CREW TRANSFER VESSEL

PERFORMANCE MONITORING AND TRACKING

CASE STUDY

In partnership with energy institute

Enhancing safety, monitoring asset integrity and increasing operational performance through collaborative partnerships with vessel owners

Project partners	BMO Offshore
Duration	18 months +

Challenge

Greater Gabbard Offshore Winds Limited (GGOWL) has an overall strategy to **continually improve operations** at the wind farm.

- **Enhance safety**
- **Monitor asset integrity**
- **Increase operational performance**

Solution

GGOWL invested in **vessel performance monitoring and tracking**. BMO Offshore was awarded the contract for providing vessel monitoring systems and the first of the systems became operational in early September 2015.

All GGOWL chartered vessels at site are fitted with the **BMO Offshore 'Blackbox' vessel motion monitoring systems.**

Recording the vessel motions and its effects on passengers during transits to the wind farm, and issuing notifications when thresholds are exceeded, are an important step to ensure transits are optimised both for passenger comfort and the days work ahead.

During personnel and cargo transfers, the monitoring of dockings, fender push-on stability and vessel station-keeping allows an insight into each individual transfer offshore. During dockings, the vessel motion monitoring system provides instant feedback to the vessel Master on how a docking was conducted.

Vessel motion monitoring systems enable the fact-based assessment of vessel utilisation and help to quantify the added value of innovative solutions (e.g. access systems). The system provides independent factual information to support informed decisions by the vessel Master, Marine Coordination and site management. This information overtime creates a profile of the windfarm operations and allows improvements in performance to be made. BMO Offshore are working closely with GGOWL to develop additional benefits, integration with existing systems and various other tools to improve safety and reduce the cost of offshore wind energy.

Results

- **Monthly and quarterly reports on:**
  Wind farm information
  - Vessel information
  - Utilisation history

  Asset Integrity
  - Docking impacts

  Vessel performance
  - Speed
  - Motion Sickness index (ISO 2631)
  - Whole Body Vibration (ISO 2631)
- **Information from the systems is also used to investigate events and provide an opportunity for learning**
  Health and safety
  - Aid in collection of video images
  - Provide statement of facts on events and vessel performance

  Vessel selection and logistics
  - Review vessel design features which are common in high performance
  - Review and optimise vessel fleet

  Asset integrity
  - Understand live loads applied to assets
  - Optimise inspection of assets based on number of dockings or loadings

Key findings

- The vessel fleet has been utilised well during the period of recording and reporting.
- The vessel fleet are performing within the contractual performance agreements for vessel speed, whole body vibration, motion sickness index and access.
- Site management have been able to identify the number of dockings that a fender made in service. The benefit of this is that feedback can be provided to the vessel owners on the lifetime of a fender so proactive change out can be planned.
- The speed reduction over time due to vessel hull fowling has been identified. As a result, it is possible to forecast when a vessel is due to fall below the contractual speed requirement and plan ahead for a vessel to be taken out of the water for hull cleaning, mitigating any impact to operations.
- There is now the ability to provide additional resource such as HD video images, vessel movement graphs and transit route information to allow statements of facts to be produced to support review of events.
- Factual comparison of vessel performance is an additional tool for challenging opinions on vessel operations and leading to discussions with vessel owners, crews, users and the site team on how to improve the vessel fleet performance.
- The vessel motion and monitoring has ensured that GGOWL are receiving maximum benefit from other assets such as vessels, wave radars and people at site.

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Organisations involved

The Greater Gabbard Offshore Wind Farm is a 504 MW wind farm on sandbanks 23 kilometres (14 mi) off the coast of Suffolk in England. The project is owned by **Greater Gabbard Offshore Winds Limited (GGOWL)** which was a joint venture between SSE and Innogy (formerly RWE).

BMO Measurement Solutions B.V. (BMO), are a Dutch company specialised in providing insight and improving logistical processes in the offshore wind sector.

The **G+ Global Offshore Wind Health and Safety Organisation (G+)** comprises Europe's biggest offshore wind farm developers and operators who focus on H&S improvement in the offshore wind industry.

The **Energy Institute (EI)** is a not-for-profit registered charity, which exists to promote and advance knowledge, skills and good practice in energy for society's benefit.

Images courtesy of Windcat Workboats