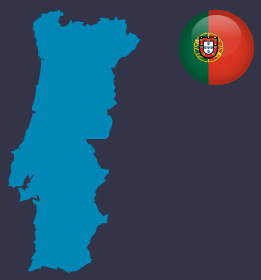
PORTUGAL

authored in collaboration with

MORAIS LEITÃO
GALVÃO TELES, SOARES DA SILVA
& ASSOCIADOS



Authored by Adam Smith (Orrick), Oliver Sikora (Orrick), Ricardo Andrade Amaro (Morais Leitão) and Joana Alves de Abreu (Morais Leitão) – refer to page 90 for contact details.

Potential and Goals

Portugal has a vast coastal area and currently has one of the largest maritime exclusive economic zones in Europe, so it is only natural that the country is paying attention to the use of its maritime resources for electricity generation. Given Portugal's short continental shelf and naturally deep waters, the potential for installing wind energy in Portugal is much more significant for floating turbines (40 GW) than for fixed turbines (1.4 GW to 3.5 GW).

For example, a recent pre-commercial phase 2 MW prototype project led by the Portuguese-based electricity company EDP Renewables has successfully tested the Windfloat floating offshore wind technology in the Aguçadoura area. As a result of this successful pilot, this floating technology secured funding from the European Commission (under the NER300 Programme) to create a floating offshore wind farm with an installed capacity of 25 MW off the coast of Viana do Castelo.

The Roadmap for an Industrial Strategy for Ocean Renewable Energies, approved by the Portuguese Government in November 2016 (the "**Roadmap**"), estimates that ocean renewable energies could potentially supply 25% of the annual electricity consumed in Portugal. This would contribute not only to the reduction of energy imports but also would prevent the emission of 8 million tonnes of carbon dioxide per year. The Roadmap further demonstrates the potential to create a new export sector of new energy technologies.

The Portuguese Government's current ambitions are that the development of the country's offshore wind sector takes place in an integrated manner using the strategy of Port Tech Clusters at commercial and fishing ports, which the Portuguese Government sees as a platform to accelerate the development of technology for new maritime industries (instead of only focusing on their core, traditional activities). It is also envisaged that synergies will be created with Portugal's naval industry that will accelerate innovation in ocean renewable energies and can be demonstrated in technological showrooms (near the ports), in a real operational environment. The result is lower costs and shorter development cycles, which will boost the emergence of a dynamic, innovative and efficient offshore industry in Portugal.

To realise this potential, the Portuguese Government has implemented legislation: Resolution of the Council of Ministers no. 174/2017, of 24 November 2017, approved the Industrial Strategy for Ocean Renewable Energies ("**EI-ERO**"), and the Action Plan for Ocean Renewable Energies (the "**EI-ERO Action Plan**"), the purposes of which are explained below.

EI-ERO

EI-ERO is based on two main goals: (i) stimulating exports and value-added investment; and (ii) empowering industry by reducing risks.

Portugal's domestic offshore wind manufacturing capabilities lie in producing turbines and platform segments for floating offshore wind power projects.

EI-ERO Action Plan

The EI-ERO Action Plan contains three major lines of action, as follows:

i. attracting R&D—attracting new ocean renewable energy development and testing projects for installation in Portugal;

ii. supporting the acceleration of ocean renewable energy technologies exports through the attraction of private investment, administrative simplification and promotion of innovative products and services; and

iii. implementing investor intelligence initiatives for ocean renewable energies.

The National Energy and Climate Plan for 2030, approved by Resolution of the Council of Ministers no. 53/2020, of 10 July 2020, further addresses Portugal's offshore wind potential while also acknowledging the investment made so far in the grid infrastructures of Viana do Castelo for the Windfloat Atlantic project, which should allow the development of 200 MW of newly installed offshore wind capacity.

Furthermore, the recently enacted Decree-Law no. 15/2022, of 14 January 2022, containing the National Electricity System's framework, creates a Free Zone for Technology in Viana do Castelo specifically for offshore and nearshore pilot projects using renewable energy sources of ocean origin or location. Such free zones have certain benefits for developers, including: (i) simplified licensing procedures; (ii) grid connection responsibility that is transferred to the relevant network operator, while projects in these zones are exempt from grid access tariffs; (iii) the developer is not required to provide a performance bond; and (iv) no operational certificate is required before a project enters into operation.

Offshore Wind Energy in Portugal

Windfloat Atlantic is currently the only offshore wind farm operating in Portugal. The project's three semi-submersible floating turbines have a total installed capacity of 25 MW and are located 20 km off the coast of Viana do Castelo, in the north of Portugal.

The project is operated by Windplus, a consortium, made up of Ocean Winds—the joint venture created by EDP Renewables and ENGIE, Repsol, and Principle Power Inc.

The project entered into operation in December 2019—although it only became fully operational in July 2020.

According to public information disclosed by EDP Renewables, Windfloat Atlantic has recorded a total cumulative production of 75 GWh, reaching the project's planned figures. The energy produced is enough to supply 60,000 inhabitants and has avoided the emission of 33,000 tonnes of CO^2.

Licensing Procedure

Offshore wind projects in Portugal that have an installed capacity higher than 1 MW are subject to the attainment of a grid capacity reservation title, which can be obtained either: (i) through a request made to the Directorate General for Energy and Geology (the "**DGEG**"); (ii) by means of an agreement with the relevant system operator (when there is a grid shortage to connect the project); or (iii) through a public tender run as a competitive auction, such as the one that was announced in 2022 by the Portuguese Government for offshore wind projects.

Once the grid capacity reservation title is issued, the developer must request the generation license from the DGEG, which authorises the construction of the offshore wind project and, prior to the entry into operation, the DGEG will perform an inspection of the project and issue an operation license.

Offshore wind projects must also obtain an authorisation from the Directorate General for Natural Resources, Safety and Maritime Services (except when located in the maritime areas adjacent to the Autonomous Regions of Madeira and Azores) to use the maritime space (*título de utilização privativa de espaço marítimo* ("**TUPEM**")) prior to requesting the generation license. The granting of such TUPEM may involve preparing a plan (*plano de afetação*), which may be initiated by public or private parties and may include a public tender.

According to Portuguese law, the competitive procedure for the allocation of grid capacity reservation titles for offshore wind projects shall replace the existing procedures established for the granting of the TUPEM.

Unless otherwise determined by the competitive auction procedure's documentation, the general rule is that new capacity does not benefit from a Feed-in Tariff. As such, offshore wind projects that obtain the grid capacity reservation pursuant to a request submitted to the DGEG will trade the electricity generated by the offshore wind project under organised markets or through power purchase agreements (see below), at a price freely determined by the parties.

Auctions in 2023

The government launched the first competitive auction for offshore wind energy at the end of 2023.

Ahead of the abovementioned auction, the government created an interministerial working group—as determined by Order no. 11404/2022, of 23 September 2022. The working group has been instructed to prepare a report with recommendations for specialised areas and the relevant interconnection points in the Transmission System that may be awarded to offshore wind projects, including: (i) proposed timelines and grid capacity to be allocated to such specialised areas, considering the launch of the tender procedure to grant grid capacity reservation titles and the title to use the maritime space; and (ii) a proposed model for the attribution of such titles, based on an international benchmark. The report was disclosed in July 2023, and includes the following recommendations:

i. a capacity of up to 3.5 GW should be made available in Viana do Castelo (1 GW, divided into two lots), Leixões (one lot of 0.5 GW) and Figueira do Foz (2 GW divided into four lots), subject to one or more competitive procedures. The remaining capacity should be allocated in subsequent phases, until 2030, totaling 10 GW Leixões;

ii. the development of the offshore wind market in Portugal should pursue a competitive model, regardless of its degree of centralisation and the associated remuneration model;

iii. the first competitive procedure, to be launched until the end of 2023, should start with a pre-qualification phase lasting at least three months; and

iv. the network architecture to be implemented should use very high-voltage substations of the transmission system, supported by platforms fixed to the seabed, to aggregate the connection of power stations with a view to reducing the number of cables between the areas and land, with greater or lesser aggregation, allowing for topological solutions that will depend on the degree of resilience desired for the network as a whole. The adoption of standardised, non-customised solutions on a case-by-case basis, both for offshore substations and for submarine cables, could be a critical decision factor, given the scale effects.

The report provided the framework for the government to define details of the auction mentioned above. A pre-qualification phase has now commenced and is expected to last three months with interested parties previously being requested to submit an expression of interest to participate in the ongoing dialogue phase.. The procedure documents will be published afterwards, and finally, the bidding process will begin.

In parallel, the government ordered the Directorate General for Natural Resources, Safety and Maritime Services to proceed with the preparation of a plan for the use, until 2050, of areas of the national maritime space for the commercial operation of renewable oceanic originated or located energy sources. This plan was delivered to the government on 20 October 2023, alongside the result of the Strategic Environmental Assessment. The approval of the plan can allow the immediate award of the TUPEM.

Corporate Power Purchase Agreements "cPPAs"

Considering that, as a rule, the energy generated by offshore wind projects shall not benefit from Feed-in Tariffs, generators may choose to enter into cPPAs with offtakers to provide a route to market for their power. The terms and conditions of cPPAs will be negotiated bilaterally between the parties.

Generators are also allowed to trade electricity under organised markets, such as the Iberian Electricity Market, MIBEL and/or sell the electricity to an aggregator—this could provide projects with another alternative route to market.

Power-to-X

Pursuant to the applicable legal framework, there are no obstacles to using the electricity generated by offshore wind farms for different purposes, in particular to supply electricity for the production of green hydrogen. Currently, there are no specific requirements to confirm the origin of green hydrogen. However, the European Commission is expected to approve a delegated regulation supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels of non-biological origin.

Conclusion

Along with solar and onshore wind energy, which are viewed as mature technologies, given the above, offshore wind energy is expected to help with Portugal's energy transition now that the cost of floating technology is starting to decrease.

The appetite amongst international offshore wind developers is clearly growing with the Portuguese Government having met with the world's largest companies in this sector that are interested in investing in Portugal, such as Spain's Iberdrola, Denmark's Ørsted and the Portuguese/French consortium EDP Renewables/ENGIE.