

Monitoring Reliability in Tough Conditions



Just off the coast of the Orkney Islands, Aquamarine Power (UK), is due to install the latest version of its wave energy capture system, Oyster 2. An upgrade of the Oyster system, this version will produce up to 2.4MW to an onshore hydro-electric power plant. This second generation Oyster uses data collection and transfer systems designed and supplied by MacArtney. The system is developed specifically for the Oyster, based on technology that has proven to be resilient to hard conditions and reliable for long periods without servicing.

"Maximising maintenance intervals for the system was a key factor in our design. All our maintainable component systems must be able to function reliably for at least five years between servicing," explained David Kaye, Engineering Manager of Aquamarine Power Ltd.

As with all power generating systems, being able to constantly monitor the system is critical for ensuring safe operation and minimal downtime. This is especially true for offshore energy capturing setups, where equipment is often difficult to access and conditions poor. Operators need to be able to see how the equipment is performing and to constantly monitor a wide range of data.

Aquamarine Power will install control and instrumentation systems from MacArtney on their three linked wave energy converters, or WECs. Due for delivery in early 2011, the data acquisition and handling system and the control and instrumentation system will interface with their onshore SCADA system and provide the monitoring station with a range of data from monitors installed on the underwater equipment.

High-speed multiplexers offshore and onshore ensure rapid data transfer from MacArtney supplied sensors, including proximity, inclinometer, hydrophone and camera data, via a fibre optic link in the control umbilical.