

WIND TURBINE MONOPILE MONITORING

Application Brief

Real-Time Wind Turbine Monopile Condition Assessment

Problem

MISTRAS was approached to design, supply, and install monitoring systems on 32 offshore wind turbines. The objective of these systems was to confirm the structural integrity of each turbine's subsea pile structure.

Solution/Process

In partnership with the customer, an integrated monitoring design was developed and included innovative sensor installation approaches to minimize the impact of the installation of the system on an operating asset. The capability of the system was demonstrated during an extensive onshore verification trial testing each area of the system's performance.

MISTRAS developed, assembled, and integrated all the hardware and software used in the project. This included final configuration with network connection, battery backup, and final mounting mechanism.

System installation was undertaken onsite

by MISTRAS employees as a standalone team providing all support including turbine access and confined space access. System installation included placement of the acquisition system, connection and testing of the fiber optic communications as well as drilling of a hole through the ATP and installation of an airtight gland. All procedures were developed specifically for the project with final approval from the customer prior to on-site deployment.

Results

Following the successful completion of the site installation and commissioning of all assets, the systems remained in operation, providing 24/7 monitoring and real-time condition assessments. All data collected is backed up on site with complete data transparency for the customer through the bespoke website providing an overview of each system as well as capability to look at the performance of each asset individually.

The daily management and data analysis



is undertaken daily by members of the MISTRAS Online Monitoring Team (OLM) and annual maintenance of each system is performed by MISTRAS Group technicians.

As a leading OneSource provider of technology-assisted asset protection solutions, MISTRAS successfully extended the life of the assets and helped enhance information for risk management decisions.

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Asset Protection
Solutions**

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#300A-19103-01