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Offshore Wind in Portugal: Actual Situation and Future Perspectives

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Portugal started the deployment of wind energy onshore in the early nineties, along with the majority of the European countries and soon became one of the countries with a highest share of wind in the electric energy mix. However, unlike northern "wind countries" the offshore deployment didn't follow the onshore success story. There are several reasons for that, the most important being the bathymetry of the Portuguese Coast, that prevents the installation of the common fixed to the bottom offshore foundations. To overcome that limitation, Portugal had a very active role in the deployment of the offshore floating technology, being the second country in the world to develop, construct and operate a successful floating wind turbine, WindFloat and, shortly after, a floating wind plant, Wind Atlantic. Those projects demonstrated the adequacy of the floating technology for the existing offshore conditions while recent projects, e.g. PO SEURE OffshorePlan, were characterizing the estimated wind potential and indicated possible planning and deployment paths. In 2022, the Portuguese government created an offshore working group (through Despacho n.° 11404/2022) with the mission to: i) identify the optimal locations, i.e. having a higher estimated potential, a lower impact on the environment and maritime activities while enabling the connection to the existing onshore grid – those areas were finally approved in February 2025; ii) address the most adequate competitive models for the sea-use concessions; and iii) characterize the capacity of Portuguese ports to support the deployment of the wind offshore sector. In 2024, the Portuguese Government announced it would initiate the auction for offshore wind plants still in 2025. The presentation addresses the planning work of the recent years and indicates the next steps for the deployment of the offshore wind sector in Portugal.

Highlights: offshore wind, planning methodologies; offshore renewables.

Ana Estanqueiro received her electrical engineer degree from IST/TUL in 1986 and her MSc. and PhD in mechanical engineering, respectively in 1991 and 1997. She received the habilitation degree in Sustainable Energy System from the University of Lisbon in 2023. She is a Coordinating Researcher at the (Portuguese) National Laboratory for Energy and Geology (LNEG) and responsible by the area of Renewable Integration in Energy Systems. She is also an Invited Professor of FCUL at University of Lisbon, where she teaches the Energy Networks and Wind Energy courses. Her current research interests include planning of near 100% Renewable Electric Power Systems, market participation of variable renewables, as well as optimal design of virtual and hybrid power plants for market participation and support of system operation. She was Chair of the International Energy Agency IA on Wind Turbine Systems - IEA Wind (2004-2008) and President of the Portuguese IEC CTE88 - Wind turbines (1997-2024). She is the Portuguese member of the Executive Committee of IEA-Wind TCP, and representative at EERA-ESI and EERA - Wind. She is author of more than 180 articles in scientific journals and proceedings of international conferences.