

Biodiversity Enhanced Wind Farm development, Integrated monitoring & inspection and Localized Design

Publieke samenvatting / Public summary

Aanleiding

Impact on sea life in the area of wind farms is not yet fully understood (negative and positive effects), while performing in-depth ecology research on-site is expensive due to the logistics. Yet, there are little incentives for offshore wind farm operators to invest in ecological optimizations when the benefits are not clear and the risk of failures for chosen biodiversity interventions are high. Moreover, investments in offshore wind farms are already very costly, and as a consequence investors want to reduce external risks as much as possible. Potential other users of the same wind farm location, such as shipping, fishery and nature, are therefore not much welcomed in the same area as they could potentially harm the operational reliability of the wind farm. An integral understanding is needed in order to accelerate the roll out of offshore wind in the North Sea in a (ecologically) sustainable manner.

Doelstelling

Without measures, the wind farm operators are limiting other functions that could be performed in the area, while the environmental footprint of O&M tasks in wind farms is relatively high. By implementing an integral approach on data collection and analyses for wind farm operations and ecology, the operational costs can be reduced while valuable datasets can be delivered, with positive outcomes for the wind sector and nature.

Projectinformatie / Project information

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MOOI622008

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Algemene informatie / General information

Penvoerder / Secretariat
Fugro N.V.

Publicaties en materialen / Publications and attachments

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Voortgangsrapportage 1

- 18.03.2025

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Voortgangsrapportage 2

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Furthermore, the deployment of robotic systems such as Unmanned Surface Vessels (USVs) and underwater Remotely Operating Vehicles (ROVs) hold the potential to substantially reduce operational costs for wind farm inspection and maintenance compared to common practise of using (large) support vessels with staff in the wind farm.

Korte omschrijving

Project activities follow the following structure: 1. Design of an integrated full area measurement and analysis strategy 2. Development of novel USV/ROV monitoring equipment (new sensor developments) 3. Integration of new devices with the Fugro USV/ROV combination 4. Selection and design of biodiversity enhancement options 5. Validation and market preparation of the integrated USV-ROV monitoring and inspection solutions 6. Research into new and improved policy strategies

Resultaat

At the end of the project, the following results will have been achieved: - Monitoring with e-DNA samples: this is a cost-efficient and non-invasive method to identify which species are present at a particular location in the wind farm. - Cable detection sensor: having an integrated, highly accurate cable detection sensor onboard on an USV-ROV. - Biodiversity enhancing scour protection based a modular and industrialized design that can be modified in such a way that in addition to its primary protective function. - Integrated USV solutions. Having the latest sensing and analyses capabilities integrated on an unmanned vessel allows to do more measurements all at the same time, creating a complete view of the status of both the subsea structures and subsea life.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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