

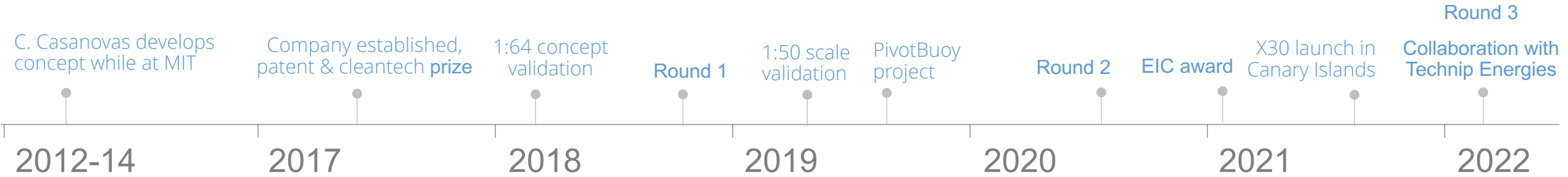


A weathervanning solution to decrease the LCOE of floating offshore wind

João Neves
Strategy & BD Director

FWS 2022 - Houston

About X1 Wind



Our Shareholders



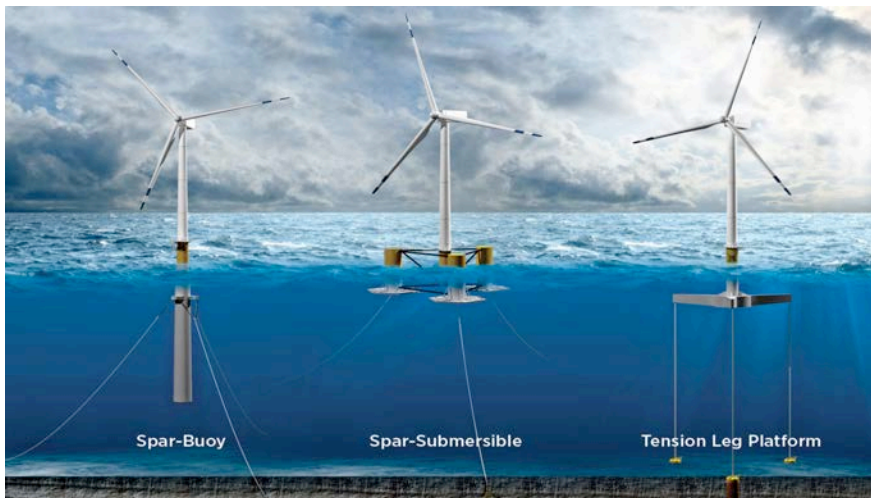
Our team's background



Our goal is to re-think the system to bring LCOE reduction to floating wind

Current technologies face challenges

- “Spar” and “semisub” successfully proven but require large weights for stability
- Tension leg platforms (TLPs) reduce weight but installation is very complex
- Challenge to scale up to >10MW turbines due to increasing bending moments on tower base



How to overcome these?

Re-think the system to take advantage of the **floating environment**, in order to:

- A. Enable substantial **reduction of loads** and steel weight
- B. Improve **scalability** to 15MW+ turbines
- C. Enable cheaper installation in **deeper waters**
- D. Ensure industrialization and **mass production**

Our patented technology



Lighter design

Lower bending moments, less steel required



Easy to Install

Full assembly at Port, installed with local vessels



Reliable

Use of passive systems, downwind configuration



Scalable

Suited for larger turbines (15MW+) & deeper waters



Environmentally friendly

Lowest footprint, less emissions during construction



[Click here](#)



**Patented system
PivotBuoy®
trademark**

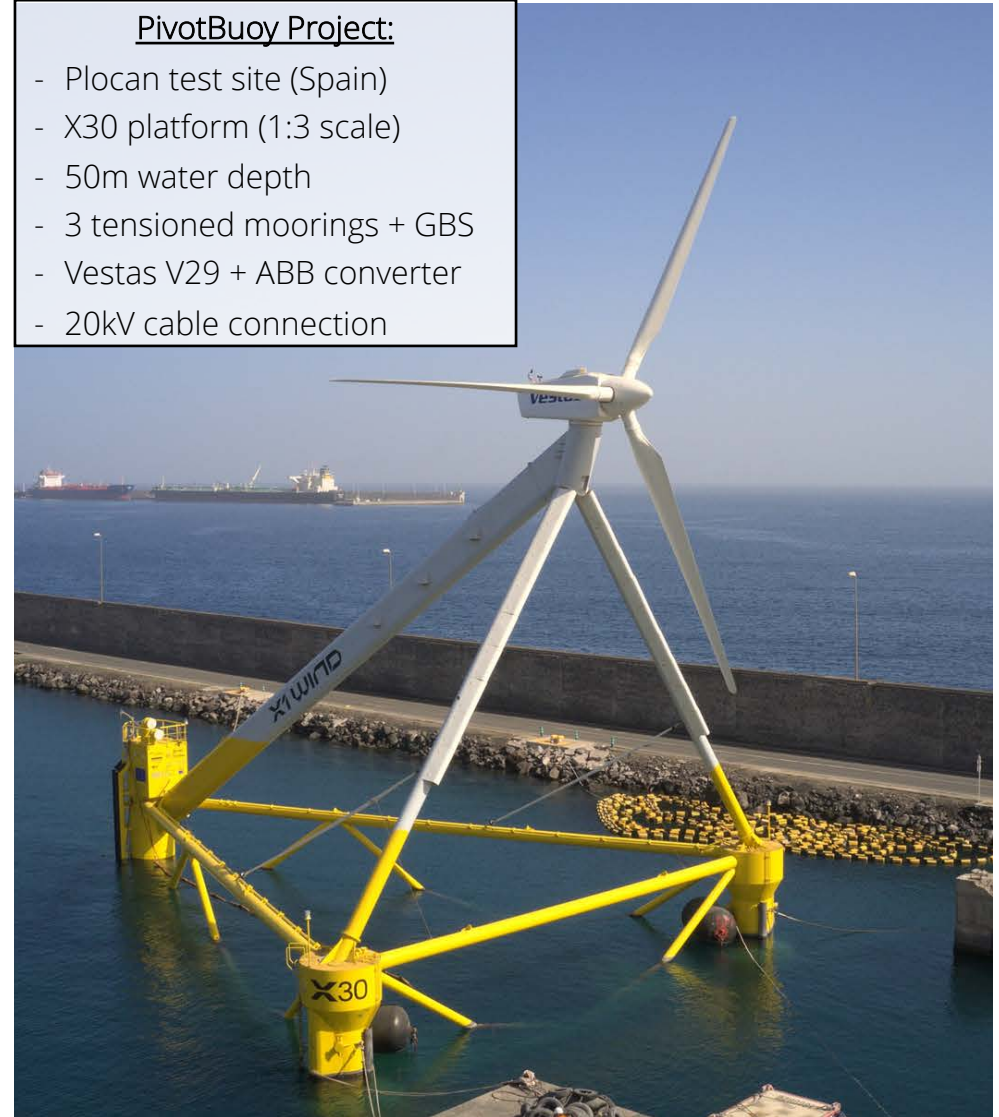
The PivotBuoy Project

Project description

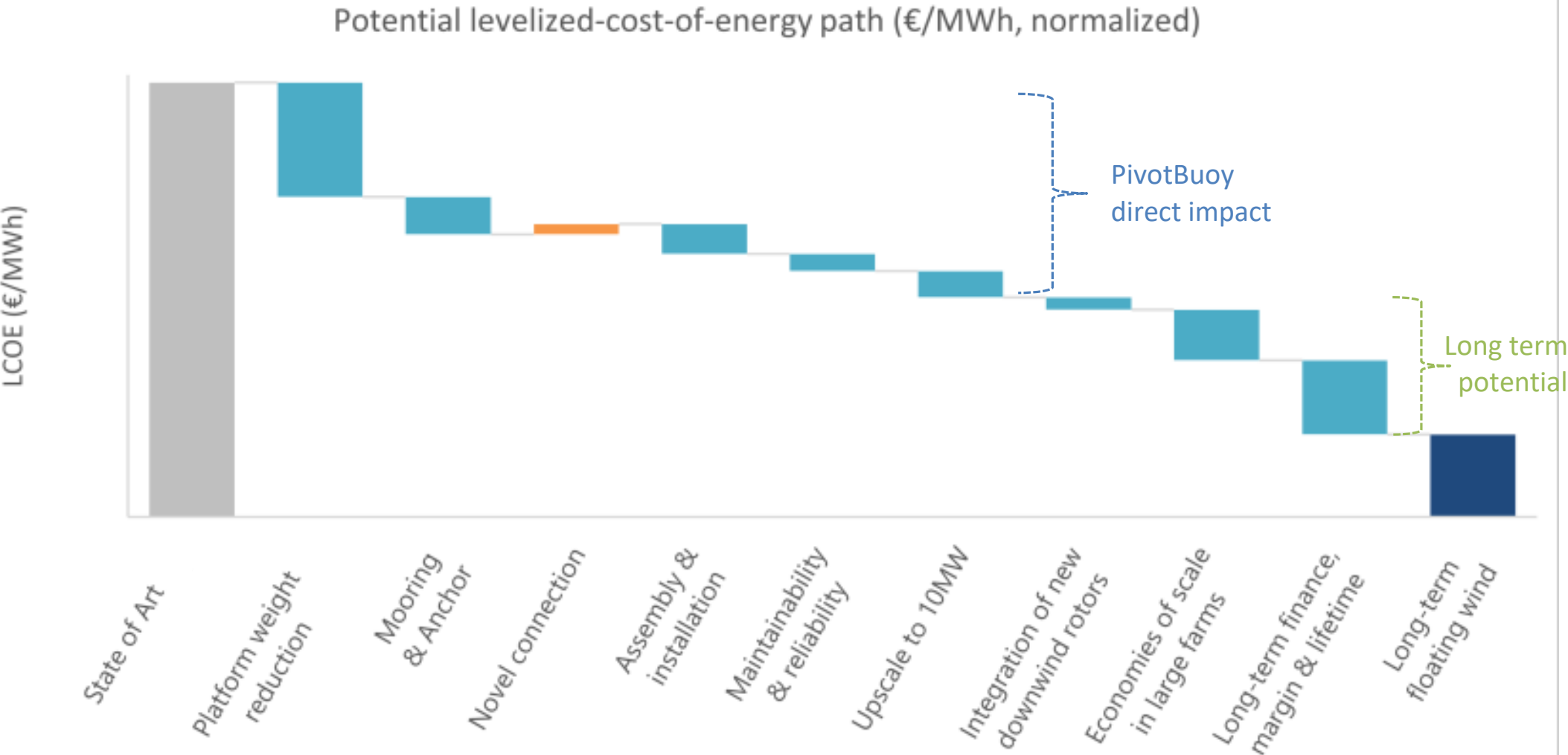
- H2020 funded project to validate the PivotBuoy® system
- Prototype to be tested at PLOCAN in a real environment
- System in the water, getting ready for installation
- Consortium: 9 industrial + R&D partners



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°815159



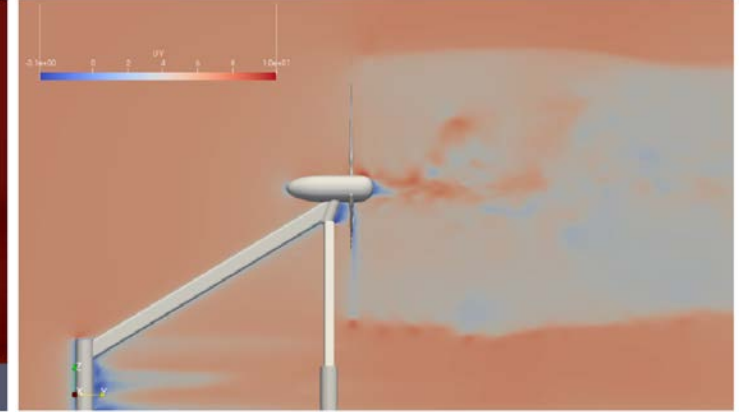
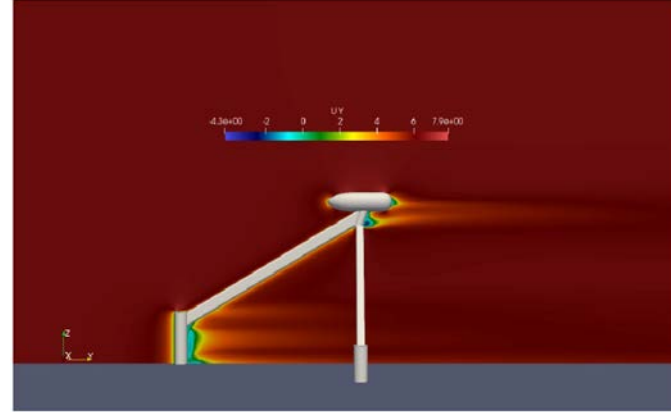
Project aims to validate cost reduction path



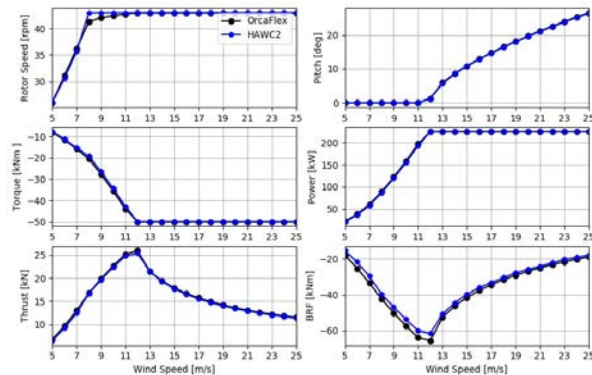
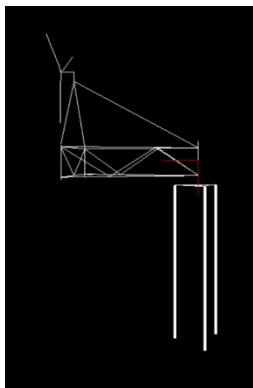
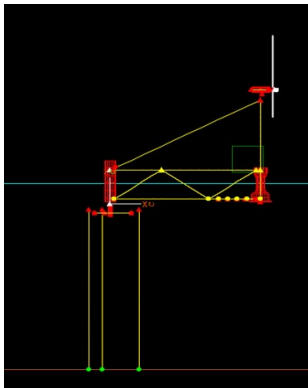
Design phase: advanced simulations & optimization



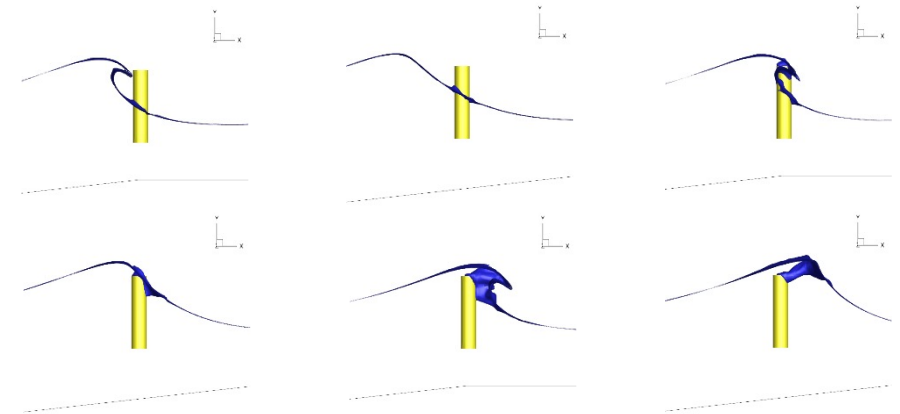
1:50 scale model tests (ECN)



3D CFD modelling with Fraunhofer to assess performance in downwind configuration (Fraunhofer)



Coupled analysis with Orcaflex & HAWC2 models & cross-validation (X1 & DTU)

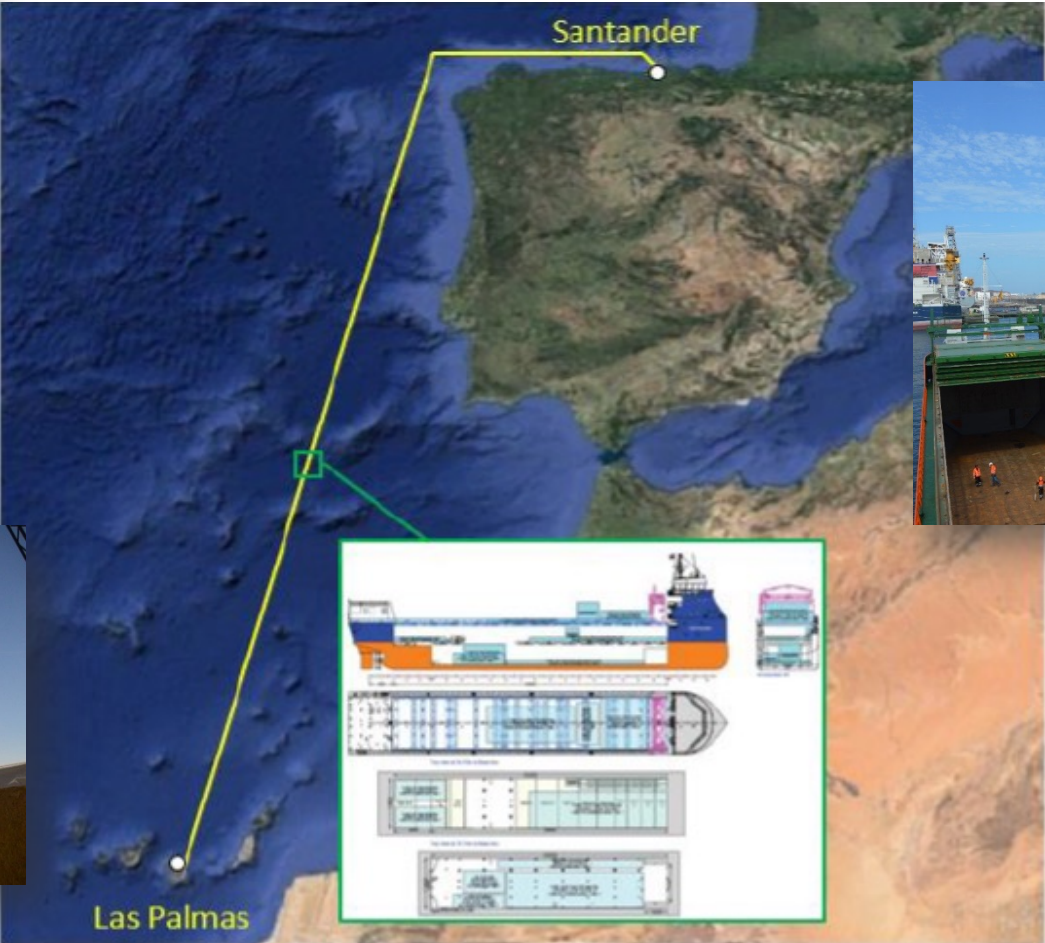


CFD simulations to assess wave impact load on PivotBuoy (WavEC)

Manufactured in Santander & shipped to GC



Floater components manufactured at DEGIMA facilities in Santander



Components shipped with Noatum Logistics to Gran Canaria



Loading out at Hidramar Shipyard

Assembly & load-out completed with local means, getting ready for commissioning



- Positioning of different elements
- Coat Painting
- Welding of the whole structure



- WT Nacelle assembly
- Electrical equipment integration
- Adaptation Vestas V29 to downwind
- Load-out

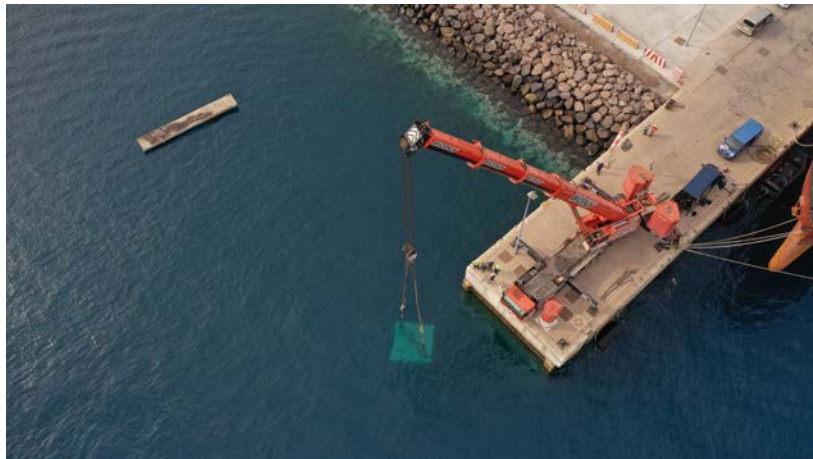


- Rotor assembly
- Port acceptance testing
- Installation (anchors, cable, floater)
- Commissioning & testing at PLOCAN

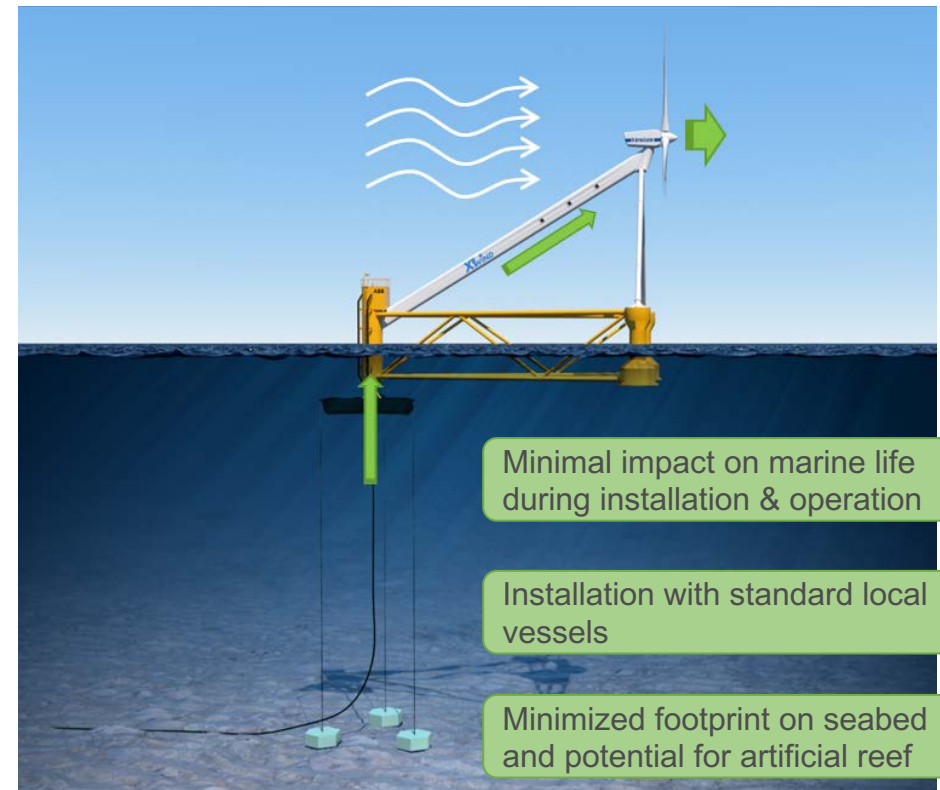
Gravity based foundation installed in its final location offshore

Foundations successfully installed offshore

- Three reinforced concrete blocks
- Manufactured locally in the port of Las Palmas
- Installation using standard anchor handling tug with help from local vessel to ensure relative position
- Successful installation at a depth of around 50 meters, within 0.5 meter of their target positions (well below the 1 meter radius requirement)




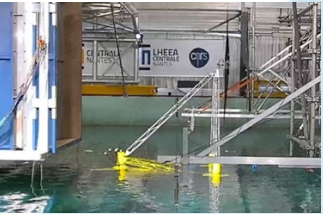
Demonstrating minimal impact on seabed




Now working on industrialization phase


Learnings being applied to 15MW+ design
Working wind partners & suppliers in industrializing processes
to get ready for commercial phase

Phase 1 



Validation in lab
1:64 & 1:50 scale
validation

Phase 2 



Part scale pilot
1:3 scale, Vestas V29,
real conditions

Phase 3



Industrialization
Upscale design & optimization
for serial production



X1 WIND

disrupting
offshore wind

For further info:
www.pivotbuoy.eu
www.x1wind.com

This project has received EU funding from the Horizon 2020 research and innovation programme under grant agreement N°815159

