



Opportunities for Replacing Fossil Energy Supply to Offshore Exploration and Production Activities by Offshore Wind Power in Brazil

Silvia Schaffel, Fernanda Westin, Mauricio Hernandez, Emilio Lèbre La Rovere

LIMA/COPPE/UFRJ

OBJECTIVES

The supply of energy to offshore oil and gas E&P in Brazil is largely based on fossil fuels. In Brazil, there is an expectation of synergy between the offshore O&G sector and a future offshore wind power sector. Based on the international experience and in specificities of Brazilian offshore operations, this article presents suggestions for replacing fossil energy by offshore wind power in offshore E&P activities in Brazil.

METHODS

The interactions and trends between E&P and offshore wind power projects in the world will be analyzed. The strategies and/or targets of the oil companies related to energy efficiency, renewable sources and/or offshore wind power will also be analyzed, such as the international incentive actions for offshore wind power generation.

Finally, the research will analyze the potential of fostering offshore wind sector in Brazil through energy policy initiatives, climate finance and environmental licensing and how these factors may contribute to the decarbonization of energy supply to offshore E&P in Brazil.

RESULTS

Brazil has considerable potential for electricity generation through offshore wind resources, especially in the states of Ceará, Rio Grande do Norte, Alagoas, Sergipe, Santa Catarina and Rio Grande do Sul. However, tapping onshore wind potential is currently the first priority, thanks to its lower production costs and well known environmental and social impacts.

Several initiatives show the possibilities of integration and cooperation between E&P and offshore wind power around the world: enhanced oil recovery, powering water injection systems, extension of economic field life, etc. They also bring opportunities for replacing fossil energy supply to offshore E&P activities by offshore wind power in Brazil. International partnerships can bring different opportunities to complement the national industry.

Additionally, sharing and optimizing the offshore logistics between E&P and wind power (e.g. supply vessels, shore bases and helicopters) may allow to avoid emissions.

Environmental licensing can also foster the replacement of fossil energy supply to E&P activities in Brazil by offshore wind power (or other renewable energy source) in Brazil.

This paper points out opportunities and present recommendations for the development of offshore wind power in Brazil, focusing in the replacement of fossil energy supply by offshore wind power.

BENEFITS FOR OIL SECTOR?

Oil sector already suffers from the impacts of climate change and faces the challenge of meeting a growing global energy demand with lower GHG emissions. The objective of this paper is to present suggestions for replacing fossil energy supply to offshore E&P activities by offshore wind power in Brazil, contributing to the launching of offshore wind power in the country and to the transition of E&P activities to a low carbon future.