

Title of Diploma Thesis

Greek Port Infrastructures Evaluation towards the Development of Floating Offshore Wind Farms

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ABSTRACT

In recent years, the development of ideas and technologies in offshore wind energy (OWE) has encouraged the E.U. for climate neutrality by 2050. Already by 2030 the produced OWE in Europe should increase fivefold. In this venture, a very important role will be assumed by the floating wind farms (FWF), whose competitiveness of construction & installation cost, as well as their strategic importance, makes them more efficient compared to the bottom-fixed offshore wind farms (OWF). Such ideas have already flourished in the seas of northern Europe and Asia. Projects such as Hywind Scotland, WindFloat Atlantic, Kincardine and DemoSATH have already laid the groundwork for future successes in the industry. The great depths of Greek seas only favor the use of such floating technologies.

Ports are a key factor for the efficient exploitation of OWE and the development of OWF. Their infrastructures can support various processes of the construction and installation phase of the OWF, such as the production of the wind turbine components and the parts of the floater, their assembly, the unloading and transportation of the floating wind turbine to the installation site and the storage of its components. They are also the first point of contact in the supply chain and they support the operation and maintenance processes of the FWF. Considering the above, an extensive evaluation of the port infrastructures in the Greek area is considered necessary.

In this diplomatic report, 6 of the most important Greek ports are evaluated in terms of their ability to support the development of FWFs in Greece. This evaluation is based on minimum requirements of specific criteria, that have been assessed by the already established FWFs in northern Europe.

However, as it turns out, all 6 under-rated Greek ports will need to make significant changes and investments to support the growing requirements for OWE. They should review their strategic position, their commercial uses, as well as invest in projects to upgrade their infrastructure.

Keywords: Offshore Wind Energy, Floating Wind Farms, Port Infrastructure Assessment, Investments, Port Infrastructure Upgrade Projects