

Offshore wind development in France

State of the art and perspectives

III Congreso eólico marino – Cadiz

7 de noviembre 2024



France renouvelables represents the French electrical renewables industry (wind & solar)

- **Trade association** founded in 1996, based in Paris and French regions, also active at the European level
- 19 board members (including the President: Mrs. Anne-Catherine de Tourtier), a secretariat of 20 full-time employees
- 12 commissions : **Offshore**, Industry, O&M, Economy, Laws & Regulation, Communication...
- 7 regional representations
- **A professional network of 350 members in November 2024, on all the value chain** (developers, utilities, industry leaders etc.).

The wind energy in France (market study **Wind Energy Observatory 2024**: [here](#))

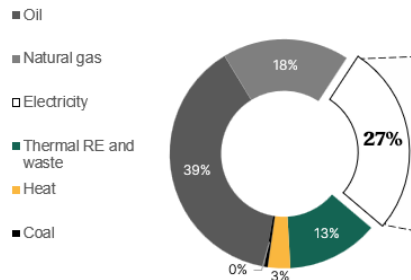
- **~30,000 employees in France, at the end of 2023;**
- **~10 % of the national electricity consumption in 2023** (*Bilan électrique 2023 – RTE*);
- **22 GW** of onshore wind energy connected to the grids on 12.31.2023 → **4th place for installed capacity in Europe**
- **1.5 GW of installed offshore wind capacity (AO1); ~4.25 GW of offshore wind projects (AO1-5) awarded** through tenders and call for projects ; AO6 (250 MWx2 - FOW) is about to be awarded; AO7 (1000 MW) + AO8 (~1,5 GW) + AO9 (2.5 GW) are « engaged ».

The industry has reached a new level in 2023 and continues to pursue steady growth in both onshore and offshore wind

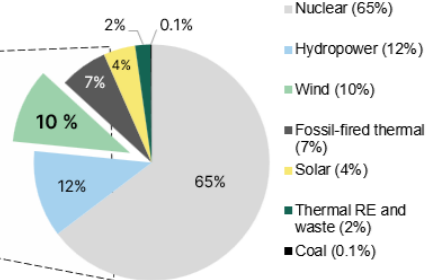
The place of wind power in the French energy mix

Electricity accounts for 27% of France's energy use. In 2023, wind power accounted for 10% of France's electricity production for the first time.

Breakdown of final energy consumption in France in 2023







Sources of electricity generation in France in 2023








494.7 TWh...
Total production of wind-generated

...including 50.6 TWh
electricity in France in 2023
(+12 TWh compared to 2022)

Sources: RTE 2023 electricity report, SDES's Annual energy report

 31,447 FTEs in wind jobs at the end of 2023	 2nd largest source of renewable electrical power in France	 4th largest wind power producer in Europe	 10% of electricity generation met through wind power
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	Onshore wind	Offshore wind
 Production in 2023 ¹	48.7 TWh	1.9 TWh
 Grid-connected capacity as at the end of 2023 ²	22 GW	800 MW
 PPE objectives for 2028 ³	34.7 GW	5.2 to 6.2 GW
 Domestic investment in 2022 (excluding energy sold)	€2.8 billion*	€3.2 billion**
 Number of jobs ⁴	23,607 FTEs	7,840 FTEs

¹Source: ADEME "Marchés et emplois dans le secteur des énergies renouvelables et de récupération" [Markets and jobs in the renewable energy and energy recovery industries] – Provisional estimate

²Source: Observatoire de l'Énergie de la mer 2023 [Observatory of marine energies]

^{1,2} Source: RTE's 2023 electricity report

³ Source: French strategy for energy and climate, and PPE multiannual energy plan (2024-2028)

⁴ France Renouvelables survey

Onshore wind: accelerating coverage

3 wind farms in operation

as at 30 June 2024 (Saint-Nazaire, Fécamp and Saint-Brieuc)

3 wind farms under construction (1.5 GW)

that will be commissioned in no later than 2026

3 wind farms allocated (1.85 GW)

currently in the planning phase with commissioning slated for 2031

3 pilot wind farms

floating wind turbines to ensure the viability of the technology

AVANCEMENT DES PROJETS



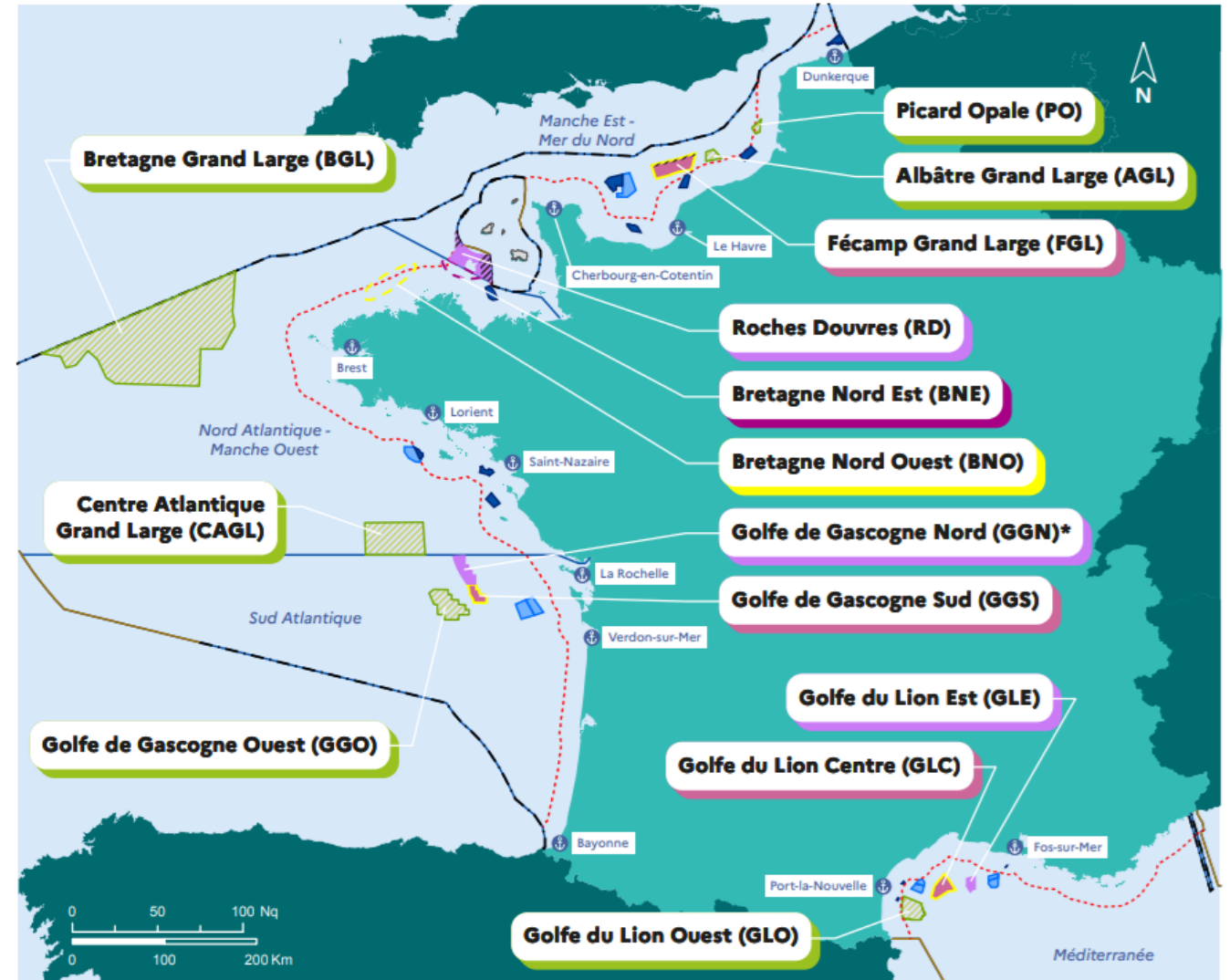


Source: [here](#)

- On 14 March 2022, the industry signed **an offshore wind sector deal** with the Government, saying that:
 - **The State properly plans** (energy roadmap and maritime spatial planning documents) **18 GW by 2035 and 40 GW by 2050** (the 2050 target was raised to **45 GW** in November 2023)
 - And it targets average **awards of nearly 2 GW/year** (and at least 20 GW awarded in total by 2030)
- The industry creates **20,000 jobs in France by 2035** (~8,000 today), engages **40 bn€ of investments** to build the projects in the next 15 years and **targets a 50% goal of French local content** on the whole projects' investments.

A clear zoning by 2035 and 2050

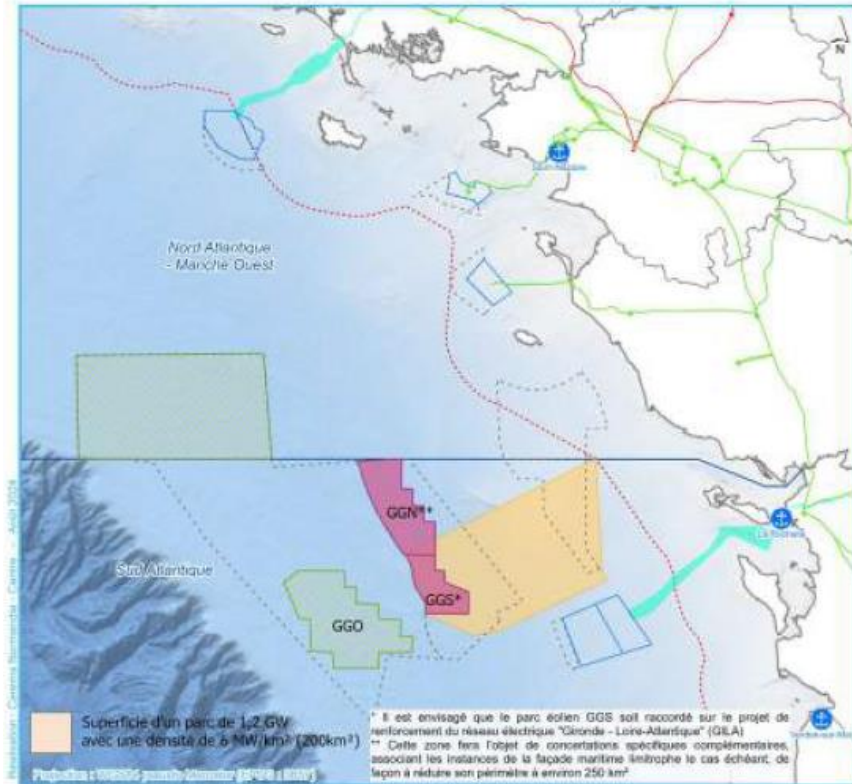
- The Government finally [published](#) its decision on **maritime spatial planning and offshore wind zoning** on 18 October 2024;
- It gives the industry and all the stakeholders visibility for **all the capacities to deploy** (45 GW by 2050);
- Apart from the industry, **the TSO (Rte) and the harbours** were very interested in the ministerial decision.



Façade Sud - Atlantique

Éolien en mer

Zones prioritaires de développement retenues au large de la façade SA

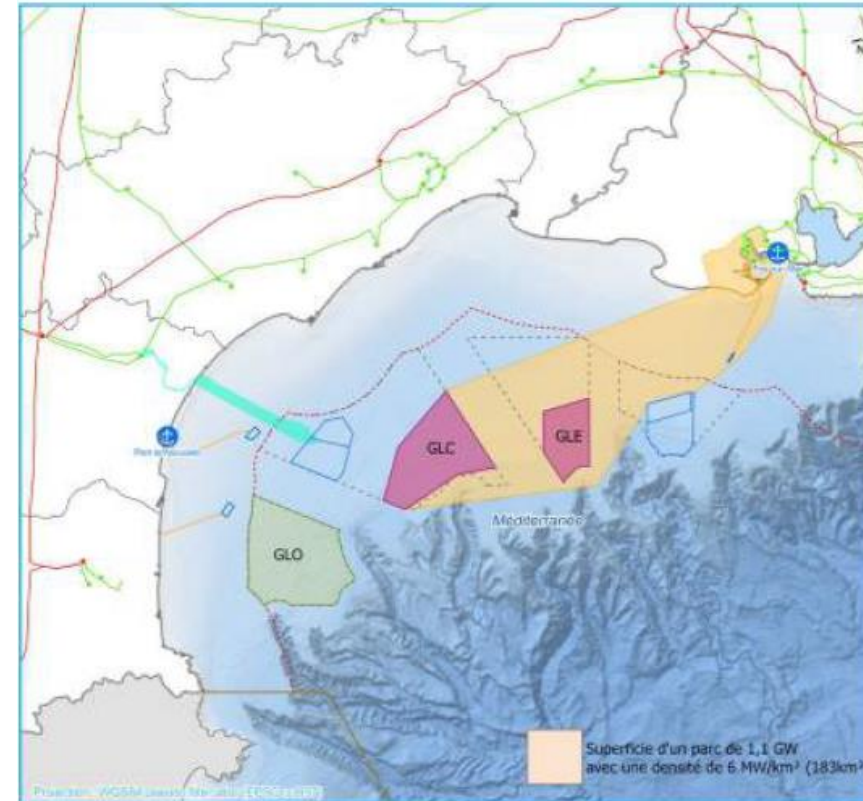


- ✓ 1.2 GW (GGS) for AO10 and 1.2 GW (GGN) for AO11 → 2035-2040 horizon (all floating here)
- ✓ **By 2050 (cumulative): between 7 and 11 GW.**

Façade Méditerranée

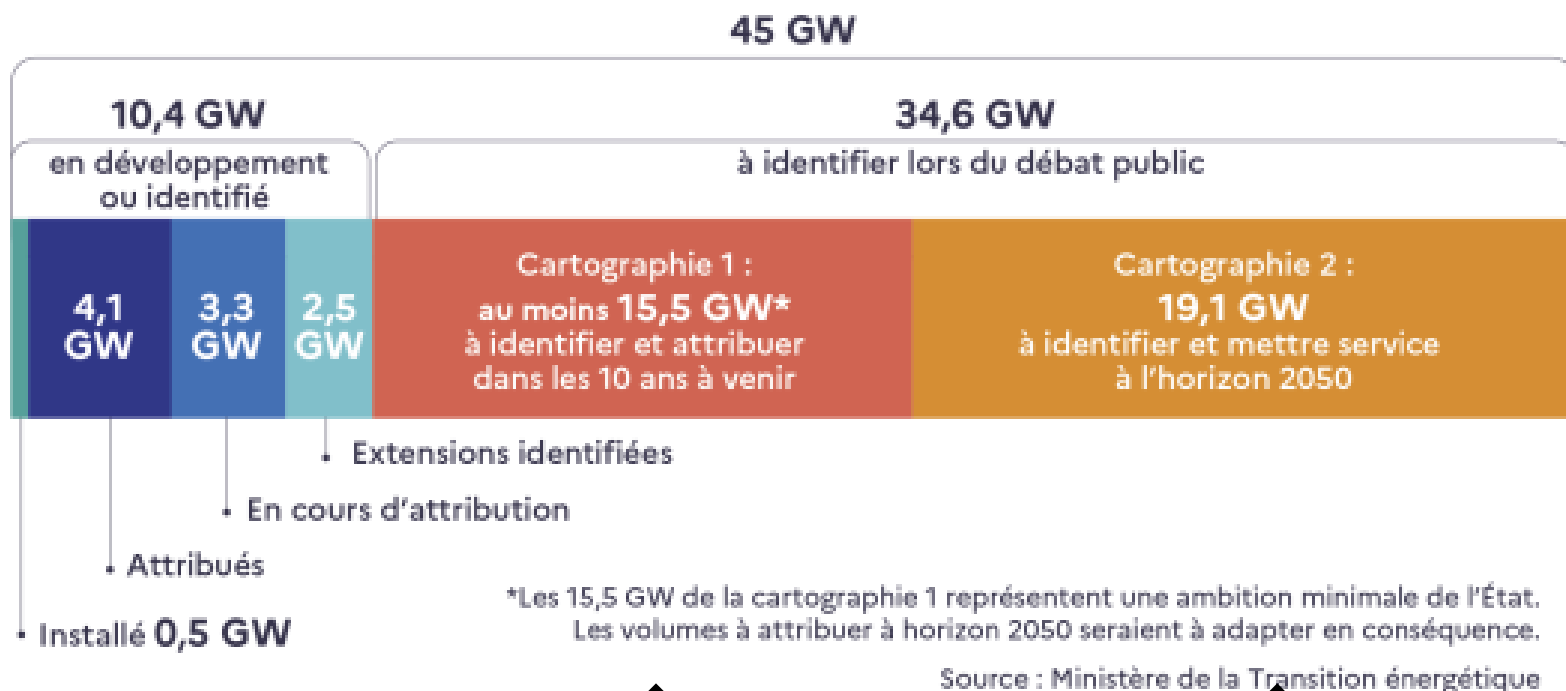
Éolien en mer

Zones prioritaires de développement retenues au large de la façade MED



- ✓ 2 GW (GLC) for AO10 and 1.2 GW (GGN) for AO11 → 2035-2040 horizon (all floating here)
- ✓ **By 2050 (cumulative): between 4 and 7.5 GW.**

Répartition prévisionnelle des capacités à identifier



Next generation of tenders (AO10 & 11, for 15.5 GW within 10 years)

Future tenders (after 2035) to finally reach the 2050 target (45 GW)

The years 2024-2025 will be KEY (est dates):

- ✓ **November-Dec 2024:** award of AO6 MED (2x 250 MW)
- ✓ **Q1 2025:** adoption of the multiyear energy plan (PPE)
- ✓ **Q1 2025:** launch of the AO10 (8.4-9.2 GW tender)
- ✓ **Q2 2025:** award of AO7 and AO8 (1+1.5 GW)
- ✓ **Summer 2025:** adoption of MSP (zoning)
- ✓ **Autumn 2025:** award of AO9 / extensions (2.5 GW)



- We have a common duty to **defend, preserve and develop** a **European wind industry supply chain**.
- The ambition of France is to **widely implement the NZIA**, especially for the offshore wind projects: both the Government and the industry are mobilized to make sure we maximize the benefits for France and Europe.
- We've worked on **requirements, price criteria and non-price criteria** (resilience / diversification, environmental / CO2 criterion and cybersecurity) for the next tenders (from AO9) to come.
- The objective is to make sure **we benefit a level playing field** for our industry at the European level vs the competition from Asia and other zones.

Industrial achievements

The industrialization of the offshore wind industry contributes to massive investments in certain French ports

Examples

Port of Brest	€220 million	Creation of a 40-hectare polder dedicated to MREs
Port-la-Nouvelle	€252 million	Construction of floats / assembly of masts and turbines
Port of Saint-Nazaire	€120 million	Projet Éole: development of floating wind power



Work in progress for the construction of a polder in the port of Brest aimed at



Winners of the Ports de France 2030 call for expressions of interest

Ports of Normandy

Grand Port Fluvio-Maritime de l'Axe Seine

GPM of La Rochelle, GPM of Bordeaux, Port of Bayonne, Port of Charente-Atlantique

GPM of Nantes Saint-Nazaire

Ports of Brest and Lorient

GPM of Marseille

Occitanie Region

Port-la-Nouvelle

➤ But new investments have to be made to **upgrade the current infrastructures.**

➤ The objective is to **organize industrial hubs** for each maritime façades.

➤ The administration currently studies the **options to finance the upgrades**, but a call for projects (~190 M€) was launched this year and should be awarded in 2025 with FIDs following.



For the grids: update to come →
by the end of 2024!

- Since the end of 2016, **the French TSO (Rte) is responsible for the grid connection** of OW farms (export cable and OSS);
- Until the last tenders, the projects followed a « one shot approach » according the political with no global energy and spatial plannings, even if it was improved with a **mutualization of grid connections** for several projects (AO4-8; AO5, 6 and 7 with extensions);
- With the **new ambitions of the offshore wind sector deal**, the capacities to commission by 2035 and 2050 will be massive. That's why Rte will have to anticipate and massively invest in the grids;
- The **French transmission network development plan** is currently under revision **to precise the investments to make** (around 40 bn € for offshore grids) and the agenda to follow to reach our targets.



The poster features a stylized wind turbine made of glowing blue dots on the left. The text on the right reads: "BREST FRANCE | 23-25 April" in light blue, "FOWT 2025" in large white and yellow letters, and "Floating Offshore Wind Turbines" in yellow. Below that, it says "THE WORLD'S LARGEST EVENT DEDICATED TO FLOATING OFFSHORE WIND TURBINES" in light blue. At the bottom, there are logos for co-organizers (Pole Mer Méditerranée and France renouvelables), co-founder (CCI Aix Marseille Provence), and co-financer (Région Bretagne).

BREST FRANCE | 23-25 April

FOWT 2025
Floating Offshore Wind Turbines

THE WORLD'S LARGEST EVENT
DEDICATED TO FLOATING OFFSHORE WIND TURBINES

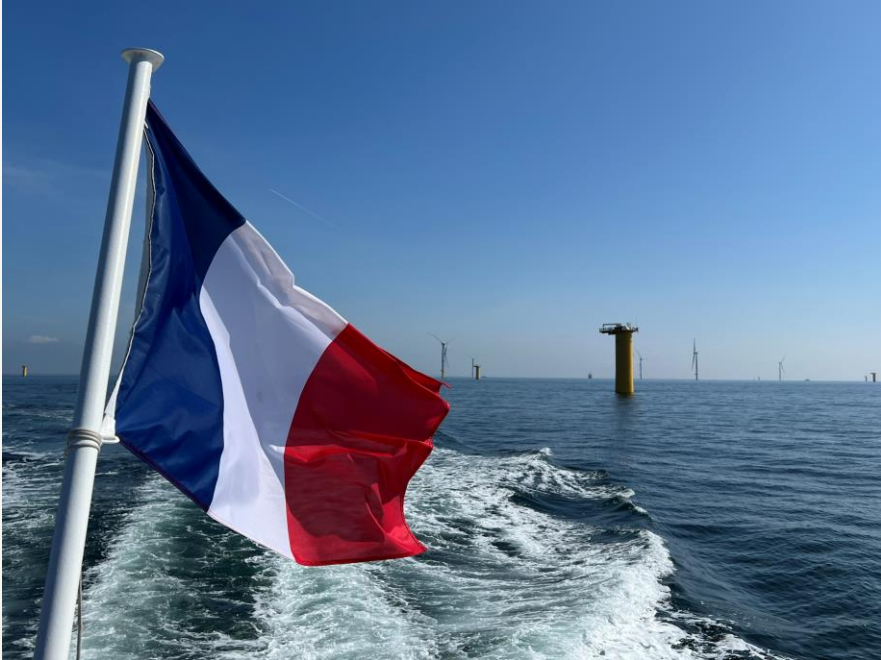
CO-ORGANIZED BY   FRANCE renouvelables système électrique pilotable

CO-FOUNDER  CCI AIX MARSEILLE PROVENCE

CO-FINANCED BY  RÉGION BRETAGNE

- **Information and registrations** (to come) under www.fowt-conferences.com
- Apply to the **call for papers** by **November 15th, 2024!** Link: [here](#).
- **Contact and sponsoring:** contact@fowt-conferences.com

Muchas gracias por su atención



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