

Wind AUV

Publieke samenvatting / Public summary

Aanleiding

The Dutch North Sea is becoming crowded, with offshore wind capacity set to rise from 2.3 GW to over 21 GW by 2031, adding thousands of turbines alongside cables, pipelines, and other infrastructure. This creates growing risks of damage and makes inspections more complex. Current inspection methods using vessels, ROVs, and divers are costly, labor- and emission-intensive, and often produce fragmented data. At the same time, environmental monitoring demands are increasing. Without better solutions, offshore operators face rising costs, more downtime, and compliance risks. This project aims to develop the basis to a scalable, cost-effective, low-emission, high-frequency inspection system for complex offshore sites.

Doelstelling

The goal of the WindAUV project is to develop an advanced autonomous underwater vehicle (AUV) for inspecting offshore wind structures. The AUV will autonomously navigate and inspect complex 3D structures, using advanced perception and robust GNC systems, enabling frequent, low-cost, low-emission inspections. This directly supports the EKOOP program under MMIP1, subtheme 1.1, by reducing operational costs, improving offshore energy park reliability, lowering safety risks, and cutting emissions. The project targets a first operational demonstration within ten years, aligning with EKOOP's aim to push highly innovative, early-stage solutions not yet ready for large-scale rollout.

Korte omschrijving

The project is divided across key tasks between

Projectinformatie / Project information

Projectnummer / Project number

EKOOELEK25-03832217

Subsidiebedrag / Grant amount

€ 468.998,00

Algemene informatie / General information

Penvoerder / Secretariat

LOBSTER Innovations B.V.

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Lobster Robotics and MARIN. Lobster Robotics leads the consortium, coordinates activities, and focuses on developing advanced terrain perception, relative position estimation, and efficient GNC implementation. Lobster also handles practical aspects of field testing, experimentation, and aligning technical and safety requirements. MARIN contributes by defining technical requirements and operational concepts, developing new GNC algorithms for object-relative navigation in turbulent offshore conditions, supporting integration into the prototype, and leading experimental validation, including offshore demonstrations. Together, they cover the full development and testing chain.

Resultaat

The project will deliver several concrete results: a report detailing the operational concept and system requirements; a 6DOF AUV GNC and disturbance rejection module; an environmental perception and object detection module; and a final demonstration report with real-world performance data. These outcomes provide the technical foundation for autonomous, reliable underwater inspections of offshore wind structures. The results aim to make offshore operations safer, more efficient, and less dependent on costly, emission-heavy methods, ultimately supporting more robust and sustainable offshore energy systems.

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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