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Nationality: Spanish

Orientation: Technological Progress, Engineering and Business
Management
Specialization Area: Energy
Research Line: 4.11 Alternative energies

PhD project: Analysis and design on O&M optimization of offshore wind turbines(OWTs)

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Summary: Based on the increase of energy consumption towards H2025, the projections for the deployment of Offshore Wind on the UK water's, the O&M of more than 5.500 Offshore Turbines, could be worth almost £2 billion per annum by 2025. Although, Optimized management of labor and spare part costs, is one of the most important drivers of future O&M costs. Such as reducing O&M costs in the offshore wind sector is part of the roadmap of interlinking efforts to cut electricity generation costs. With an excellence in O&M is critical to a profitable offshore wind business, where the O&M activities accounts for approximately to 25-28% of lifetime costs of an Offshore Wind Farm. Along the literature review, the PhD Thesis describes that synergies(helicopter, jack up vessels, OAVs...etc) between Offshore Wind Energy Projects can provide significant savings, in order to reduce the costs originated. Followed by methodology development into a maintenance integrity program. The main objective for the maintenance program includes all technical, administrative and managerial actions during the Life Cycle of an item(e.g. Gearbox) and, intended to retain it in or restore it to a state in which it can perform the required function. This includes dependability, cost reduction, product quality, environment protection, safety preservation for the Offshore Wind Turbine facilities.

The methodology itself, is development based upon a maintenance model built with parameters and variables that which ones cover the case studies carried out. Have examined the influence of failure modes on operational modeling as well as exploring the degree to which overall O&M costs are subjected during the entered lifecycle time (20 years) by the variation in vessel access constraints. However, the calculations developed it, suggest that bringing new O&M models and solutions to the Offshore Wind Energy market, which are safer, reduce costs and boost revenue will be key to succeed.

Phd Thesis demonstrated the applicability and capability of the maintenance modeling approach for the Offshore Wind O&M model built, which one ensure the safe and economic running of life cycle(LC) of the project. Therefore, making sure that the project achieves the best suitable balance between electricity output and running costs. As well as, cutting the O&M expenditure.



Source:<https://www.bisgrp.com/portfolio/conferences/renewable-energy/3rd-annual-offshore-wind-operations-and-maintenance-forum>