

EFFICIENT STRUCTURAL MONITORING MEASUREMENT CAMPAIGN ON THE TETRASPAN FLOATING WIND DEMONSTRATION PROJECT

Pulse, a brand in Acteon's Data and Robotics division, was contracted to provide structural monitoring services for the TetraSpar floating wind project. The TetraSpar Demonstration Project is the world's first full-scale demonstration of an industrialised offshore foundation and was carried out in a partnership between Shell, RWE, TEPCO Renewable Power, and Stiesdal Offshore. The TetraSpar foundation is a tetrahedral structure assembled from tubular steel components. It is expected to offer important competitive advantages with its potential for lean manufacturing, lean assembly and installation processes, and low material costs. The TetraSpar Demonstrator was commissioned in the second half of 2021 offshore Norway in 200m water depth.

THE CHALLENGE

This was Pulse's first floating wind measurement monitoring campaign utilising the standard INTEGRIpod SM motion monitoring units.

These were required to be installed at The Marine Energy Test Centre (MET Centre), a world-leading North Sea test centre offshore Norway, for testing new marine renewable energy technologies, which simulates the expected harsh environment/conditions experienced in normal offshore wind farm locations.

The project called for a very tight installation schedule, with a weather window of less than a week.

CUSTOMER GOAL

The objective of having the sensors was to capture data of the structure being subjected to large waves and typical harsh Autumn/Winter North Sea conditions. The data will provide insight into the movement and strain the structure is experiencing and the information will help to validate the foundation's dynamic models and provide other important learnings applicable to commercial scale floating offshore wind projects.

OUR SOLUTION AND ITS COMMERCIAL BENEFITS TO THE PROJECT

We develop market leading services and integrated solutions.

- Pulse provided and installed three INTEGRIpods at seven measurement points on the TetraSpar demonstrator, for a total of 21 sensors. The sensors were installed on the internal and external columns. The project was fulfilled by Pulse utilising standard monitoring equipment to provide ease of installation and recovery. The measurement campaign lasted for five months.

We work at scale with a proven track record for delivery.

- Pulse have an impressive track record, having successfully used the INTEGRIpod sensors on hundreds of energy infrastructure projects, from pipeline to risers to fixed offshore structures. They have a rental fleet of well-maintained INTEGRIpod sensors, readily available to deploy, allowing for fast shipment and global mobilisation.

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- The INTEGRIpod sensors are ROV retrievable and use magnetic holders for ease of installation and removal.

We combine digital technology and data to enhance our expertise.

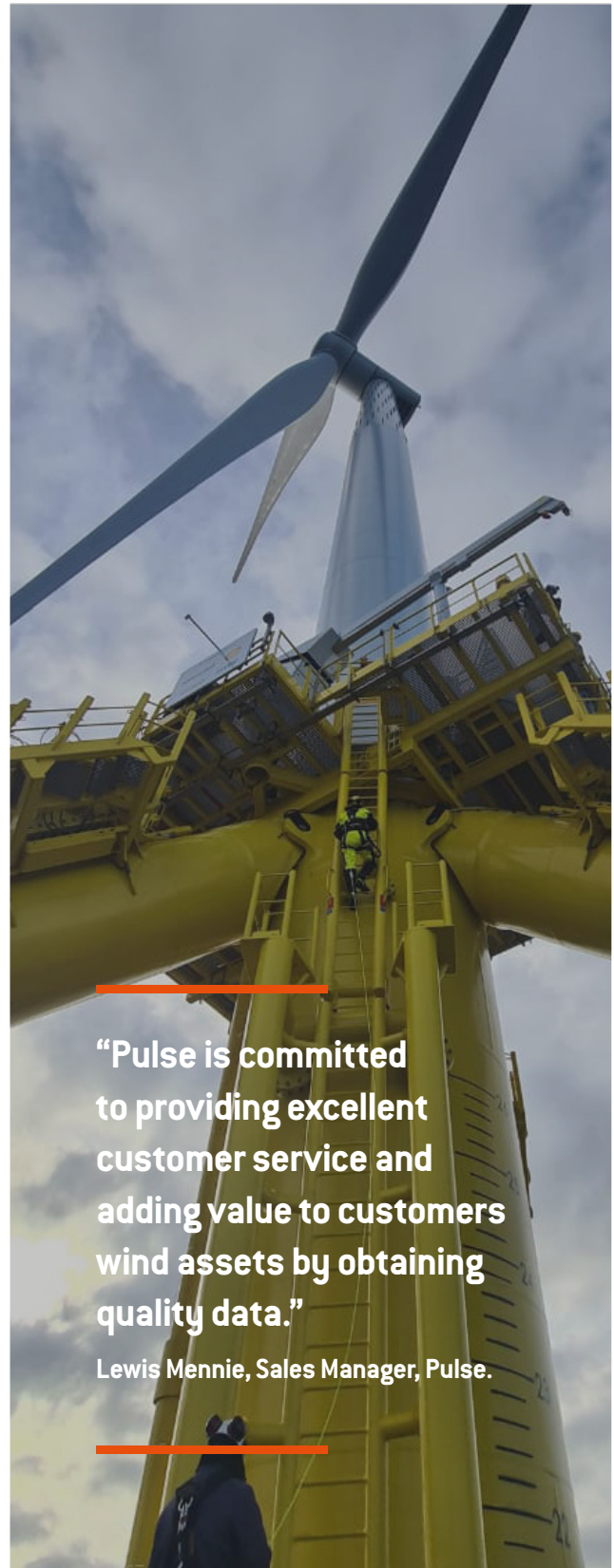
- Pulse has battery-operated lightweight standard motion measuring equipment within their rental fleet ready for rapid supply and deployment along with personnel ready to assist and install. The INTEGRIpod sensors gather valuable data during offshore campaigns to enable improved operational effectiveness and asset life extension. The INTEGRIpods are retrieved from the structure and the data is uploaded to Pulse's own INTEGRIportal. The customer has full access to this cloud-based infrastructure platform, allowing for digital visualisation of the captured data.



“Pulse is committed to providing excellent customer service and adding value to customers wind assets by obtaining quality data. We are very proud to be associated with the TetraSpar floating offshore wind project and it is a testament to our team that we have been able to execute the supply and installation of this structural health monitoring package timeously, whilst overcoming the challenging weather conditions with no compromise on health, safety, quality or environment. We would like to thank all TetraSpar partners for their collaborative approach and support in ensuring this project’s success.” says Lewis Mennie, Sales Manager, Pulse.

PRODUCTS USED

- Pulse’s INTEGRIpods
- Subsea infrastructure integrity monitoring



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