BRETAGNE OCEAN POWER

OBSERVATOIRE DES ÉNERGIES DE LA MER

MARINE ENERGY IN BRITTANY:

AN INDUSTRIAL SECTOR INVOLVED
AT **ALL PROJECT STAGES**
AND IN **ALL MRE TECHNOLOGIES**

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GAËL LE SAOUT

President of the Economic Commission of the Region of Brittany, in charge of Marine Energy

President of Bretagne Ocean Power

EDITORIAL

> BRITTANY HAS ALWAYS HAD A STRONG MARITIME TRADITION, AND THE JOBS NEEDED TO KEEP THE MRE SECTOR ALIVE ARE **IMPORTANT FOR ALL BRETONS FOR WHOM THIS TRADITION REMAINS IN THEIR DNA.**

With 2,750 km of coastline, Brittany benefits from all the sources - wind, swell, tides - necessary for the production of energy from maritime resources, and therefore has a wide variety of possibilities for action, projects and sectors. Testing technologies, organising demonstrations in maritime conditions, developing pilot projects and sites, preparing commercial calls for tenders: Brittany has decided to equip itself with the relevant support systems to make these missions available to the region's industrial stakeholders.

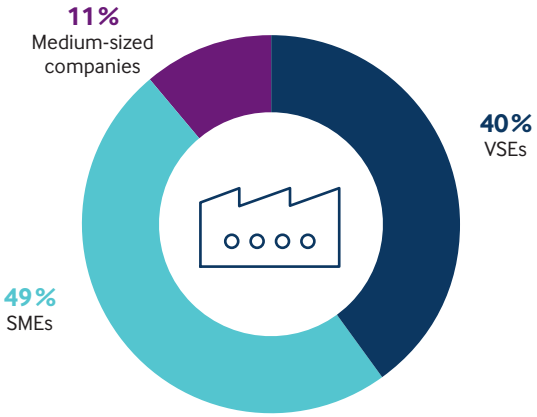
Through the action of Bretagne Ocean Power in particular, the wide variety of actors from different sectors - shipbuilding and repair, oil and gas, etc. - and with a wide range of skills, represent a real asset for a collective understanding of the needs of the MRE sector.

After several years of hesitation, marine energy in Brittany is finally getting underway with the first offshore wind farm to be set up in the Bay of Saint-Brieuc by 2023. This is only the start, since as early as 2022, Brittany should host the winner of the first European call for tenders for floating wind turbines; the beginnings of a new industrial era on the Atlantic coast.

An ambitious MRE development strategy was approved in 2016. The Region has set itself the task of preparing maritime areas to accommodate projects in the right conditions, organising industrial and port resources in line with the needs of the sector's clients, and providing a coordinated and credible response to the region's economic players.

AN INDUSTRY DRIVEN BY VSE/SMES

DISTRIBUTION OF COMPANIES SURVEYED BY SIZE



- All these small companies are used to working alongside each other in the service of major Shipbuilding or Oil & Gas projects. Companies such as Naval Energies, Iberdrola or Navantia also operate in Brittany (the latter two particularly as part of the development of the Saint-Brieuc offshore wind farm).

- Construction of the first projects is encouraging existing companies to expand and new ones to enter the MRE sector.

In 2020, the sector includes 138 companies. Of the 64 companies that contributed to this study, 87% of the providers and suppliers in the value chain are VSE/SMEs.
Brittany stands out in this respect from the rest of the country where VSE/SMEs represent 67% of companies (27% VSEs and 40% SMEs).

COMPANIES INVOLVED
IN ALL STAGES OF MRE PROJECTS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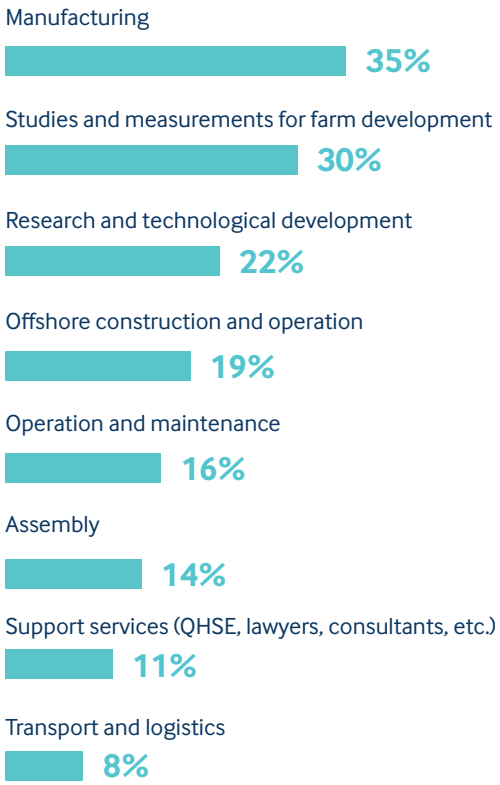
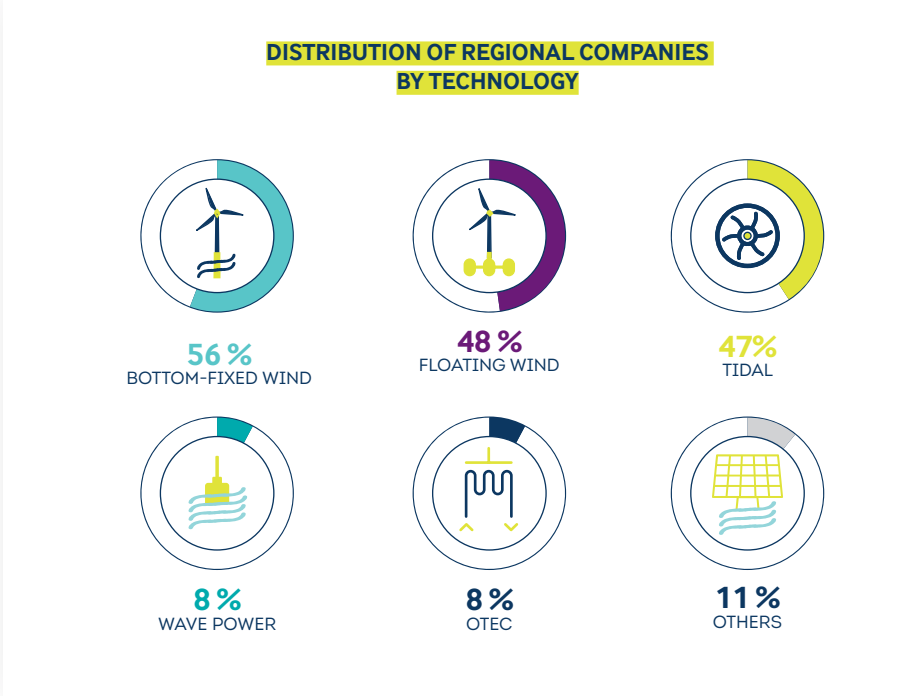
DISTRIBUTION OF REGIONAL COMPANIES BY MRE SEGMENT



The turnover made by Breton companies is in all stages of MRE projects, with a slight predominance for manufacturing. This is specific to Brittany.

- This can be explained by the highly varied positioning of regional companies (which nevertheless favour the studies and measurements, technological R&D and manufacturing segments).
- Prior to the arrival of major projects such as the Ailes Marines project in the Bay of Saint-Brieuc, turnover was generated by small and medium-sized specialist companies and was not dominated by major groups.

INDUSTRIAL SKILLS
FOR ALL TECHNOLOGIES



From a technological point of view, Brittany is special in that companies are well positioned in tidal turbines in addition to other mature technologies such as floating and bottom-fixed wind turbines. This is in contrast to other regions, where tidal turbines only account for 27% of companies' positioning nationally. This regional specificity can be explained by:

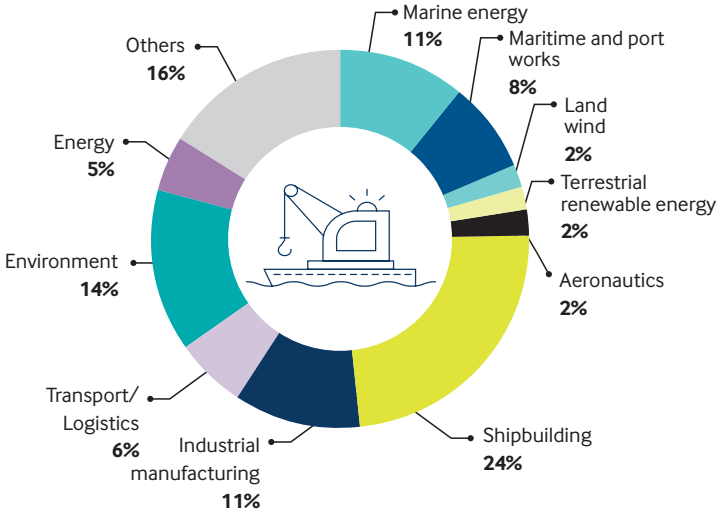
- strong potential due to areas suitable for the deployment of this technology
- the presence of 2 tidal turbine test sites (off Paimpol-Bréhat and in the Fromveur)
- the presence of a leading turbine manufacturer Sabella and the launch of the first tidal turbines in 2008, in the same year as the OpenHydro (Naval Energies) trials.
- and an ambitious desire to propose energy solutions for off-grid areas.

A BRETON SECTOR
FROM THE MARITIME ECONOMY

Brittany's leadership in the maritime economy explains why 48% of the companies in the MRE sector come from it (ship-building, marine energy, maritime and port works, Oil & Gas)

© Panoramic Bretagne/Région Bretagne

DISTRIBUTION OF COMPANIES SURVEYED BY SECTOR OF ORIGIN



Brittany therefore is logically positioned in marine structures for MRE technologies, such as the Jacket type metal foundations of offshore wind turbines.

KEY SECTOR FIGURES
IN BRITTANY IN 2019

	Training and R&D organisations	Developers Operators	Providers and suppliers in the value chain	Institutions	TOTAL
Number of FTEs* *full-time equivalent jobs	84	47	197	10	**338**
Sales Revenues 2019 (000's€)	4 800	–	10 003	0	**14 803**
Investment 2019 (000's€)	1 795	8 495	15 608	39 075	**64 973**

COMPANIES OPERATIONAL
IN THE SUCCESS OF FRENCH PROJECTS

338 JOBS

DEVOTED TO MRES IDENTIFIED IN 2019, I.E. BEFORE THE LAUNCH OF COMMERCIAL PROJECTS IN THE REGION.

In the national MRE landscape, Brittany ranks **fourth place among other regions** in terms of jobs with 11% of the total (3,064 FTEs nationwide). Brittany is the leading region for jobs in the research and training category, with almost 1/3 of national jobs in this category.

Most jobs in Brittany are with providers and suppliers in the value chain (197 FTEs, or 58%) and in research and training (84 FTEs, or 25%).

€14.8 M IN SALES IN 2019

With nearly €15 million of sales generated, Brittany is the 6th region for this indicator (€305 million for France as a whole in 2019).

68% of regional sales are generated by service providers and suppliers in the value chain (particularly in the manufacturing sector) and 32% by research and training organisations.

Brittany also has the highest **regional turnover in research and training with €4.8 M (i.e. 50% of national** turnover).

€65 M OF INVESTMENT MADE IN 2019

BRITTANY FIRST REGION FOR PUBLIC INVESTMENT

Brittany accounts for 14% of total investment in the sector nationally. It is the leading French region in terms of public investment, 60% of which is made by institutional players and port managers. Work on the port terminal of Brest, essential infrastructure for the development of the sector, contributed to this level of investment.

A WORD FROM THE STAKEHOLDERS

COMPANIES ALREADY RECOGNISED FOR THEIR EXPERIENCE INVOLVED IN THE MARINE ENERGY SECTOR

Some 140 companies involved with a confident outlook for the future of MRE as an area of economic development and energy transition.

CARL BOIS
Sales Director

Quiet Oceans
Ocean Noise Forecasting Monitoring & Mitigation

International deployment has made it possible to make up for the life cycles of projects in France. Now we are working on French projects, some of which have a 10-year lifespan!

Quiet Oceans, a Breton company with 12 employees created in 2010, specialised in underwater noise and its impact on biodiversity. Working in MREs upstream of French projects (2012-2013) to carry out impact studies, we have developed our skills through our international contracts. With our highly specific and little-shared methodology and technical know-how, and our openness to international projects, we have gained the trust of major clients in Northern Europe, North America and Taiwan. Today, French projects are taking shape allowing us to envisage strong development over the long term.

The MRE sector has a bright future: the need for electrical power is growing, production resources must be far cleaner to be accepted, and costs are falling constantly.

ANAS HARRARI
Head of Business Unit Bretagne Pays de Loire

OTECMI

“MREs are an important pillar in economic recovery and in energy transition. Our objective is to develop this sector within Otecmi and the SGS Group by strengthening our teams.”

© OTECMI/ Yann Bresson

Otecmi is a subsidiary of SGS, a world leader in inspection, testing and certification. Based in Brest, Otecmi employs around 50 people, 6% of whom work in MRE. Our expertise is in non-destructive testing, acquired through our presence in the naval, nuclear, gas and foundry sectors in particular. Through SGS, we have also been able to acquire MRE expertise through contracts in Taiwan. Our presence in France currently places us as a major player in Breton ports. To be able to support the deployment of the Groix Belle-île and Saint-Brieuc projects, we are using our ability to attract and train people. 30% of our workforce will be working in MRE in 2021-2022. We will also be recruiting additional teams that we will train, with the help of the training division of Pôle Emploi. This know-how will then support MRE projects that will be deployed in Normandy, Aquitaine and the Mediterranean.

The French goernment’s energy programme (PPE) provides a perspective to 2023 that encourages us to train and recruit. We are benefiting from the first MRE projects and from a very attractive territory: this is a great opportunity to commit teams and resources. MREs are a major area of development for the company, and will become reality in October 2020.

ANTOINE PLAQUEVENT
Regional Director AFPA Brittany

Afpa

“Specific MRE training courses, designed and tested in Brittany.”

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AFPA offers vocational training for adults to promote integration for the most disadvantaged groups, but also to help companies with their training needs for present or future employees.
A new training course! AFPA Brittany has been called upon by the French government to prepare for the skills of tomorrow by anticipating the development of new professions. It is within this framework that AFPA Bretagne has been participating for the last 5 years in an incubator project to create a two-year diploma in wind turbine maintenance. Some thirty trainees have already completed this forward-looking training course. By the start of this school year, this diploma (BTS) will have official status. The AFPA centre in Lorient is one of the 2 centres that will be offering this training.
AFPA also offers **custom specialisation courses** or transfer of technical skills to the maritime domaine **for company employees**: electricity, welding, pneumatics, maintenance... Companies can then make use of these courses as and when required as offshore wind farms are built.

PROJECTS IN THEIR INFANCY:

BRITTANY IS THE ONLY FRENCH REGION WORKING ON COMMERCIAL PROJECTS INVOLVING THREE TECHNOLOGIES: BOTTOM-FIXED AND FLOATING WIND TURBINES AND TIDAL TURBINES

Numerous projects are being developed in Brittany. The projects listed below will be installed and commissioned **within the next 3 years**:

- **AILES MARINES: wind farm** of 62 bottom-fixed 8 MW wind turbines (i.e. 496 MW total capacity) in the Bay of Saint-Brieuc. The final investment decision has been made and the park, designed by Iberdrola, will be built in 2021/2023 for commissioning in 2023.

- **FLOATING WIND TURBINES ON GROIX AND BELLE-ÎLE: pilot farm of 3 9.5 MW floating wind turbines** (or total capacity 28.5 MW), designed by Eolfi and to be commissioned in 2022. Once again, this is the first installation of a floating wind turbine pilot farm in France.

- **PHARES:** this project, developed by Akuo Energy, aims to supply renewable electricity to Ushant Island and includes **the installation of 2 Sabella D12 tidal turbines** off the coast, for a total capacity of 1 MW. This is the first installation of a tidal turbine pilot farm in France and should be commissioned by 2023.

BRITTANY, A REGION OF PROJECTS

As well as these projects already well underway, the Brittany region is seeing **new prospects opening up:**

- **THE 1ST CALL FOR TENDERS FOR FLOATING WIND POWER IN FRANCE** along with a public consultation will be issued in 2020, for a contract for a 250-MW wind farm in Southern Brittany.

- Projects currently being tested (Eolink floating wind turbine and the Sabella and CMN/HydroQuest tidal turbines) thanks to an exceptional system of **4 PILOT SITES AND ADDITIONAL TESTS** (Paimpol-Bréhat, Fromveur, test areas and the Saint-Anne-du-Porzic site of Ifremer and Ria d'Etel des Chantiers Bretagne Sud).

- In addition, the successful experiment on a **LOCAL ENERGY GRID** on the island of Ushant now gives Brittany a complete and replicable offering for energy autonomy in isolated areas.

ACADEMIC STAKEHOLDERS: **BRITTANY, A LAND OF RESEARCH INTO MRE**

- Brittany accounts for **1/3 of the jobs and 2/3 of the investment** by research and training organisations at a national level.
- The region is noteworthy for hosting **several major research institutions with national and international references**. France Énergies Marines, the French Institute for Exploitation of the Sea (IFREMER), the Hydrographic and Oceanographic Department of the Navy (SHOM) and the Dupuy de Lôme Research Institute (IRDL) have their headquarters in the region.
- Their work covers **a wide range of activities** used to design the technology, characterize sites hosting MRE projects, conduct environmental impact assessments and optimise parks.

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METHODOLOGY

- This document presents the current status (as of 31 December 2019) of the marine energy sector in Brittany, based on data from the 2020 report by the Marine Energy Observatory. It therefore presents the initial state of this emerging sector, before the development of the first pilot farms and commercial parks in Brittany.
- The method consisted of distributing the annual national questionnaire set up by the Marine Energy Observatory to Breton stakeholders in the marine renewable energy sector with the help of Bretagne Développement Innovation, the economic development agency of the Brittany Region and Bretagne Ocean Power.
- The questionnaire was completed by 86 respondents from Brittany (out of 291 respondents nationally).
- The focus on Brittany is carried out within the framework of the Sea Energy Observatory, an initiative aimed at bringing togther support for the French MRE sector, led by the French Maritime Cluster in partnership with GICAN, SER and FEE.

Supported by

BRETAGNE OCEAN POWER

Bretagne Ocean Power is an operational tool created in 2018 by the Brittany Region to coordinate the action of all stakeholders in the development of marine energies, and make it available for industrial projects.

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