

Autonomous platforms prove effective for wind farm operations



Teams from wind farm owner Northland Power and marine technology company Subsea Europe Services have successfully concluded a pilot project to use uncrewed surface vessels (USVs) and autonomous underwater vehicles (AUVs) in marine survey and underwater inspection operations at the Deutsche Bucht offshore wind farm, located in the German North Sea.

The July 2023 project was commissioned to verify performance and further develop the operational workflows of Subsea Europe Services' *Autonomous Surveyor* USV for multibeam surveying and *A.IKANBILIS* hovering AUV (HAUV) for subsea inspections such as scour and marine growth surveys. The vessels were deployed from a service operations vessel (SOV) mothership already in place for operations & maintenance (O&M)

at the wind farm.

Mothership concept

The 'mothership concept' was proven successful throughout the pilot, with seamless integration of the various teams and equipment working aboard the *Albert Betz* SOV. This resulted in a wider weather window for marine survey and underwater inspection operations, with launch and recovery up to sea state 3 and data acquisition according to the specified requirements.

"Supported by the great teamwork of everybody on board, the additional personnel, equipment and workflows for managing and using the USV and AUV for marine surveying and underwater inspections blended in well with the overall operations of the SOV, demonstrating that the 'mothership concept' works in a live scenario," said Jan Schmökel, balance of plant engineer, Northland Power.

"Our goal is to utilise assets that are already in place within the offshore wind farm O&M framework in order to improve the availability of marine data and significantly reduce the cost of acquiring it," added Sören Themann, CEO, [Subsea Europe Services](#). "Both *Autonomous Surveyor* and *A.IKANBILIS* performed well, acquiring actionable data within similar time frames to conventional vehicles, including crewed survey vessels and work class ROVs, both of which are more costly to manage and operate."

While Subsea Europe Services continues to fine-tune and further automate workflows based on the experiences of the pilot project, both *Autonomous Surveyor* and *A.IKANBILIS* are available for offshore wind farm deployment right now. Full commercial readiness of a combined turnkey USV/HAUV solution for major projects and permanent mothership deployment is expected by Q1 2024.

Northland Power is 100% owner of Deutsche Bucht offshore wind farm, which is located 95km west of Borkum in the German Exclusive Economic Zone (EEZ). Deutsche Bucht has an operating capacity of 252MW, meeting the annual energy needs of 300,000 people and reducing the annual CO₂ emissions of Germany by 700,000 tons.