

LIF-OWI

Environmental, socio-economic and technological challenges for life cycle assessments of offshore wind farms

DURATION: 36 months | LAUNCH: 2020 | Total budget: €1,466 K

CONTEXT

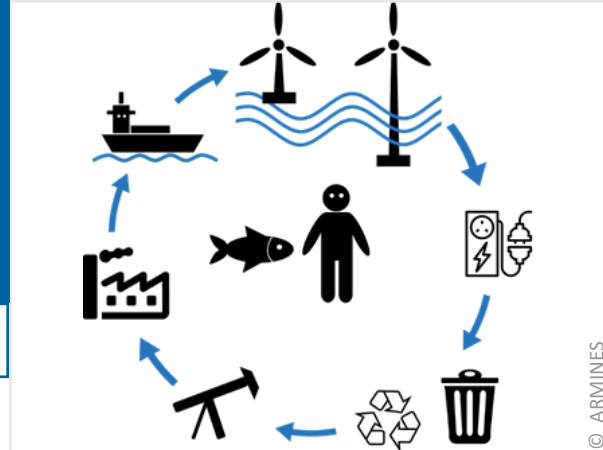
Increasing the share of renewable energy production is essential to reach the ambitious sustainable development goals set by the United Nations. Offshore wind farms are hereby a promising renewable energy source. Their environmental evaluation within the internationally recognized life cycle assessment framework is essential to avoid any burden-shifting. However, this type of analysis is still often limited to specific environmental aspects (i.e. greenhouse gas emissions estimation). Besides, the social life cycle assessment is at early stages of development, regardless of the industrial sector. Consequently, no holistic sustainability approach for offshore wind farms currently exists, neither guidelines for developers. **Such guidelines are urgently needed since life cycle assessment of projects are requested by public authorities. It is the case in France where life-cycle carbon footprint assessment will become mandatory in the public call for tenders for commercial farms.**

OBJECTIVES

- To develop a comprehensive methodological framework for environmental and social life cycle assessment and validate it by applying it to a selection of offshore wind farms (pilot and commercial, floating and bottom-fixed).
- To identify ways to improve the environmental and societal sustainability of offshore wind farms using the results of their life cycle assessments.

EXPECTED RESULTS

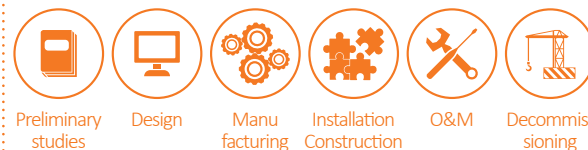
- **Development and validation of a comprehensive** life cycle assessment approach dedicated to the bottom-fixed and floating offshore wind contexts
- **Inclusion of indicators** linked to environmental and societal issues currently not well integrated into life cycle assessment of energy production systems
- **Decision-making tools** for developers and operators to carry out prospective life cycle assessment and help choosing among several designs



TECHNOLOGIES



STAGES OF THE VALUE CHAIN



SCIENTIFIC CONTENTS

- **Development of detailed guidelines** and reference materials for environmental and social analysis
- **Identification of specific indicators** (not existing or identified today) for biodiversity and social life cycle assessment
- **Case studies** based on data from several offshore wind farms: life cycle analysis on the environmental and then societal aspects and preliminary identification of the crucial points for the eco-design of offshore wind projects
- **Transfer methodology and best practices** to the sector through online platform and workshops

PARTNERS



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