Beatriz Dromant Bellver[1]

AN EU STRATEGY TO HARNESS THE POTENTIAL OF OFFSHORE RENEWABLE ENERGY FOR A CLIMATE NEUTRAL FUTURE

1. INTRODUCTION

In 2019, the European Commission published a communication called the European Green Deal, which encompasses a series of climate policies that seek to transform the European economy to be both climate efficient and competitive. To achieve this, the Commission launched its 'Fit for 55' package of proposals to reduce the Union's net carbon emissions, relative to 1990 levels, by at least 55% by 2030. This could only be achieved if the EU expands its share of renewable energy sources. The strategy to

[1] Research Assistant. University of Valencia. Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

harness the potential of offshore renewables, together with the other energy strategies of the EU Green Deal, has an important role to play in achieving this target.

2. TYPES OF OFFSHORE RENEWABLE ENERGIES

The term offshore renewable technology encompasses a range of clean energy technologies that are at different stages of maturity. First, offshore wind energy, which is visibly very similar to its onshore counterpart. There are two types: fixed wind turbines and floating wind turbines. Currently, fixed turbines are the only ones that have been deployed commercially.

Second, ocean energy, which encompasses the various technologies that harness the energy of the sea. The types of offshore wind energy differ in their operation, but the energy source is

the same: wind. In contrast, the types of ocean energy differ both in terms of how they work and how they harness energy. Thus, we can distinguish between: wave energy, tidal energy, ocean thermal energy conversion; and saline gradient energy. The first two are in the technological development phase while the last two are still in the initial research and development phase.

Finally, there are two other types of energy that are in the early R&D phase but may be promising: algal biofuels such as biodiesel or biogas and floating photovoltaic installations.

3. THE STRATEGY

In terms of strategy, the EU's initial objectives were to have an installed capacity of at least 60 GW of offshore wind energy and at least 1 GW of ocean energy by 2030. However, recent commitments by EU governments add up to 160

GW of installed offshore wind capacity. By mid-2022, installed offshore wind capacity was less than 30 GW, which means that Member States have only 7 years to increase the total EU installed capacity by 463%.

To achieve this, the Commission proposed a framework for action, from which we can deduce 3 key elements: regional cooperation; protection of marine ecosystems; and economic growth.

3.1 REGIONAL COOPERATION

Regional cooperation is an indispensable part of the success of this strategy. To achieve a significant expansion of offshore renewable energy, the development and planning of an offshore grid must go beyond national borders and cover the entire sea basin. Member States should therefore adopt a coordinated approach and jointly set ambitious targets for the deployment of offshore renewables in each sea

basin. Given that most sea basins already have regional coordination mechanisms in place, such as the MED7 Alliance or the High Level Group on Energy Connectivity in Central and South East Europe (CESEC), the Commission recommends, in the context of each mechanism, the use of a MSP framework to harmonise and coordinate the development of marine renewable energy projects, and future offshore grids.

3.2 BIODIVERSITY AND ECOSYSTEMS

The Commission underlines in its Communication that any future development of offshore renewable energy must be in line with environmental legislation and the EU Biodiversity Strategy 2030. The latter calls for the expansion and effective management of the EU's network of protected areas, aiming to expand the area from 11% to 30% and strictly

protect one-third of it (up from 1% in 2020). In addition, the Commission hopes that new technologies can help minimise the impact of offshore renewable energy on habitats and protected species. An example of this is the MERMAID project, which led to several pilot projects carried out in different Member States, and identified the environmental benefits of different combinations of offshore renewable energy systems and aquaculture. Another interesting project, Interreg PHAROS4MPAs, documented the interaction between Marine Protected Areas (MPAs) in the Mediterranean and the blue economy, including offshore wind farms. In addition, this project provides guidance on preventing or minimizing key sectors' environmental impacts and is freely accessible.

3.3. INVESTMENT AND ECONOMIC GROWTH

On the economic front, the European Union has a wide range of funding mechanisms and funds available to guide private sector investment, which will be responsible for financing the majority of the upscale of offshore renewables. One such programme is **InvestEU**, which provides grants and guarantees for emerging technologies, by supporting research and innovation, infrastructure development and strategic industries. In addition, the Commission encourages Member States to make use of the **European Social Fund Plus** and the **Just Transition Facility** to support investment in offshore renewable energies to boost economic diversification, create new jobs, and develop education and training schemes in the sector.