Real-time Integrated Environmental Monitoring System at EMEC

The European Marine Energy Centre (EMEC, UK) has successfully recovered its novel Integrated Monitoring Pod following months of transmitting real-time data feeds from the seabed at the Fall of Warness tidal energy test site in Orkney. The pre-commercial prototype is connected to the shore via a subsea cable to facilitate 24/7 real-time data collection, and has been delivering live data feeds back to EMEC which can be used by marine energy developers using the site.

The bespoke system, designed by EMEC to operate in high velocity tidal flows, integrates a variety of sensors to undertake comprehensive concurrent environmental measurements, providing improved characterisation of high energy marine environments.

Making real-time data feeds available to developers will assist in device design, enable more accurate assessment of device performance, and support operations and maintenance planning.

Deployment in Volatile Tidal Environment

EMEC worked with Leask Marine, Bryan J Rendall (Electrical), RM Computing, Numerical Business and J+S. The Pod was deployed in a highly volatile tidal environment. The companies have been operating in largely unchartered territory (even within the tidal energy industry).

Challenges consisted of ound certain materials – connectors for instance - designed for offshore subsea operations appeared to be not necessarily suited to cope with the highly oxygenated and turbulent near-shore environment of the situation.

The pod is set up as a plug-and-play prototype with the ability to install additional sensors as required, with future development focused on supporting data collection at commercial marine energy array projects.

EMEC have recovered the Pod to carry out further inspections and enhancements prior to redeployment in spring 2016. The data that has been gathered by the Pod is now analysed by EMEC and further results from the project will be available in early 2016.

The ongoing project is receiving funding from the Scottish Government via the Marine Renewables Commercialisation Fund (MRCF), which is managed by the Carbon Trust.