



Floating Offshore Wind

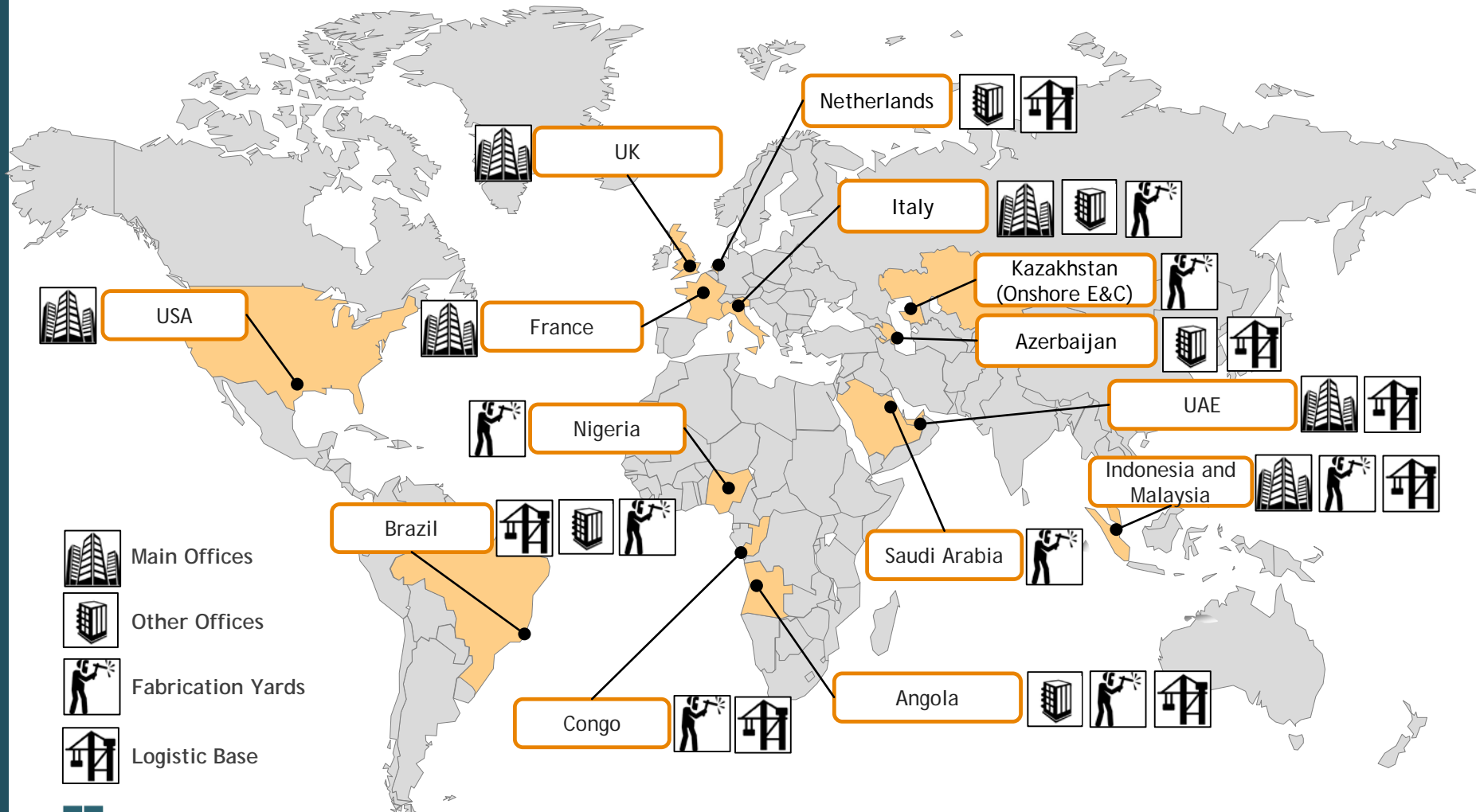
EU Innovation Workshop
Dublin - 10 December 2019



Saipem today

A world leader on large EPCI energy projects

A global footprint across the continent: 34,000 People in 60 Countries



Saipem Asset n° 2 for OWF: **in-house Fabrication**

► Arbatax, Italy

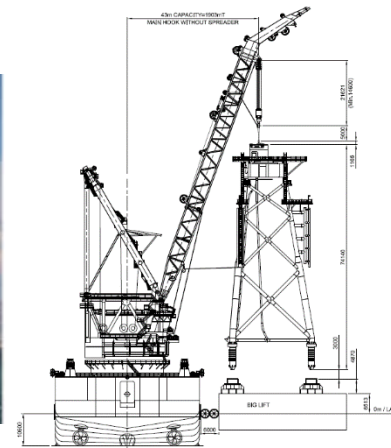
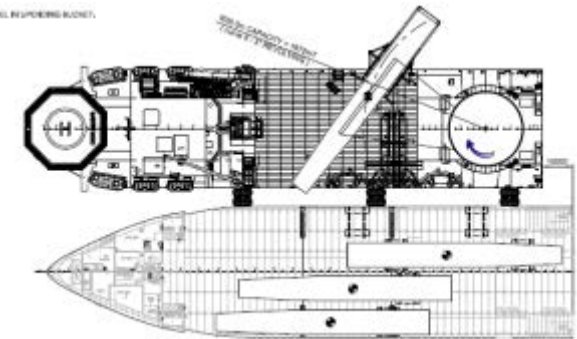


► Karimun, in front of Singapore, Indonesia



Saipem asset n° 3 for OWF: **installation Fleet**

Vessel Name	Lift Capacity (T)	Type	Type of Substructures
S7000	14,000	Semi Sub DP3	Jackets, MP/TP, GBS, WTG, OSS
DeHe	5,000	Monohull DP3	Jackets, MP/TP, GBS, OSS
Constellation	3,000	Monohull DP3	Jackets, MP/TP, OSS
Saipem 3000	2,400	Monohull DP3	Jackets, MP/TP



Saipem Offshore Wind Experience

A Pioneer in Floating Wind

2017 Hywind Scotland

Equinor



Mating of 5 x 6 MW Wind Turbine Generator (WTG) on Floating substructure

- Floating Substructure temporary mooring
- Lift complete WTG (1,140 t) from Quayside with the S7000 and transit to mating location
- Mate WTG with floating Substructure (3,500 T - 91 m Height)
- Relocate complete FWT (WTG + Substructure) back to the Quay

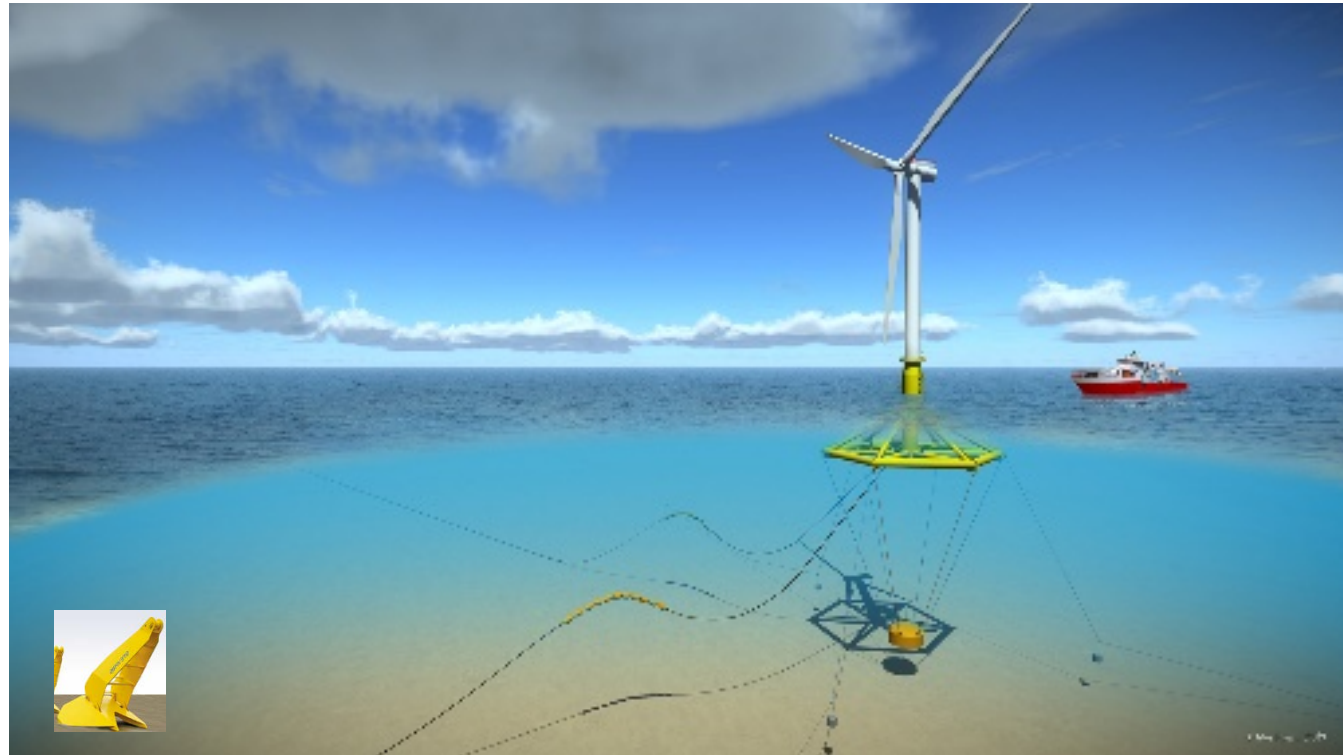
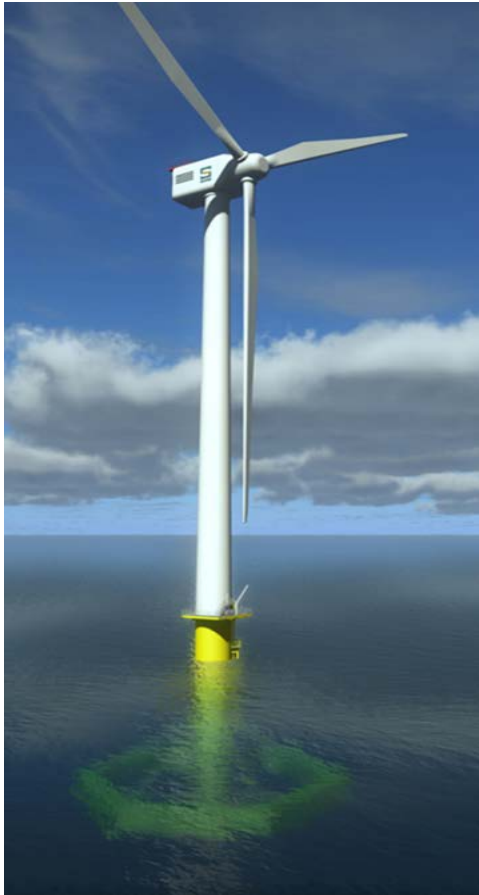
Saipem Floating Wind Solution

Published Patent

In-house fully developed concept

SAIPEM offshore wind floater is a pendulum lightweight structure made of :

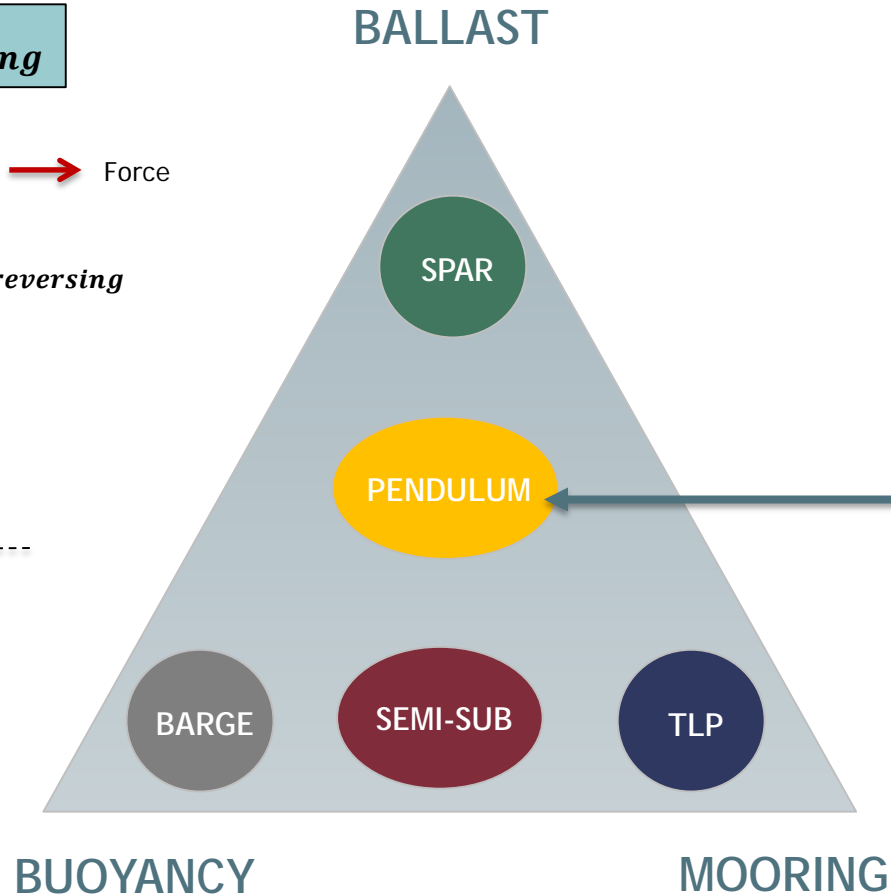
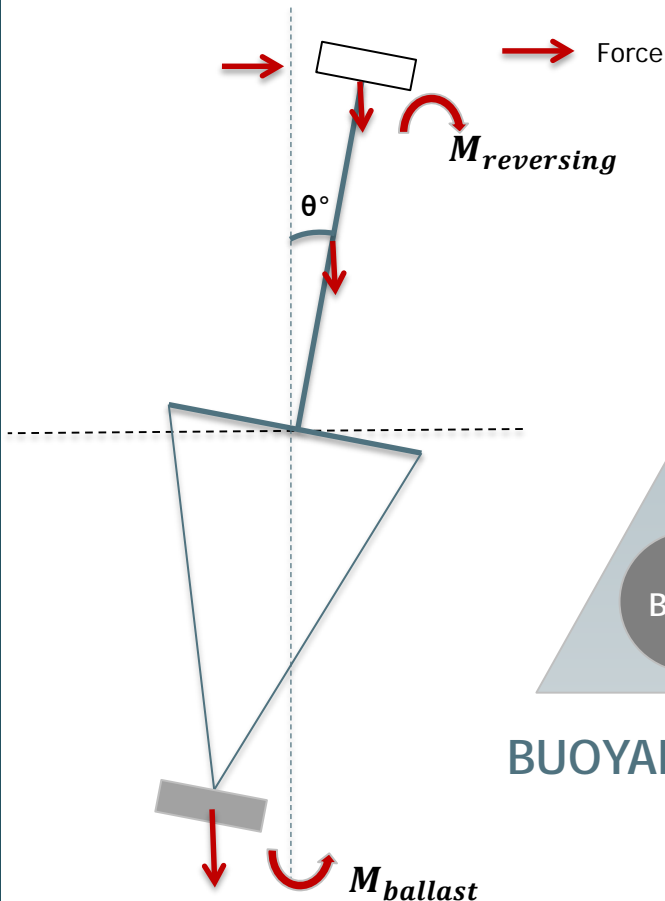
- A submersible Floater made of tubular elements
- A counter weight connected to the Floater with tendons
- Simple Mooring lines with drag Anchor
- Lazy Wave dynamic Cable



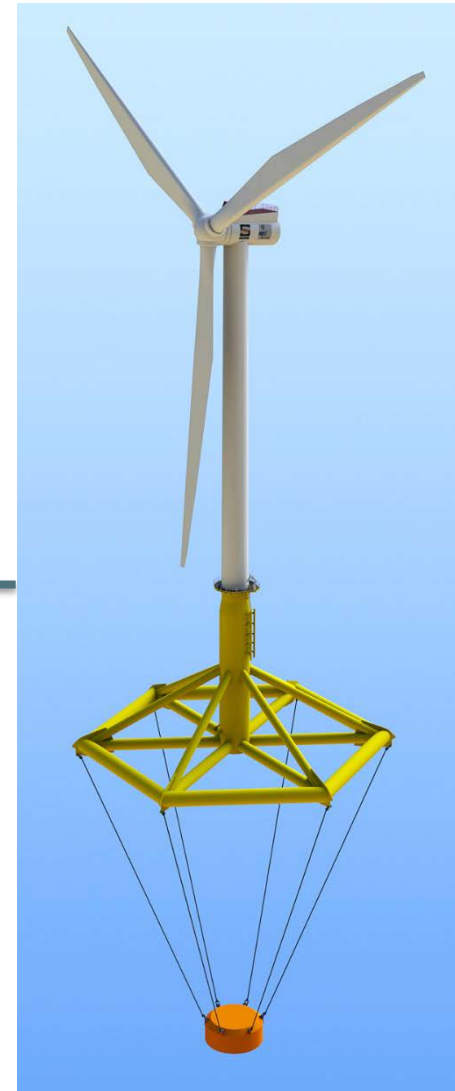
Saipem Floating Wind Solution

Concept Principle and Benchmark

$$M_{ballast} = M_{reversing}$$



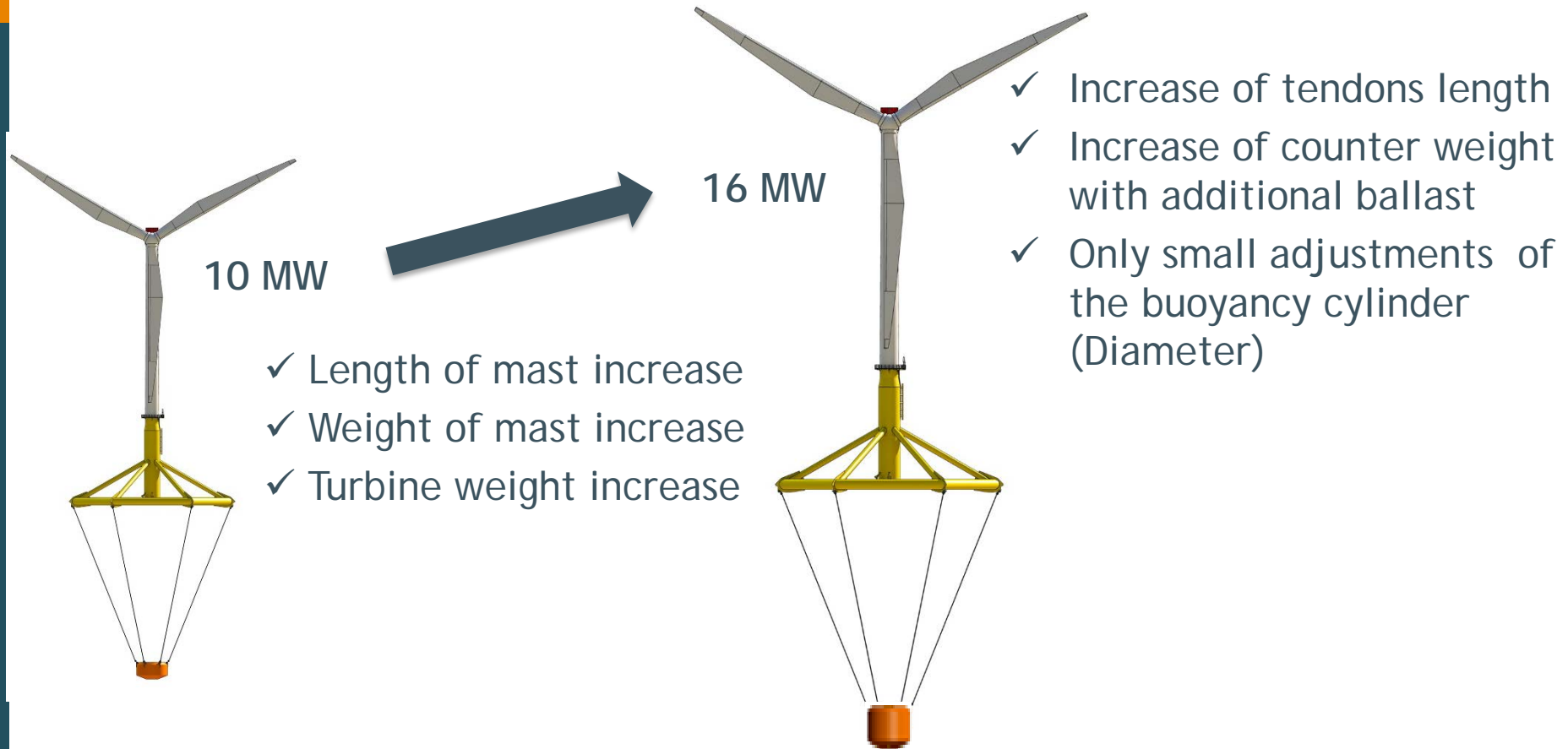
Published Patent



Saipem Floating Wind Solution

Fitness for large turbines

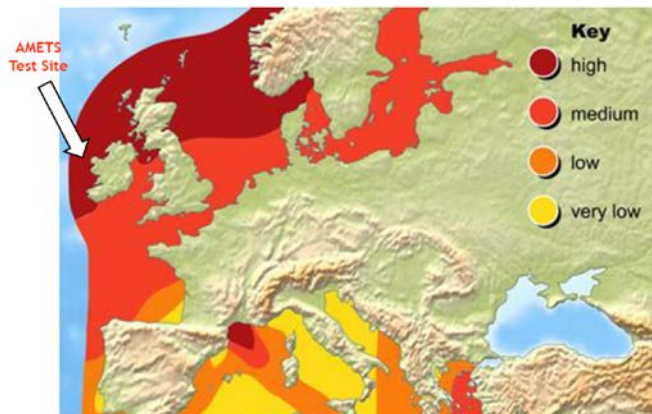
Published Patent



Saipem Floating Wind Solution is fit for the next generation of turbines

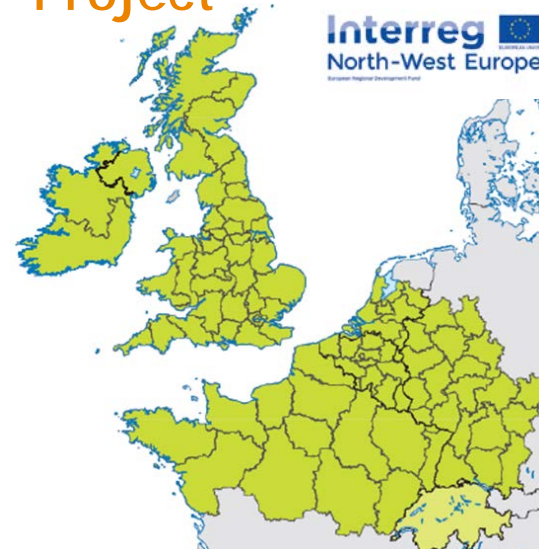
AFLOWT Prototype Project

A Commercial Scale demonstrator ... in a harsh environment



- ✓ Distance to shore: 16km
 - ✓ Water depth: 100m
 - ✓ Waves H_s : 16,7 m
 - ✓ Average wind: 8,8 m/s (*)
 - ✓ Max wind: 35,1 m/s (*)
- (*) 1 meter above sea level

An APPROVED FEDER Project



The Project includes mainly:

- Development of the Test Site connected to the grid, with the installation of the electrical cable
- The fabrication and operation of the Floating Turbine

Main Partners



The European Marine Energy Centre Limited
Back Street 1
KW163AW Stromness
UNITED KINGDOM (UK)

Concerns: Decision of the 15th Monitoring Committee

Lille, 27th February 2019

Dear Mr. Wallet,

Your application **Accelerating market uptake of Floating Offshore Wind Technology (AFLOWT)** was approved by the NWE Monitoring Committee which took place on the 6 and 7 February 2019 in Luxembourg. We kindly ask you to inform your project partners.

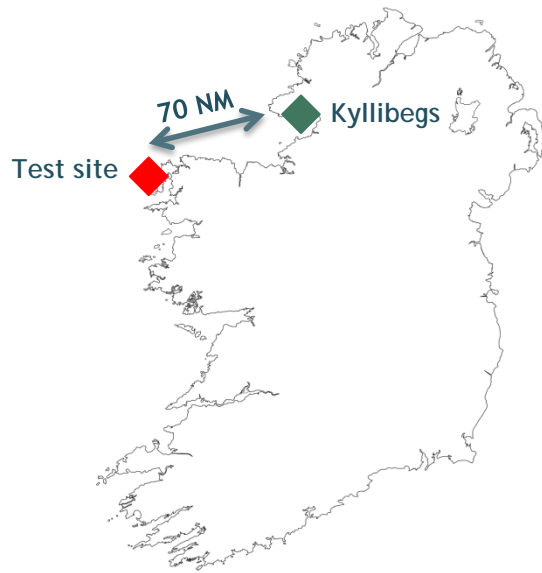
AFLOWT Prototype Project

Associated Partners

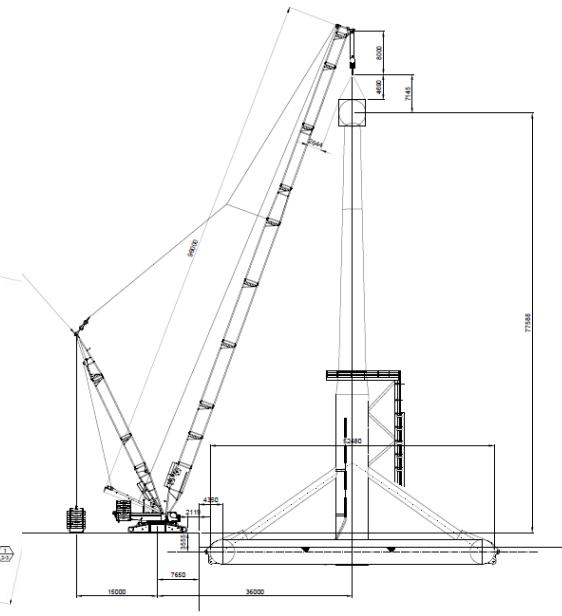
Partner	Country
Agence de Développement pour la Normandie	FR
Agence Régionale Pays de le Loire	FR
Aquatera	UK
Bretagne Ocean Power	FR
Carbon Trust	UK
Crown Estate Scotland	UK
DP Energy Ireland Limited	IE
Ecole Centrale de Nantes	FR
Highlands and Islands Enterprise	UK
Mainstream Renewable power	IE
Marine Institute	IE
Monterey Renewable Fund - KMG SICAV SIF SA	LU
Offshore Renewable Energy Catapult	UK
Provinciale Ontwikkelingsmaatschappij West-Vlaanderen	BE
SmartBay Ireland	IE
Universität Rostock / Lehrstuhl für Windenergietechnik	DE
Waemec	FR
WindEurope	BE

AFLOWT Prototype Project

Integration in Ireland : Kyllibegs Base



- Large deepwater berth available
- No beam restriction
- New pier with high bearing capacity
 - 300 m with WD 12m
 - 150 m with WD 9m
- Other pier: 600m berthage





Olivier Diaz - 2019