

LIF-OWI

Towards better integration of environmental, socio-economic and technological aspects into the life cycle analysis of offshore wind farms

Duration: 36 months | Start date: 2020

BACKGROUND

To achieve the Sustainable Development Goals set by the United Nations, it is essential to increase the share of renewable energy in the global energy mix. Offshore wind farms represent a promising option in this regard. It is nevertheless vital that these projects are integrated sustainably into our environment and societies. To ensure this, life-cycle analysis is an internationally recognised tool. For marine renewable energy projects, this analysis is still often limited to certain environmental aspects such as

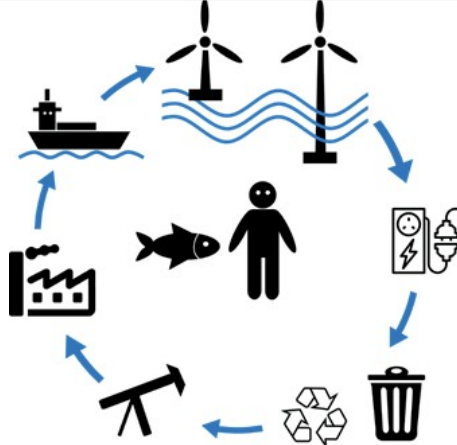
the estimation of greenhouse gas emissions. Furthermore, the social aspect is still at an early stage of development, regardless of the industrial sector. There is currently no holistic approach to quantifying the sustainability of offshore wind farms. **Recommendations will therefore soon be necessary, as public authorities are requiring life-cycle assessments of projects. This is the case in France, where the ecological footprint of future commercial wind farms will need to be assessed as part of public tenders.**

OBJECTIVES

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

EXPECTED RESULTS

- **Development and validation of a holistic life-cycle analysis approach** specific to the context of fixed and floating offshore wind farms
- **Better integration of environmental and societal indicators** into the life cycle analysis of energy generation systems
- **Decision-support tools** for developers and operators to carry out prospective life-cycle analysis in order to evaluate design choices and guide them where possible



TECHNOLOGIES



STAGES OF THE VALUE CHAIN



SCIENTIFIC CONTENT

- **Development** of detailed **recommendations** and reference documents for the environmental and societal life-cycle analysis of offshore wind projects
- **Identification of specific indicators** (existing or otherwise) relating to biodiversity and socio-economic aspects with a view to their integration into the life cycle analysis
- **Case studies** based on data from several French offshore wind farms: life-cycle analysis focusing first on environmental aspects and then on societal aspects, and a preliminary identification of key considerations for the eco-design of offshore wind projects
- **Transfer of the developed methodology** and best practices to industry stakeholders via a website and workshops

PARTNERS



With financial support from ADEME, EDF Renouvelables, the Normandy Region and the SUD Provence-Alpes-Côte d'Azur Region.



This project receives €546,000 in state funding, managed by the National Research Agency as part of the France 2030 investment plan.

