

PivotBuoy project receives €4m to unlock cost competitive floating wind

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PivotBuoy®, [X1 Wind](#)'s novel, single point mooring system platform, which could significantly reduce the cost of floating offshore wind, to receive €4m of EU Commission Horizon 2020 funding. A consortium of nine partners, led by X1 Wind, will deploy a prototype of the PivotBuoy, at a test site at the Oceanic Platform of the Canary Islands (PLOCAN).

Once proven, the technology stands to reduce platform weight by as much as 80 per cent and costs by 50 per cent, turning floating wind competitive. The project aims to validate the benefits of the PivotBuoy system and other key innovations to reduce installation, operation and maintenance costs, paving the path to achieve 50€/MWh in commercial scale wind farms.

First backed by [InnoEnergy](#), Europe's sustainable energy innovation engine, the platform can operate at an increased water depth, compared to other floating solutions, opening up hundreds of sites, which were previously technically or commercially inaccessible.

The system combines advantages of Single Point Mooring systems (SPM) with those of Tension-Leg Platform systems (TLP) and a more efficient downwind structural design, enabling a radical weight reduction in floating wind structures compared to current spar and semi-submersible systems.

Alex Raventos, CEO at X1 Wind, said: "In the last decade, a number of prototypes have successfully proven floating wind is technically feasible, but costs need to be reduced by at least 50%. Technology disruption is required to achieve large-scale competitive floating offshore wind. Together with a consortium of nine cutting edge R&D institutions and industry partners, we plan to demonstrate the advantages of our innovative PivotBuoy system. We are delighted to receive this important support from the European Commission."

The consortium will integrate a part-scale prototype of the PivotBuoy into a downwind floating wind platform designed by X1 Wind at PLOCAN's test site. The system will be installed by 2020, where other innovations related to assembly and installation will be validated.

The project consortium combines experienced industry partners and R&D organisations from the offshore wind, naval and oil and gas sectors, and is formed by nine partners from six different countries: X1 Wind, ESM, WavEC, PLOCAN, EDP, INTECSEA, DTU, DNV GL and DEGIMA. The project will officially start on April 1 and will last for 36 months.

Background Info



X1 Wind, the project coordinator, is a technology developer dedicated to the development of innovative floating solutions such as the PivotBuoy. In addition to coordinating the whole project, X1 Wind will lead the design and development of the PivotBuoy and will also play an important role in the design, manufacturing and installation of the prototype. Despite its recent creation in 2017, X1 Wind team brings decades of experience in the design, manufacturing and operation of offshore wind and marine energy systems. The company has been recognized as one of the cleantech start-ups with largest potential impact in Europe, having received prizes, funding and recognition from renown organizations and programs such as the Cleantech Camp program, Singularity University, Innoenergy's Highway Program or the H2020 SME Instrument.



ESM Energie- und Schwingungstechnik Mitsch GmbH is a leading manufacturer of elastomer components for the isolation and damping of vibrations in wind turbines. ESM works together with nearly all turbine manufacturers all over the world, having equipped more than 100,000 wind turbines with ESM gearbox supports. Its product range currently features components for wind turbines with capacities of up to 12 MW. By participating in the PivotBuoy project, ESM will be able to apply their expertise to the emerging floating wind sector, participating in the manufacturing of the elastic coupling of the PivotBuoy, one of the key components of the system.



WAVEC – Offshore Renewables is a private non-profit association devoted to the development and promotion of offshore energy technologies, with 15 years of experience in the simulation and testing of floating wind and other ocean energy systems. WAVEC has specific focus on numerical modelling of floating structures, socio-economic issues, environmental impact assessment and an active involvement in the dissemination of offshore renewables and policy planning globally. Due to their large experience in similar projects, they will lead all communication and dissemination tasks as well as undertaking part of the numerical modelling and simulation of the prototype.



PLOCAN (Oceanic Platform of the Canary Islands) is a multi-purpose service centre with land-based novel infrastructures to support research, technology development and innovation in the marine and maritime sector. PLOCAN has extensive experience in ocean and wind energy, contributing with the hosting of equipment, devices and marine technologies for testing, validating and demonstration activities in its marine test site. PLOCAN offers the PivotBuoy project a

unique marine energy testing facility, and will also be able to lead the test planning, monitoring and environmental impact assessment of the PivotBuoy system as well as contribute to the installation and maintenance activities with its practical experience in previous projects.

EDP CNET is a subsidiary of the EDP Group and has the mission of creating value through collaborative R&D in the energy sector. EDP Group is a medium sized European utility with a strong innovation background that has important presence across all the energy value chain. EDP CNET is committed to research and development with a strong focus in technology demonstration projects. Its long track-record as a utility both in the commercialization of electricity as well as in the market integration of new technologies will play a key role in validating the commercial application of the product and associated services. The experience on the Windfloat (a pilot floating offshore wind project) and other innovative energy projects, as well as EDP experience developing and operating commercial offshore wind farms and other large power plants will be key to provide the project with an end-user perspective. They will perform the LCOE assessment and the socio-economic impact, as well as contributing in the development of the technology and the exploitation plan.



INTECSEA is part of **WorleyParsons Group**, one of the world's largest engineering and project delivery firms, having performed engineering, design, procurement, construction and operations and maintenance services for hundreds of power, industrial, commercial and government facilities in many different sectors. More specifically, INTECSEA Floating System Group is one of the largest in the Oil&Gas industry, with experience designing all types of floating systems, such as TLPs and SPMS. Due to their vast experience in project management in the Oil&Gas sector, INTECSEA will take upon the risk assessment and Health & Safety aspects of the PivotBuoy system, as well as supporting X1 Wind in the design and development of the PivotBuoy system by providing extensive technical expertise in the offshore environment.



The **Technical University of Denmark Wind Energy (DTU WE)** is a leading technical university that has undertaken basic research, teaching and commercial activities in all aspects of wind energy since the mid-1970's. It is the world's largest public research institute for wind energy and is internationally recognised as a globally leading department. The department has a significant tradition in coordinating very large research activities such as the EERA European



Energy Research Alliance) Joint Programme Wind. Due to their deep know-how in wind systems, they will lead the numerical modelling and simulation of the prototype, as well as the performance assessment.

DNV GL Group is a global quality assurance and risk management company providing classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. They also provide certification services to customers across a wide range of industries, delivering world-renowned testing and advisory services to the energy value chain including renewables and energy efficiency. Their expertise spans onshore and offshore wind power, marine renewables, solar, conventional generation, transmission and distribution, smart grids, and sustainable energy use, as well as energy markets and regulations around the globe in delivering a safe, reliable, efficient, and sustainable energy supply. DNV GL will provide the PivotBuoy project with independent advice and ensure that international standards are followed as the leading certification company in the offshore wind sector.



DEGIMA is a steel manufacturing company established in 1997, by a group of professionals with extensive experience in the metal sector, mainly in Naval sector with large experience in marine renewable energy sector. DEGIMA is one of the companies with largest experience in manufacturing ocean energy prototypes. Since 2006, it has manufactured four different Power Buoys, one wind measurement mast, several LIDAR Buoys to measure wind, Underwater Substation Pods, among other different structures and ancillary products. DEGIMA is also co-owner of ACORN solution, a coating using Thermal Spray Aluminium mixed with biocide designed specifically for static floating devices such as buoys. DEGIMA will manufacture the PivotBuoy prototype as well as contribute to the design and planning phases bringing decades of experience in the naval sector.



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