Department for Business & Trade

October 2024 – Offshore Wind Factsheet – France

With an **installed capacity of 1.5 GW**, French offshore wind is **still far from reaching its objectives of 18 GW by 2035** and **45 GW by 2050**. Given its growing need for electricity, its aging nuclear fleet, and desire to make its energy resources more resilient to future crises, France is looking to massively develop new means of producing clean energy. These include onshore wind, solar and marine renewable energies (MRE), most notably offshore wind, predicted to **represent more than 20% of France's electricity production by 2050.**

Overview:

Department for Business & Trade

1. Overview of the Offshore Wind market in France

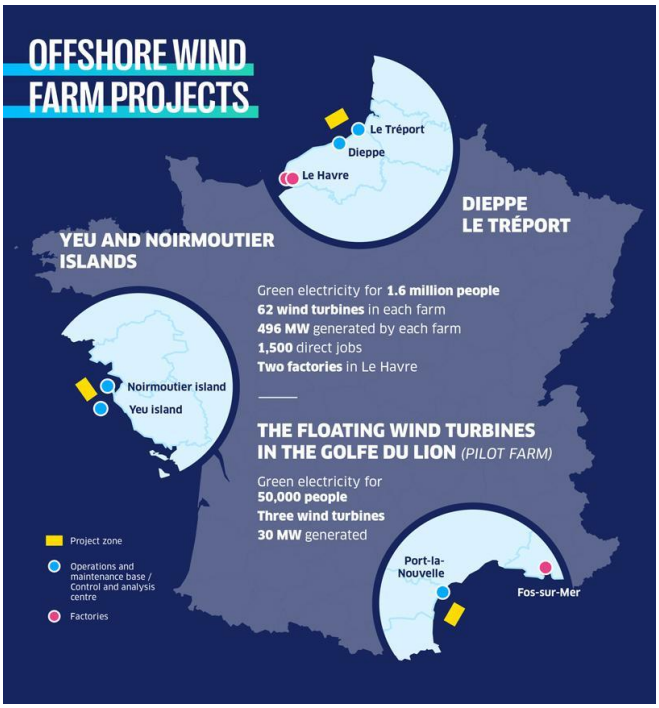
a. Potential

The French offshore wind market has a potential capacity of 80 GW across 10 000 km^2 for bottom fixed offshore wind and 140 GW across 25 000 km^2 for floating offshore wind. France has the **second largest European wind resource after the UK** and the second largest global maritime exclusive economic zone after the USA (3500 km of coastline, 11 million km^2 of sea).

France has complex subsea conditions, near shore deep waters and offshore wind development has faced acceptability issues. The **Government has been proactive in putting the emphasis on developing floating offshore wind** in part to make up for late start in bottom fixed and in part because it mitigates some of these issues.

b. Current deployment

As of August 2024, **French offshore wind installed capacity stands at 1.5 GW**, with another 1.5 GW currently under construction, compared to 15 GW of installed capacity in the UK. This difference in development can be explained by the fact that France derives around three quarters of its electricity from nuclear energy, ensuring a low-carbon electricity mix. However, many reactors are reaching the end of their lifetime and won't be replaced before 2035, date at which the government plans to reduce the share of nuclear in the energy mix down to 50%.



Faced with this increasing demand for electricity, France needs to develop new means to produce renewable energy. France is **looking to diversify its means of electricity production** to be more resilient to future energy crises and meet increasing demand. Marine renewable energy is a key component in that diversification, including offshore wind.

c. Government ambitions

France has set ambitious targets for reducing greenhouse gas emissions and diversifying energy sources, in line with European objectives.

In 2022, the French State and offshore wind industry signed an **Offshore Wind Pact**, committing to the rapid development of offshore wind power and of its industry, including the creation of 20,000 jobs by 2035. In this pact, the State confirmed its dedication to an ambitious deployment of offshore wind power off the French coast with a target of allocating around **2GW/year from 2025,** reaching **18 GW by 2035** and **45 GW in 2050.**

France's **Low-Carbon National Strategy (SNBC)** predicts an increase in the volume of electricity production needs of 645 TWh by 2050. More than 20% should come from offshore wind, making it **the second source of clean electricity production in France behind nuclear**.

To achieve these targets, the French government has drawn up one principal roadmap: the **Multiannual Energy Programme** (**PPE**):

- Revised every five years, the PPE defines the trajectory for each sector of the national energy mix for the next decade.
- These guidelines are intended to be respecified during the next energy production law and the revision of PPE3 scheduled for early 2025.

Department for Business & Trade

d. Challenges

Despite France's first offshore wind tender (AO1) procedure dating back to 2011, the slow roll-out of this technology can be explained in part by **the significant number of appeals made against its deployment**. For instance, the Ailes marines (Iberdrola) St Brieuc offshore wind farm saw a series of protests at the local and associative levels, causing several delays but never managing to cancel the project completely. Current French Prime Minister Michel Barnier, a member of France's traditional conservative party Les Républicains, had said in 2023: "due to a lack of energy strategy, the project in the St Brieuc Bay is a failure."

Additionally, the **'hiccup' pattern** in orders coming from French offshore wind projects is creating a lot of uncertainty, with a gap expected between the end of the construction of the three AO1/AO2 farms (Courseulles, Yeu-Nourmoutier and Dieppe), scheduled for commissioning in 2025-2026, and the Dunkirk (AO3) wind farm (planned for 2028) probably won't be commissioned before 2030, while AO4/AO5 projects (Centre Manche 1, Bretagne Sud) aren't scheduled to be operational before 2031.

The consultation on the National Plan for Adaptation to Climate Change (PNACC3), the third programmatic document supposed to complement the French Energy-Climate Strategy (Sfec) alongside PPE3 and SNCBC3, has still not been launched. It was postponed following the dissolution of the National Assembly last June.

e. Allocation rounds in France

France supports its offshore wind industry through a **remuneration mechanism** similar to the Contract for Difference (CfD) in the UK. When electricity prices are below a certain price, the State compensates the developer, and when they are above, the developer pays the difference back to the State. Unlike in the UK or USA, the **French mechanism systematically takes into consideration a price indexation to take into consideration the economic conjecture** (inflation, interest rates). The State also supports developers connect to the grid, owned and operated by RTE.

According to the French Energy Code (article R311-12/25), the Minister for Energy has two options when initiating a call for tender:

- **'Standard' call for tenders**: the Minister for Energy draws up specifications that will define the tenders' characteristics, such as the required timeframes, financial modalities, geography, power, etc. The Minister then chooses the most economically advantageous tender without negotiating with the candidates on the basis of criteria previously brought to their attention.
- **Call for tenders preceded by a competitive dialogue:** the Minister for Energy enters into a collaborative dialogue with the candidates admitted to participate in the procedure to draft the specifications that set out the conditions for competition and the key characteristics of the proposed projects.

Published on the CRE's website, the last 7 out of 9 rounds have required this 'competitive dialogue'. It's worth noting that the CRE, which plays a consultative role throughout the allocation rounds, has been calling for a simplification of the procedure by removing the time-consuming competitive dialogue and replacing it with a larger consultative procedure that includes all stakeholders.

The latest round, **AO9**, calls for the development of **four offshore wind projects** located off the coasts of Brittany, in the Mediterranean and in the south Atlantic coast. It aims to award the extensions of the winning projects of the procedures AO5, AO6 (two projects) and AO7 and are planned in the same

Department for Business & Trade

areas for an **additional 2.5 GW**. These **four extension projects** will be technically, financially and legally distinct from the four drafts of the previous procedures**. AO10**, France's 10th offshore wind tender and most ambitious yet, should name successful bidders by the end of 2026 and add **9.2 GW to France's four seafronts**.

2. Market analysis

i. Deployed capacity

As of May 2024, France has 1.5 GW of (fixed) offshore wind in operation.

Project location	Power (MW)	Consortium	Foundation	Turbine	Operational
St Nazaire, *Pays de la Loire*	480	EDFR, Maple Power	Monopile	GE 6.0-150	November 2022
Saint-Brieuc, *Bretagne*	496	Iberdrola (Ailes Marines)	Jacket	SG 8.0-167	December 2023
Fécamp, *Normandie*	500	EDFR, Maple Power, Skyborn Renewables	Gravity-based	SG 8.0-167	May 2024

ii. Capacity under development

As of May 2024, France has **6.6 GW of offshore wind in the works**. The great majority of that will come from fixed-based turbines. The rest will come from three floating pilot farms being developed in the Mediterranean Sea.

Project location	Power (MW)	Consortium	Operational	Allocation round (AO)
Provence Grand Large (PGL), zone de Faraman, *PACA*	24	EDFR, Maple Power	2024	Pilot
Eolmed, zone de Gruissan, *Occitanie*	30	Qair Marine	2024	Pilot
Golfe de Lion (EFGL), zone de Leucate, *Occitanie*	30	Ocean Winds, Groupe Caisse des Dépôts (CdD)	2024	Pilot
Courseulles-sur-mer, *Normandie*	450	EDFR, Maple Power,	2025	AO1

Department for Business & Trade

		Skyborn Renewables		
île d'Yeu - Noirmoutier (EMYN), *Pays de la Loire*	500	Ocean Winds, Sumitomo Corp, Groupe Caisse des Dépôts (CdD)	2025	AO2
Dieppe – le Tréport (EMDT) *Normandie*	500	Ocean Winds, Sumitomo Corp, Groupe Caisse des Dépôts (CdD)	2026	AO2
Dunkerque, *Hauts de France*	600	EDFR, Enbridge	2028	AO3
Centre Manche 1, *Normandie*	1000	EDFR, Maple Power	2031	AO4
Bretagne Sud *Bretagne*	250	BayWa.re, Elicio (Pennavel)	2031	AO5
Méditérrannée x2, *PACA & Occitanie*	2x250	TBD	2031	AO6
Sud-Atlantique (Oléron), *Nouvelle-Aquitaine*	1000-1200	TBD	2032	AO7
Centre Manche 2	1500	TBD	2032	AO8

iii. Future pipeline

Below are the indicative **offshore wind deployment targets by coastline** that have been defined by the National Commission for Public Debate (CNDP). The CNDP organises public debates to give citizens and stakeholders a clearer picture of future projects in the maritime areas concerned.

This process maps out "priority areas" by 2050 listed below, which is refined and revised following further public consultation, so that the target of **45 GW of installed capacity** can be achieved.

Coastline (*façade*)	**10-year targets for new capacity to be allocated** (including extensions already identified)	**Target to 2050** *(including all already allocated, in the process of being allocated, and identified extensions)*	**Capacity under development or allocated** *(excluding extensions)*
Manche Est – Mer du Nord (MEMN)	Between 7 and 11 GW	Between 12 and 15.5 GW	4.5 GW

Department for Business & Trade

Nord Atlantique – Manche Ouest (NAMO)	Between 6 and 9.5 GW (including 0.5 GW of extensions)	Between 17 and 25 GW	1.7 GW
Sud-Atlantique (SA)	Between 2.5 and 5.5 GW (including 1 GW of extensions)	Between 7 and 11 GW	1 GW
Meditérrannée (MED)	Between 3 and 4.5 GW (including 2x0.5 GW of extensions)	Between 4 and 7.5 GW	0.6 GW
TOTAL	Between 18.5 GW and 20.5 GW (including 2.5 GW of extensions)	Between 40 and 59 GW	7.8 GW

3. Main actors in the French offshore wind industry

a. Developers (Tier 0)

France is home to sveral global offshore wind developers: **EDF Renouvelables**, **Ocean Winds** (Engie's joint venture with EDPR) and **TotalEnergies** as well as some newer or less-established players like **Qair**, **Oxan Energy** and **Océole** (joint venture between Q Energy and Equinor that focuses on floating wind in France). Other major players include **Iberdrola**, **RWE**, **Baywa r.e.** and **Elicio**.

b. Service providers and value chain suppliers (Tier 1, 2, 3, etc.)

These companies deliver services and/or supply equipment to players in charge of developing, producing and transporting renewable energies at sea, i.e., the developers. Their activities are very varied and cover the entire life cycle of a project. These contractors can be divided into different tiers:

Tier 1: **major component suppliers**, also known as Original Equipment Manufacturers (OEMs), contract directly with project developers. In France, some of the top-level contractors that have been supplying French projects are:

- **Siemens Gamesa** and **Vestas** for Wind turbine generators (WTGs);
- **Eiffage, Navantia, DEME,** and **Bouygues** for the fabrication & installation and **BW Ideol** for the design of foundations;
- **Hitachi, Siemens Gamesa** and **GE** for onshore substations.
- **Chantiers de l'Atlantique, DEME** and **SAIPEM** for offshore substations;
- **Prysmian, Nexans,** and **Louis Dreyfus (LD) Travocéan** for export cables;
- **Prysmian** and **Nexans** for inter-array cables.

Tier 2: many civil engineering contractors also deliver significant scopes for offshore wind farms.
Tier 3: these are smaller, specialist suppliers which are contracted by Tier 1 and Tier 2 companies.
Operations & Maintenance contractors (OMC): scope of services required under O&M agreements generally fall into three categories: scheduled maintenance, unscheduled maintenance and additional services.

c. Research and training organisations

Public (or semi-public) research and/or training organisations (universities, laboratories, public research establishments, training centres, etc.) are an essential part of the sector. Their **research**

Department for Business & Trade

supports the development of technology (reliability, efficiency, competitiveness) **and optimises the conditions for its deployment**. They also provide the theoretical and technical skills necessary for future professionals in the offshore renewable energy sector to carry out the wide and evolving variety of professions in the sector. A few examples of such organisations in France include:

- Centrale Nantes, laboratoire LHEEA
- Ecole Nationale Supérieure Maritime, axe EMR
- IFREMER
- CNRS
- France Energies Marines

d. Institutions, public bodies, regional actors and ports:

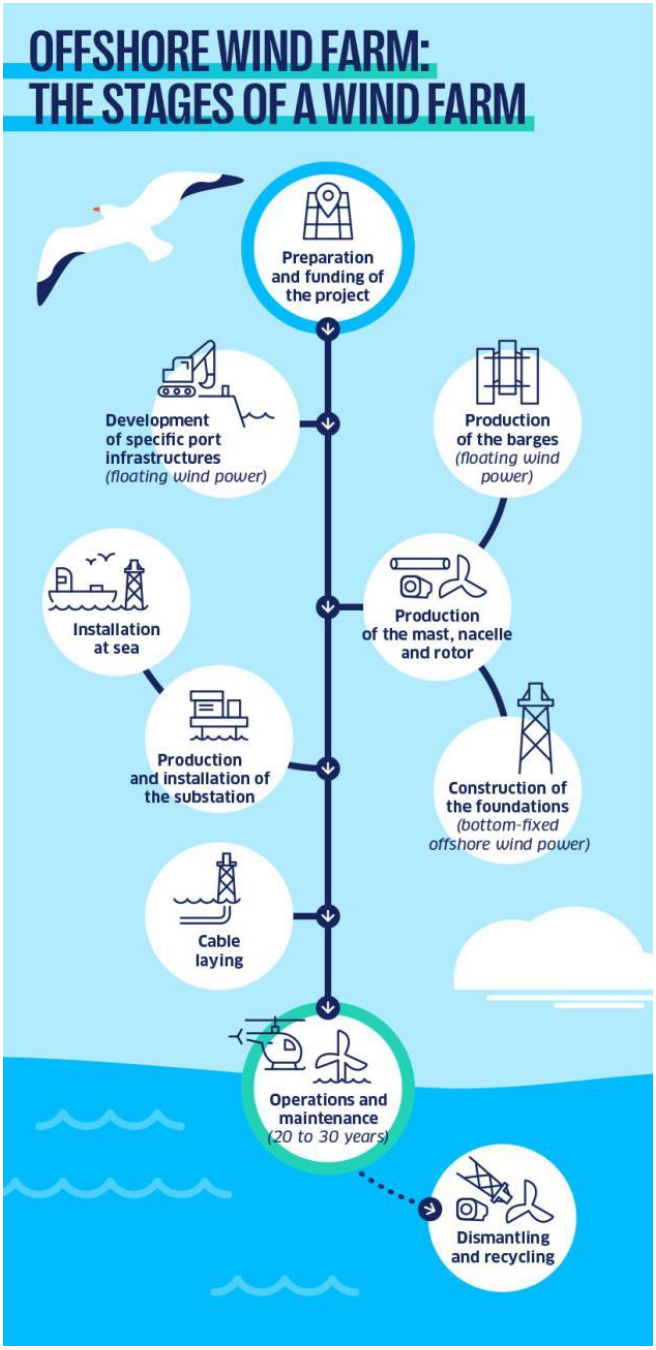
These actors are involved in the supervision, management and development of the sector. To name a few:

Main State bodies:

- **DGEC** (*Direction Générale de l'énergie et du Climat*): part of Ministry of the Economy, DGEC is responsible for policies relating to energy and the fight against climate change. It is involved in public participation procedures for offshore wind farm projects prior to calls for tender, carries out technical and environmental derisking studies on project areas, and steers the competitive tendering procedures for awarding projects.
- **CRE** (*Commission de régulation de l'énergie*): the equivalent to Ofgem in the UK, CRE is an independent administrative authority responsible for ensuring the proper functioning of the electricity and gas markets in France. Offshore wind calls for tenders are published on its website.
- **ADEME** (*Agence de la transition écologique*): ADEME supports a wide range of activities including training, consulting, financing, lobbying and research financing.

French ports operating in offshore wind:

- Port Atlantique La Rochelle
- Port de Marseille-Fos
- Ports de Normandie (Fécamp, Dieppe, Dunkerque, Caen)
- Ports de Bretagne (Saint-Quay-Portrieux, St-Malo)
- Ports de Pays de la Loire (Turballe, Joinville et l'Herbaudière)



Department for Business & Trade

4. Trade associations and clusters

There are thirteen regions in metropolitan France (excluding overseas territories). You can find a non-exhaustive list of their agencies, associations and clusters as well as key contacts below:

Name	Description
Syndicat des Energies Renouvelables (SER) https://www.syndicat-energies-renouvelables.fr/en/home-page/	Founded in 1993, the SER (Renewables Energy Syndicat) promotes the interest of over 500 renewable energy companies and associations both nationally and internationally. They signed a Memorandum of Understanding with Renewable UK in 2015/16.
France Renouvelables https://www.france-renouvelables.fr/	Founded in 1999, the France Energie Eolienne (FEE) association became France Renouvelables in 2023. France Renouvelables is the voice of renewable electrical energy in France. It has more than 360 members spread across all value chains.
France Energies Marines (FEM) https://www.france-energies-marines.org/	France Energies Marines is a public/private partnership that brings together all the players in the offshore renewable energies sector. Their missions are to stimulate competition in the sector, promote attractiveness of French regions and support regional and national authorities.
Cluster Maritime Francais (CMF) https://www.cluster-maritime.fr/	Created in 2006, the Cluster Martime Francais (the French Martime Cluster), brings together all the players in the maritime ecosystem, from industry to services and activities. Today it is made up of more than 430 different companies and organisation.
Pôle Mer Mediterranée https://www.polemermediterranee.com/	

Department for Business & Trade

Pôle Mer Bretagne Atlantique https://www.pole-mer-bretagne-atlantique.com/en/cluster/	Regional maritime and marine renewable energy clusters.
Normandie Energies https://www.normandie-energies.com/	Supported by the Region, Normandie Energies contributes to the region's economic development by federating and coordinating Normandy's energy players. Its 270 members include of major energy players, 60% of SMEs and VSEs, research and training players, local authorities.
France Offshore Renewables https://franceoffshorerenewables.fr/	An inter-cluster alliance of 6 French clusters (listed below) that serves as a gateway to the French offshore wind supply chain.
Normandie Maritime https://www.normandie-maritime.fr/	Created in 2018, the Normandie Maritime Association's mission is to promote, develop and coordinate the regional maritime and river economy.
Bretagne Ocean Power https://bretagneoceanpower.fr/en/directory/	Prompted by the Bretagne Regional Council, all the offshore wind and marine energies stakeholders in Brittany have joined forces as a single entity to foster more efficient industrial projects. This includes 187 companies and 32 research laboratories.
Neopolia https://www.neopolia.com/	Regional sectorial cluster supporting SMEs from the Pays de La Loire region to form strategic partnerships.
Aquitaine Blue Energies https://aquitaine-blue-energies.fr/	Founded in May 2021 by 6 companies and 1 association committed to the energy transition. The founding members were: AIS Elec, Energie de la Lune, Lecamus, Maritime Kuhn, Reel, Valemo and Union Maritime La Rochelle. In March 2023, the association had 32 member companies.
Wind'Occ	Wind'Occ is a collective initiative for the floating offshore wind energy

Department for Business & Trade

https://www.agence-adocc.com/windocc-eolien/	sector. Wind'Occ's members are companies, academics, research and training institutions in Occitanie that are positioned or wish to position themselves in offshore wind energy.
SudEole https://www.sudeole.com/	This initiative is part of a collective action funded by the SUD Provence-Alpes-Côte d'Azur Region to support regional players in the floating offshore wind energy sector on the Mediterranean coast.
West Atlantic marine Energy Community (WEAMEC) https://www.weamec.fr/weamec-emr/	WEAMEC brings together the many academic players and companies involved in MRE in the Pays de la Loire region, focusing on research innovation and training.

5. Doing business in France

This might not come as a surprise, but French and British business cultures do differ. French business culture is **more formal** in comparison to British culture and **developing strong relationships is key to business success**. A core component to building that relationship is speaking French or at a minimum a member of your team that does. To do so, we recommend that you try to **meet physically** when possible, have a **French version** of your company's website and business literature, and present **quotes in euros**.

French industrial policy has actively encouraged the use of local suppliers and subcontractors, successfully landing significant new manufacturing sites. This includes LM Wind's blade plant in Cherbourg, Siemens Gamesa's nacelle facility in le Havre, and Chantiers de l'Atlantique's offshore HVDC converter station facility in St Nazaire.

However, given that this is a relatively new sector, many local companies lack offshore wind sector specific experience. UK companies with a track record will have an added advantage. Opportunities exist across all areas of a project's lifecycle, namely: Pre-development project management; Design and surveying; OEM component supply and subcontracting; Construction logistics and commissioning services; Operations & Maintenance (O&M); Port infrastructure and associated services (for e.g., greening the ports).

Trade shows	When	Description
FOWT (Floating Offshore Wind Turbines)	April, annually	International floating wind trade conference that takes place in Marseille, Montpellier, Brest.
Seanergy	June, annually	(Inter)national marine renewable energy and offshore wind trade fair in Nantes (or other coastal location).

Department for Business & Trade

Colloque annuel du Syndicat des énergies renouvelables (run by SER)	September, annually	A strategic subject relating to renewables is chosen and debated at UNESCO.
Assises des ENR/R (run by l'ADEME)	October, annually	National renewable energy policy summits in Paris.
Le Colloque National Eolien (run by France Renouvelables)	October, annually	The national wind conference organised by the wind trade association in Paris.
Pollutec	October/November, annually	Environmental solutions tradeshow that takes place one year in Paris and the other in Lyon, with Lyon being the main event.
Energaia	December, annually	Regional renewable energy trade show in Montpellier.

6. Supporting UK exporters

a. DBT France

DBT France has a dedicated Clean Growth team of 4 split between the British Embassy in Paris and British Consulate in Bordeaux. We focus proactively on the renewables (notably offshore wind), nuclear and clean mobility and infrastructure sectors (hydrogen).

Our team is happy to help you in understand the French market and its regulatory environment, build relationships with relevant stakeholders, and expand your business in France. As public servants, our services are free of charge and anything you may wish to share will be confidential.

b. UK Export Finance (UKEF)

UK EF is the UK's export credit agency and a government department, working alongside the Department for Business and Trade (DBT) as an integral part of its strategy and operations. Their mission is to advance prosperity by ensuring no viable UK export fails for lack of finance or insurance, doing that sustainably and at no net cost to the taxpayer. They help UK companies of all sizes and in all sectors win, fulfil and get paid for export contracts.

c. Overseas Referral Network (ORN)

The ORN is DBT's portfolio of vetted in-market third-party providers who can supply a variety of specialist services, such as accounting, legal, business support, human resources, market research and much more. You can access the ORN and connect with providers directly via this platform: Export Support Directory. You'll need to make a quick registration that will then enable you to browse, favourite and contact providers. Please note that some providers may offer special deals.

For any questions regarding the French offshore wind or renewables market, please contact:

Tancrède Veillet Lavallée, *Senior Trade & Investment adviser in Renewables, British Embassy Paris*
Address: 35, rue du Faubourg-Saint-Honoré, 75008 Paris, France
Email: tancrede.veilletlavallee@fcdo.gov.uk
Phone: +33 7 76 54 48 70