

CASE STUDY

CSpect Improves Cost Efficiency of Offshore Wind Monopile Inspections



CSpect specializes in offshore wind monopile

and wind turbine foundation inspections in the North Sea and services the largest global renewable energy contractors. The company, headquartered in Belgium, is certified for underwater inspections with ROVs, robots and drones, as well as above-water inspections with its ALTUM telescopic pole systems. CSpect also provides inspection services for quays, foundations, water tanks, pipelines and ports.



Summary

VideoRay helped CSpect to develop a cost-effective way to provide underwater inspection of wind monopiles to the North Sea windfarms marketplace.



Challenge

CSpect was seeking a mobile solution to conduct wind turbine jacket leg inspections that would not require larger working-class ROVs and an entire offshore team onboard an offshore support vessel.

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Solution

Submersible weight and maneuverability are key to performing monopile inspections while reducing cost. VideoRay's inspection-class Mission Specialist underwater robotic systems are designed for missions with weight, space and size restrictions. Operators can drop the durable Mission Specialist robots into the water from the monopile, making it less expensive than using working-class ROVs. There is no need for an offshore support vessel (OSV), A-frame or crane and additional crew.

CSpect used a combination of the VideoRay Defender and Pro 5 ROV systems, coupled with its own engineered tooling, to conduct comprehensive inspections of wind turbine jackets.

Adaptable power sources enable use of the robots throughout the lifecycle of the wind turbine, including installation, repair and maintenance. The vehicles use a robust power delivery network boosted by high-efficiency power modules to convert energy to voltages needed to support the thrusters, electronics and payloads. They can be powered by surface power sources or by onboard batteries. Tether lengths can be hundreds of meters, or thousands of meters if using fiber.

In addition, the pitching capability of these systems delivers a powerful solution to the challenges found with offshore inspections in rough seas.



Results

By eliminating the need for larger work-class ROV systems and teams onboard an OSV, CSpect has **reduced cost by more than 50%, decreased inspection time by more than 50%** and improved safety by eliminating the need for a shipboard team. Also, because no OSV was deployed, CSpect reduced the overall carbon footprint of the mission to near zero.



Using VideoRay's underwater robotic vehicles has helped CSpect thoroughly conduct all necessary monopile inspection tasks in the turbulent water around wind turbine foundations, while providing a cost-conscious solution to customers operating wind farms in the North Sea.

