



*Funded project under
grant agreement No
958938*

SATHScale Project

Engineering and upscaling of new floating renewable wind energy platform

World Circular Economy Forum

Circular Design For The Sustainability Of The Offshore Renewable Energy Sector

22-06-2021



About Saitec Offshore

“We envision a better future harnessing the power of the wind”



We are a technology developer & engineering consultancy with headquarters in Bilbao (South Europe)



Since 2016, we are committed to design a reliable technology that can help to fight climate change



Innovation, creativity, sustainability, teamwork and technical expertise are our core values



32 technical and specialized professionals comprise a team working to shape the future of energy



About Saitec

Saitec Offshore Technologies is a spin-off from **Saitec Engineering**.

Founded in 1988, the company provides a wide-range of **engineering and project management services** to both public and private clients on the following areas:

-  Roads
-  Railways
-  Water
-  Environment
-  Industry and energy
-  Architecture and town planning
-  Consultancy

Saitec Engineering at a glance:



Biscay (Spain) headquarters



+30 years of experience



International offices

- Spain
- Sweden
- Colombia
- Panama
- Australia
- Qatar

Offshore Wind Energy

From Fixed-bottom to FLOATING



Objectives

SATHScale project aims:

To address the challenge of bringing to market SATH (Swinging Around Twin Hull) technology.

Based on:

1. Scaling-up the prototype to industrial readiness and maturity for market introduction.
2. Ongoing open-sea 2MW demonstrator that will be deployed at BiMEP (Biscay Marine Energy Platform) in Bizkaia (Spain).

This challenge is expected to be solved mainly through the following factors:

- Industrialized fabrication system.
- Design optimization from real experience data.
- Optimization of O&M logistics.
- Technology Internationalization

Activities

- ✓ O&M
 - Condition Monitoring Framework
 - Condition-Based Maintenance Framework
 - Lifetime Offshore Operation Logistics
- ✓ Optimization
 - Design Optimization from real Experience Data
 - Industrialized Fabrication
- ✓ Technology Internationalization

Impact

- ✓ Market objective → 23% of tender participation.
- ✓ 15GW Installed Power by 2030
- ✓ 14Mt CO₂ Avoided Annually by 2030
- ✓ Direct Employment → 85 new jobs by 2030

An innovative and competitive **concrete floating concept** for offshore wind turbines suitable for **shallow and deep waters** (35m depth, onwards)

Concrete

A durable material that allows CAPEX & OPEX reduction

Floater

Its geometry leads to a reduced concrete shell thickness

Plug & Play solution

Easy installation suitable for quick disconnection

Single point mooring system

The platform can rotate like a weathervane facing the wind





With 4 family patents granted (Europe, USA, China & Japan) and 11 patents pending



Single Point Mooring

- Maximizes wind turbine operational hours
- Plug & Play system
- Reduces stresses in the mooring system

Precast concrete structure

- Maximizes lifespan and reduces fatigue damage.
- Optimized structure to reduce weight.
- Raw material is low-cost and readily available almost everywhere.
- Easily scalable to any turbine capacity.
- Industrialized process for any wind farm size.

Floating

- Very low draught (< 10 m), suitable for any water depth.
- A stable and compact platform for a lower exposure to extreme storms.
- More respectful with the environment, minimizing seabed affection.
- Simpler installation with no need for jack-ups, reducing noise emission.

SATH technology

The use of concrete instead of steel to reduce the construction, operation and maintenance costs as well as to extend its operational lifetime.

The use of concrete which involves costs savings against steel, excellent resistance to extreme sea conditions and less maintenance needed

Reduced cost material solution compared to steel

An adequate concrete design ensures durability significantly **extending the life of the platform**

Use of concrete instead of steel results in **lower maintenance costs**

Supports local content for the construction of the platform.



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Thank for your attention

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