



floating wind

BASQUE COUNTRY



Floating Wind Initiatives in the Basque Country

Floating Wind – The next big thing

Floating offshore wind unveils as one of the renewable energy sources with higher expectations of growth in the coming years, both in the short and in the long term.

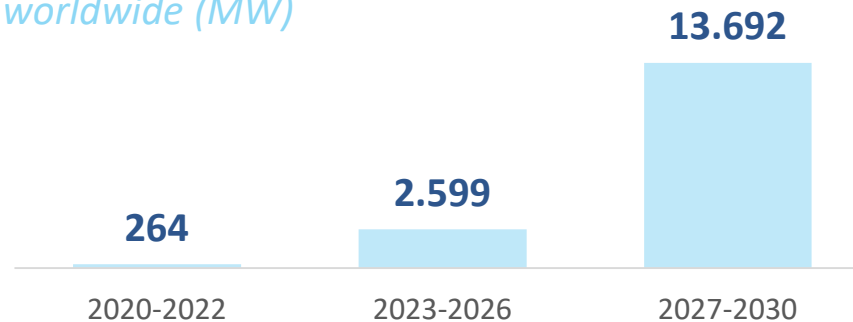


Floating wind has passed the demonstration stage and entered the pre-commercial phase.



More than 16.5GW of floating wind will be developed worldwide by 2030

Floating new installations worldwide (MW)



Source: GWEC (2021)

The Basque Country boasts 5 of the 40+ floating foundation technologies in the world and a unique open sea test-site

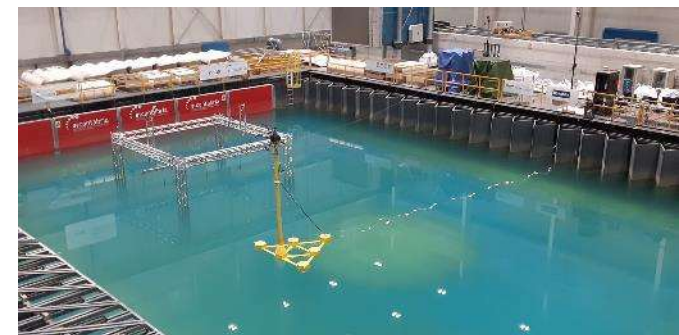
Source: EIT InnoEnergy



BiMEP
Open sea test site with grid connection for floating wind platforms



Hive Wind
Semi-submersible floating steel platform



SATH (Swinging Around Twin Hull)
Concrete floating platform



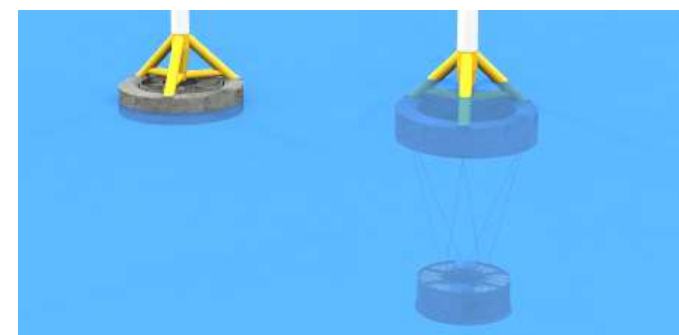
W2Power
Twin turbine floating wind platform



NAUTILUS Floating Solutions
Semi-submersible four-leg floating foundation



WHEEL
Hybrid Wind Floater Technology:
Compact lowdraft barge in harbour
Transparent spar in operation



Basque wind sector is a global supplier in offshore wind, building on its experience in onshore wind and a tradition in offshore industries

DEVELOPMENT & ENGINEERING



IBERDROLA SENER IDOM
saitec aeroblade HWS Let's Build Smarter
EUREKA! ISATI ESTEYCO

OPERATION AND MAINTENANCE OF FLOATING WIND FARMS



IBERDROLA SIEMENS Gamesa RENEWABLE ENERGY
ALERION Ingeteam aeroblade SUBEASA
IN'ALIA INNOVATING DIFFERENTLY Liftra commercial diving activities

R&D CENTRES



BiMEP Biscay Marine Energy Platform tecnalia MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE ikerlan
Mondragon Unibertsitatea ceit Tekniker MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

WIND TURBINE & COMPONENTS



SIEMENS Gamesa RENEWABLE ENERGY ERREKA innomat COATINGS
Ingeteam euskalforging HINE LAULAGUN bearings
antec GLUAL GAINZA FORGE

TOWERS AND TRANSITION PIECES



haizea wind euskalforging GAINZA FORGE GRI
CoreMarine GRUPCAMPER Servicio Naval Offshore sidenor
IN'ALIA INNOVATING DIFFERENTLY NAVACEL

FLOATING FOUNDATIONS



ESTEYCO HiveWind
ISATI Nautilus
GRUPCAMPER Servicio Naval Offshore
saitec SENER

MOORING



VICINAYmarine

ELECTRICAL CONNECTION



ditrel Industrial S.L. lumiker RDT company
ORMAZABAL velaita

Home to two global leaders in the development of floating wind energy, such as Iberdrola and Siemens Gamesa



Unique market position with a diversified offshore wind pipeline to achieve +10 GW by 2030 and to continuing growing in the next decade

Awarded 7GW (of which 5GW are floating) of offshore wind capacity in the largest tender to date as part of Crown Estate Scotland's ScotWind Leasing

Planning its first industrial-scale floating offshore wind farm in Spain with an investment of more than €1 billion

Source: Iberdrola



Global market leader for offshore with approximately 70% of market share in Europe, the most extensive installed base and the largest order book in the industry

Experience in multiple floating offshore wind farms: Hywind demo, Hywind Scotland in 2017, TetraSpar

Supplier of Hywind Tampen (Norway), the world's largest floating wind farm (88MW), to be commissioned in late 2022. Supplier of Provence Grand Large (France), demonstrating technical and economical feasibility of floating wind, to be commissioned in late 2022(24MW)

Supplier of upcoming floater projects in UK, US and Norway, to be commissioned in 2023 to 2024

Source: Siemens Gamesa

Basque companies participate in most of worldwide demonstration and precommercial existing floating windfarms up-to-date

 **Kincardine, 50 MW (2020)**



Basque companies:
EUSKAL FORGING, NERVION INDUSTRIES, SENER, VICINAY

 **Hywind Scotland, 30 MW (2017)**



Basque companies:
EUSKAL FORGING, NAVACEL, NERVION INDUSTRIES, SIEMENS GAMESA, VICINAY

 **Hywind Tampen, 88 MW (2022)**




Basque companies:
EUSKAL FORGING, HAIZEA WIND, SIEMENS GAMESA, VICINAY

 **DemoSATH, 2 MW (2022)**



Basque companies:
HAIZEA WIND, SAITEC, VICINAY

 **Windfloat, 25 MW (2020)**



Basque companies:
EUSKAL FORGING, NAVACEL, NERVION INDUSTRIES, VICINAY

 **Floatgen, 2MW (2018)**



Basque companies:
EUSKAL FORGING

 **Provence Grand Large, 24MW (2023)**




Basque companies:
SIEMENS GAMESA, VICINAY

 **Kitakyushu/Hibiki, 3 MW (2019)**





Basque companies:
VICINAY


Collaborating in key R&D initiatives to overcome the main technological challenges of floating wind development

 *Horizon 2020 programme*

REDUCTION OF THE LCOE FOR FLOATING OFFSHORE WIND POWER



Coordinator: 

Basque partners: 

 *Horizon 2020 programme*

REDUCTION OF FLOATING OFFSHORE WIND OPERATIONAL COSTS AND INCREASE OPERATIONAL EFFICIENCY



Basque partners:    

 *Basque Hazitek programme*

INNOVATIVE CONCEPT OF INTEGRATED FLOATING SUBSTATION DEVELOPED IN BASQUE COUNTRY



Coordinator: 

Basque partners:         

 *Basque Hazitek programme*

INTEGRAL SOLUTION FOR FLOATING WIND O&M THROUGH THE DEVELOPMENT OF NEW TECHNOLOGIES



Coordinator: 

Basque partners:             

WIND2GRID: Development of technologies, components and systems for offshore & floating substations



FLOAT&M: Comprehensive Solution for Floating Offshore Wind O&M



- Cost model and availability for floating offshore wind farms
- Monitoring, inspection, access and maintenance strategies
- Recommendation of asset operation criteria



- Health monitoring system
- Key elements of a digital twin
- Production optimisation control system at the wind farm by minimising wake effect



- Blade repair using semi-automatic robots
- Drones to aid marine operations
- Navigation systems adapted to take-off and landing on mobile platforms



- Repairable coatings
- New materials that resist degradation in offshore environments
- Solutions to eliminate and/or reduce sacrificial anodes



- Underwater ROV specifications for mooring lines
- Sensor study in ROVs for fouling and corrosion



- Design of fast interconnectors for dynamic cables and mooring
- Solutions to automate connection and disconnection manoeuvres

The Basque Energy Cluster leads the EUROCLUSTER ELBE initiative, an alliance of 8 leading regions in Europe



ELBE
EUROPEAN LEADERS OF BLUE ENERGY^o



Innovation

Training

Internationalisation

Joint internationalisation activities of the Basque Energy Cluster



Misión EEUU Flotante



IPF 22
BUSINESS NETWORK OFFSHORE
April 26-28, 2022
Atlantic City, NJ



The global on- & offshore expo



Misión Eólica Marina Corea y Japón





International Conference on Ocean Energy



Ocean Energy Europe Conference & Exhibition

OCTOBER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
17	18	19	20	21

- Press briefing
- Social activities
- Conference
- Welcome reception
- Conference
- Gala dinner
- Conference
- Social activities
- Technical tour
- Social activities



thank
you