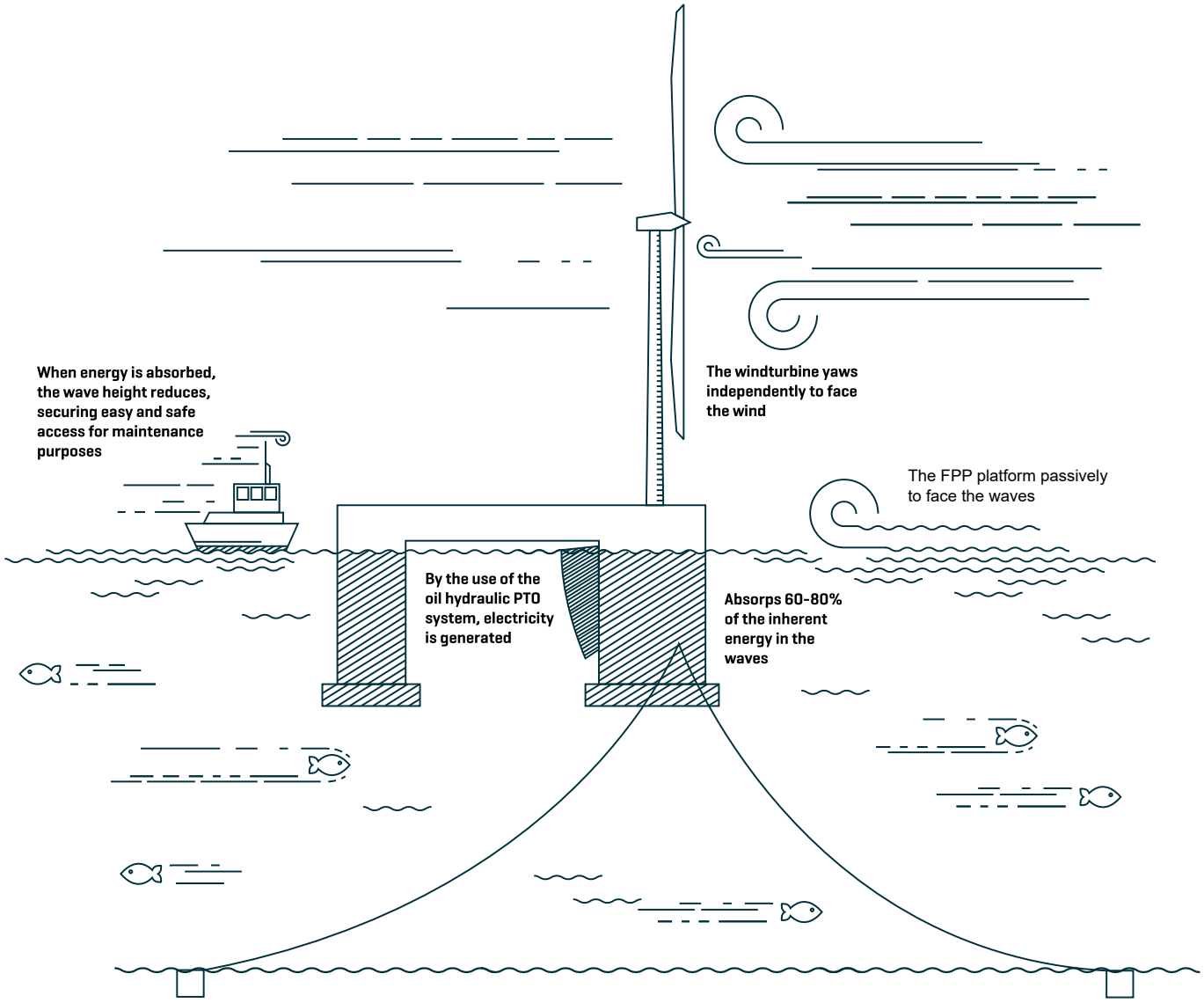


THE WORLD'S FIRST SUCCESSFULLY OFFSHORE-TESTED COMBINED WIND AND WAVE DEVICE



FLOATING POWER PLANT

The FPP Platform is a floating platform that hosts a single wind turbine ranging from 4 MW to 15 MW. The platform integrates 1 MW to 4 MW wave power dependent on the wave resource. The platform is moored at a single point allowing the platform to passively rotate to face the waves securing a safe offshore boat landing and transfer aft of the platform. The platform rotation is secured via the high wave absorption of 60-80% of the inherent energy in the waves.



UMACK
ANCHOR READY FOR DEPLOYMENT

The first commercial scale UMACK anchor has completed pre-deployment checks at CorPower's facility in Viana do Castelo port, northern Portugal.

Developed in a European consortium, the innovative UMACK technology represents a geotechnical breakthrough allowing 4-5 times higher vertical load capacity compared to a standard monopile of the same size.

This may enable efficient low-cost anchoring for offshore structures across sectors such as wave & tidal energy, floating wind and aquaculture. The pioneering anchor solution will first be deployed with CorPower's C4 Wave Energy Converter at the Agucadoura site, part of the flagship HiWave-5 Project.

It has been dimensioned to provide more than 15MN of vertical holding capacity, and resist hundred million load cycles. With on-land tests complete, the UMACK anchor is ready to be installed into the seabed using a rapid, low-noise vibratory driving technique assisted by Diseko equipment. Maersk Supply Services take us to the sea!

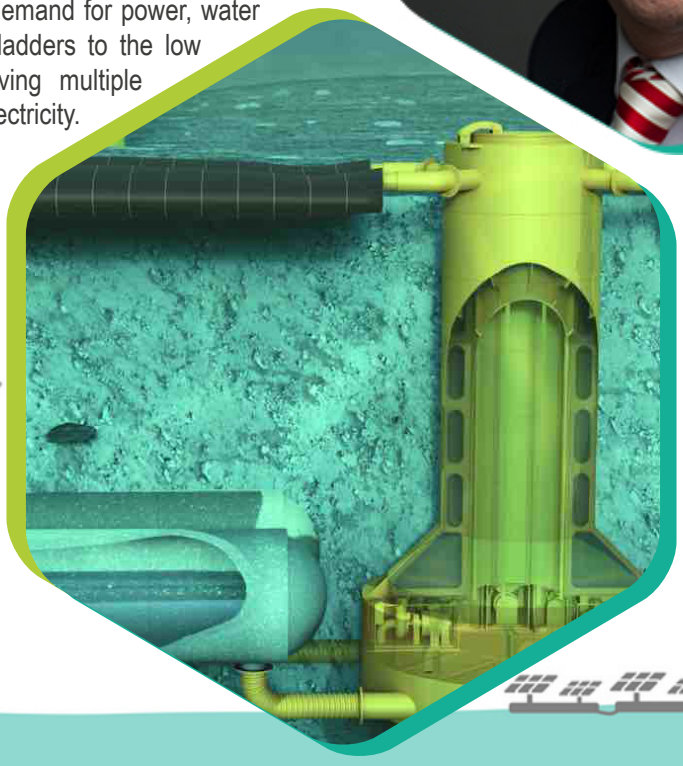
UMACK
Universal Mooring, Anchor & Connectivity Kit Demonstration

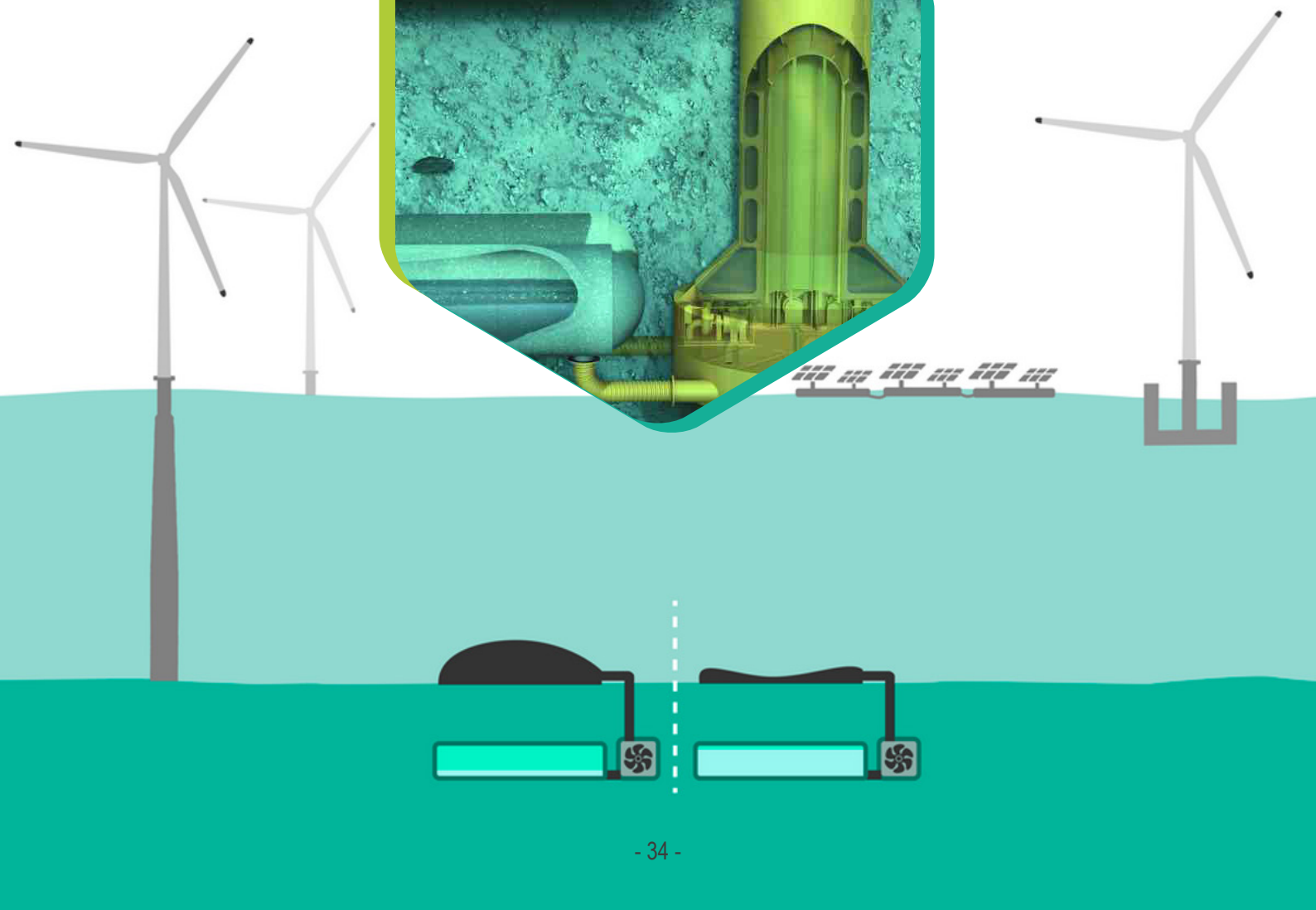
OCEAN BATTERY

OCEAN GRAZER

The Ocean Battery is a scalable, modular solution for utility scale energy storage that is produced by renewable sources such as wind turbines and floating solar farms at sea. Ocean Battery is a pumped hydro system in a box that provides eco-friendly utility scale energy storage up to GWh scale. The mechanism is based on hydro dam technology, that has proven itself for over a century as highly reliable and efficient.

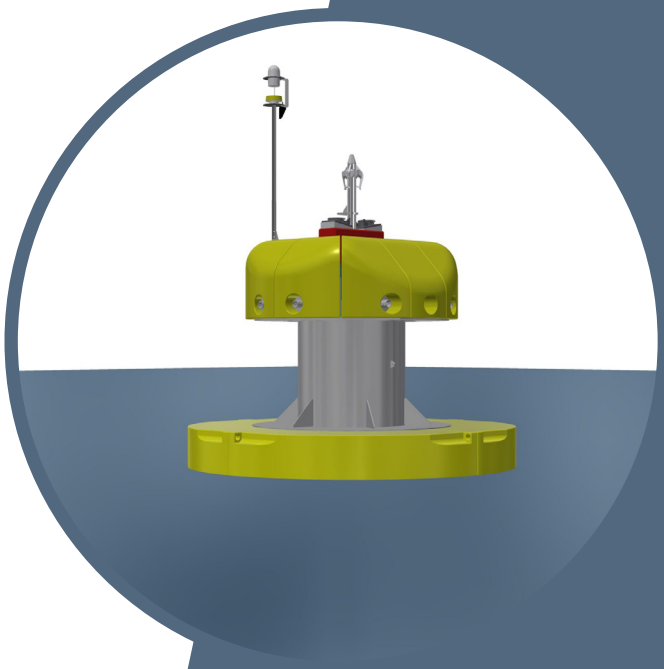
To store energy, the system pumps water from the rigid reservoirs into the flexible bladders on the seabed. Now the energy is stored as potential energy in the form of water under high pressure. When there is demand for power, water flows back from the flexible bladders to the low pressure rigid reservoirs. Driving multiple hydro turbines to generate electricity.





WORLD'S FIRST OFFSHORE CHARGING STATION COMPLETES SEA TRIALS

Oasis Marine Power



Oasis Marine Power Ltd have completed the first stage of testing of their offshore charging station, hailing the design a success. This product was the first design under development and is the first of its kind globally to reach sea trials. It offers to revolutionise renewable energy use for the maritime industry.

The Oasis Power Buoy is an offshore mooring and charging station with a zero-emission power source fed from wind turbines. Initially aimed at Wind Farm Crew Transfer Vessels (CTVs) the Oasis Power Buoy provides the critical need for offshore charging of hybrid and all-electric vessels.

QED Naval Limited
Enabling Tidal Energy to Compete on Cost

QED NAVAL LTD

Three T-1 turbines delivered in Pembroke

On behalf of the board of Tocardo BV I'm proud to share this news with the rest of the world. After winning the tender last year, preparations, procurement, lots of manhours and persistence we have managed to ship three Tocardo T-1 tidal turbines. The bi-directional turbines have been successfully transported towards Pembroke dock where they will be installed on QED Naval's Subhub community scale platform. The full systems integration will be conducted at the quayside. This is much safer and logistically easier than connecting up tidal turbine systems offshore.

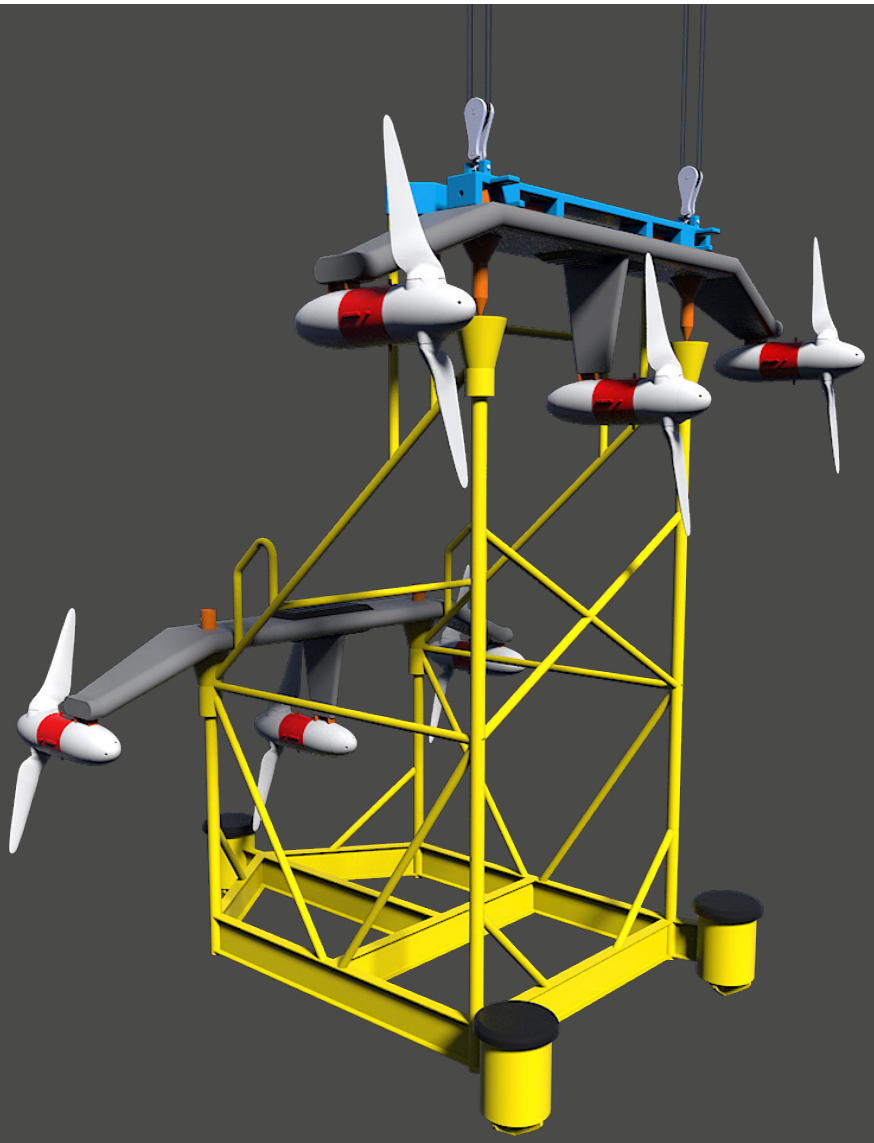
The T-1 turbine

The T-1 is Tocardo's community scale solution. By generating energy in a predictable and cost-effective way the T-1 is the best tidal turbine in its market segment with power outputs ranging from 40 to 100 kW. Due to its relatively small size, it can be installed in shallow waters (4 meters and deeper). The turbines are made to last with very minimal maintenance. The design lifetime is at least 20 years.

HYDROWING

HYDROWING

PROVIDING COST EFFECTIVE, RELIABLE & SCALABLE TIDAL POWER THROUGH OPERATIONS & MAINTENANCE DRIVEN DESIGN



This simple arrangement enables reduced CapEx and reliable power generation through:

Reduced cost and greater reliability of non-yawing and bi-directional turbines

Turbines constructed from reliable of the shelf components enabling wide supply chain and reduced lead times to be accessed

Multiple turbines enable maintained power production in the event of individual failure

Support structure constructed from standard cross sections

Smaller turbines (5-10m diameter), reduce wake effects enabling increased power density and revenue potential of sites

Small turbines distribute loads evenly through support structure prolonging fatigue life

Single export cable for each a single HydroWing structure

TOCARDO

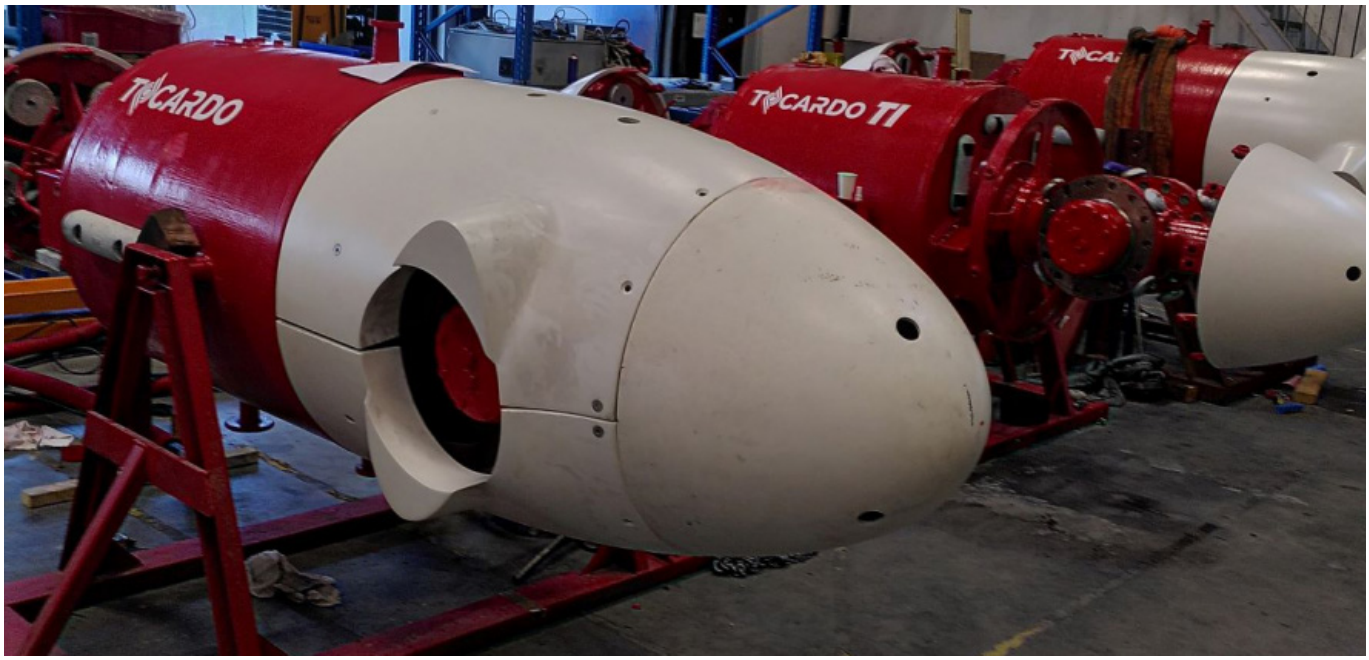
TOCARDO COMPANY

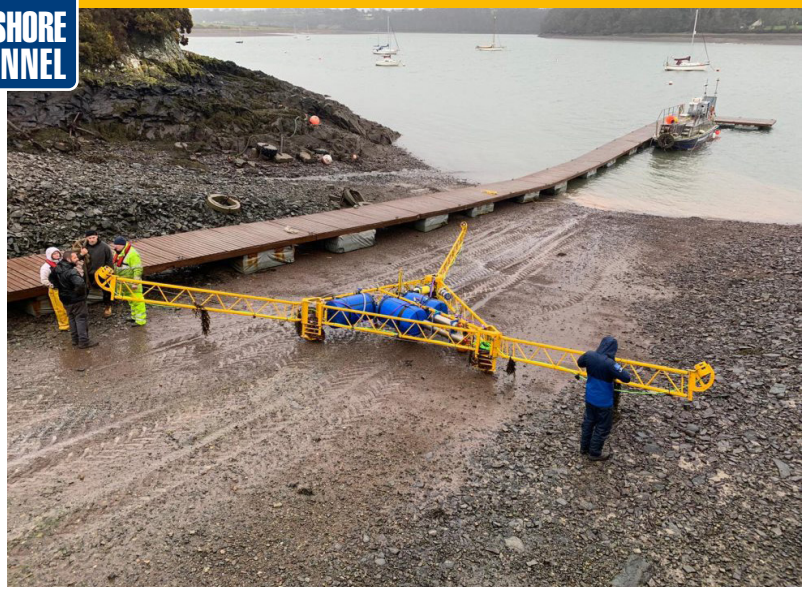
The T-1, a small size tidal turbine (50 – 100 kW)

The Tocardo T-1 turbine generates clean energy from tidal currents. The T-1 is the best tidal turbine in its market segment with power outputs from 50 kW to100 kW.

Tocardo brings innovative Dutch water technology to a whole new level with the T-1 Tidal turbine, The T-1 is Tocardo's most proven turbine. By generating energy in a predictable and cost effective way the T-1 is the best tidal turbine in its market segment with power outputs ranging from 50 to 100 kW. Due to its relatively small size it can be installed in shallow waters (4 meters and deeper). The turbines are made to last with very minimal maintenance. The design lifetime is at least 20 years.

The T-1 turbine power generation commences at flow speeds of 0.4 m/s and peaks at 4.5 m/s producing 100 kW. At flow speeds above 4.5 m/s the turbine enters 'stall mode' which is a control strategy used to prevent overloading of the turbine. T-1 turbines are capable of being operational up to 6.8 m/s, and can safely withstand 9.0 m/s speeds (survival).

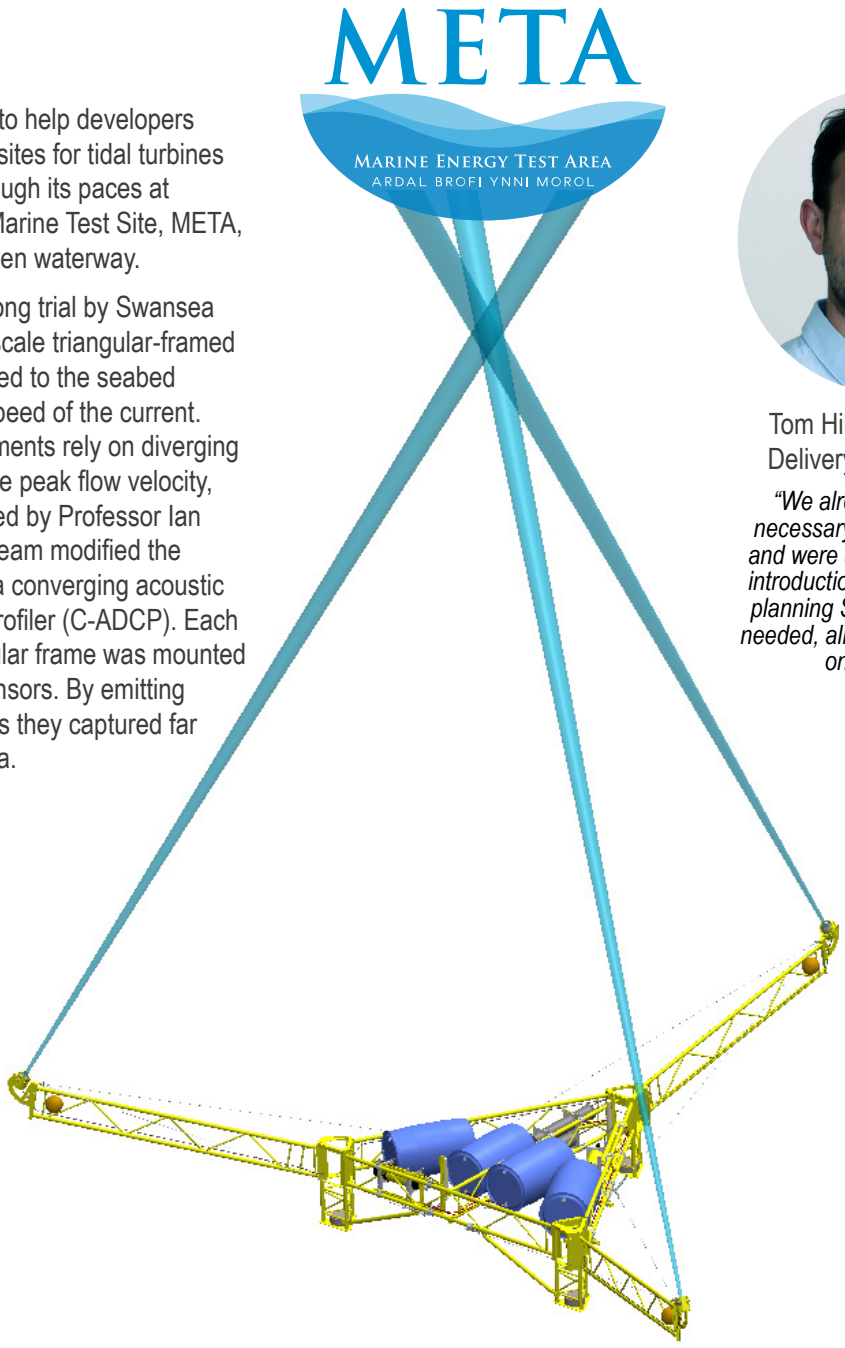




SMOOTH RIDE FOR TIDAL TESTING TOOL

A scientific study to help developers pinpoint the best sites for tidal turbines has been put through its paces at Wales' National Marine Test Site, META, in the Milford Haven waterway.

During a month-long trial by Swansea University, a full-scale triangular-framed device was lowered to the seabed to measure the speed of the current. Traditional instruments rely on diverging beams to measure peak flow velocity, but researchers led by Professor Ian Masters and his team modified the design to create a converging acoustic doppler current profiler (C-ADCP). Each arm of the triangular frame was mounted with specialist sensors. By emitting converging beams they captured far higher quality data.



Tom Hill, META Project Delivery Manager said,

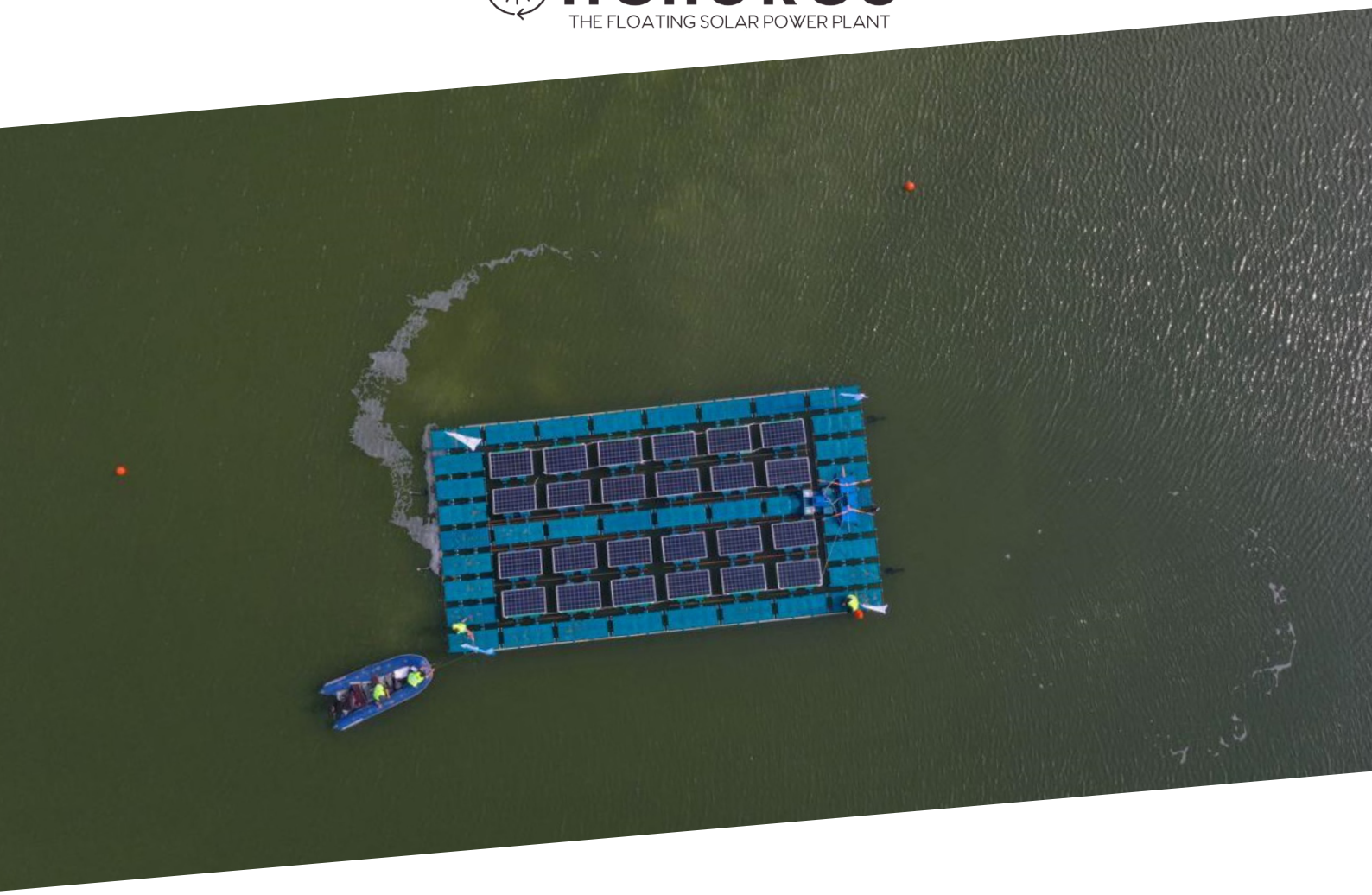
"We already have all the necessary consents in place and were able to make all the introductions and deployment planning Swansea University needed, allowing them to focus on the detail."

AUNCH OF STUDY ON NEW FLEXIBLE SOLAR ENERGY SYSTEMS FOR OFFSHORE APPLICATION

The companies Bluewater and Genap designed a new, floating flexible solar energy system. This system, consisting of flexible floating units with flexible solar panels mounted on them, has been installed over recent days in the TNO Fieldlab in Oostvoornse Meer lake, near the Maasvlakte – a harbour and industrial area close to Rotterdam. The pilot, supported by TNO, Marin, Endures and Avans, is a potential route towards the creation of economically viable offshore photovoltaic systems.

HELIOREC FORMS CONSORTIUM TO DEVELOP FLOATING SOLAR PLANT FOR AQUACULTURE SECTOR

HelioRec
THE FLOATING SOLAR POWER PLANT



French start-up HelioRec has formed consortium with +ATLANTIC CoLAB to develop a floating solar project for the aquaculture sector.

The project aims to provide clean energy for fish or algae farms from the floating solar power plant, and according to developers, it will also benefit from data analysis with the space images supported by the European Space Agency (ESA).

At the moment, the partners are looking for fish or algae farms interested in implementing the floating solar systems for their operations.

The floating power plant would be rated at 10kWp, equipped with 24 solar panels, and span the area of 130 m2.

HelioRec has developed a floating solar system, whose compact design makes it easy to transport and set up. It is also accompanied with machine learning system that helps to improve efficiency in power generation operations and maintenance efforts, according to the company.

Its floating solar systems also features the 'hydro-lock' feature, which keeps water inside the floater to give additional mass and, consequently, additional stability while avoiding extra costs from other materials for ballasting, such as metal and concrete.

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.

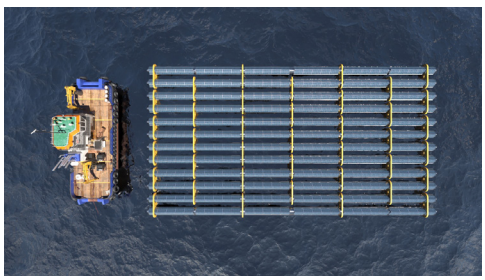
The round shape reduces the possible snow load. Wind and waves have less attack surface. Thus, many photovoltaic projects can from a static point of view with classic modules on land and on water realized only at high cost.

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



FIDAR OFFSHORE ANIMATION COMPANY

FIDAR
Offshore Animation

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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