Subsea cable intelligence: Hywind Scotland floating offshore wind farm

Client:

Equinor

Location:

Hywind Scotland, North Sea

Equipment:

ECG™ holistic cable monitoring system

Proserv is to deliver its cable monitoring system (CMS) to analyse the condition, integrity, and performance of export and inter-array cables across the wind farm using the fibre optic infrastructure within subsea HV cables. The demonstration, focused on ECG™'s data analytics abilities, will be installed, commissioned and operational in Q1 of 2023.

- 30 MW installed capacity in a pilot park covering 4 sq km
- 95-120m 5 spar style wind turbines at a water depth of up to 12m

The world's first commercial floating offshore wind farm

Located off the coast of Peterhead, Aberdeenshire in north-east Scotland, Hywind Scotland is the world's first commercial floating offshore wind farm. Since the wind farm began production in October 2017, Equinor has revealed that Hywind Scotland has achieved the highest average capacity factor of all wind farms.

Real-time data processing and predictive analytics modelling

Proserv ECG™ not only employs distributed temperature sensing (DTS) and distributed acoustic sensing (DAS) but engages Synaptec's unique distributed electromechanical sensors (DES), via its passive electrical and mechanical sensor systems. The hardware will be complemented by Proserv's innovative HMI design philosophy, utilising Proserv's TIACS software suite.

During ECG's demonstration on Hywind Scotland, Proserv will deliver advanced real-time data processing and predictive analytics modelling. This will be achieved with vital support from technology partner and specialists in subsea power cable engineering and management, BPP Cable Solutions.

The system's specialist predictive data analysis tools will use known cable power transmission performance physics to monitor cable arrays continuously and autonomously. This will provide assurance of cable health and identify in advance any anomalies and potential longer-term faults that can be dealt with on a proactive basis.

This approach represents a major shift from traditional reactive cable performance monitoring, whereby a cable fault or failure identification using stored data only occurs after an event takes place through retrospective root cause analysis.

Monitoring the condition and performance of cable terminations

Critically, ECG can monitor the condition, integrity, and performance of cable terminations, an aspect needing development in the offshore wind sector. Cable terminations are well-known for being a serious failure point and so this technology solution will scrutinise this specific key area of an asset, not possible with traditional cable monitoring systems.

Michal Wachucik ©Equinor
Hywind Scotland floating wind farm, operated by Equinor