Towards a better future with remote maintenance

Staying ahead of the curve is a recurring theme that anyone involved in a competitive industry contends with. In the offshore platform sector, one example is to invest in a forward-looking project infrastructure to ultimately achieve significant long-term cost savings and other benefits. Outdated operating methods are replaced with better, modern alternatives. Technologies become more innovative to avoid shortcomings of options that have come before. Maintenance of offshore platforms is a sector that is undergoing this transition to a more innovative infrastructure.

Among the innovators taking action to stay ahead is Dutch oil and gas company ONE-Dyas. They're the first company to purchase a Liebherr offshore crane, type RL 2600, in combination with Liebherr Intelligent Maintenance, or LiMain.

Drawing from input of industry experts, as well as 70 years of know-how throughout its development, this remote maintenance system was launched in 2022 to help achieve savings on needed mobilisation for maintenance on unmanned platforms, as well as reducing service days on manned platforms. As offshore energy projects become larger in scope and more cost-intensive to maintain, solutions have been sought to contribute to lower OPEX for operators. And this story marks the first of most likely many of its kind in the years ahead.

ONE-Dyas is set to install the first gas production platform in the North Sea that will be powered entirely by offshore wind energy. The project, called N05-A, is located within the GEMS area, situated approximately 20 to 80 kilometres north of the Ems estuary. By utilizing renewable energy from the nearby Riffgat Offshore Wind Farm, the N05-A platform is expected to significantly reduce emissions, contributing to the energy transition and helping to achieve the EU's Climate Agreement goals in a safe and responsible manner. Furthermore, the project is expected to enhance the security of the local energy supply and provide a boost to the local economy.

Michel Mens, Lead Engineer E/I and Rotating Equipment at ONE-Dyas, explains: 'Our aim is to minimise the maintenance effort significantly, but at the same time to ensure a service life of the crane of more than 20 years. With LiMain's Module 4, Liebherr offers a solution that is unique on the market and precisely tailored to our crane. The ability to operate the crane remotely helps to monitor the crane's performance and prevents unforeseen issues during the maintenance visits.'

Platform operators like ONE-Dyas are increasingly seeking innovative methods to carry out regular maintenance, as traditional maintenance procedures for offshore equipment are time-consuming and resource-intensive. Furthermore, platform owners are confronted with several obstacles that are challenging to overcome, including personnel availability, weather conditions, and the requirement for specialized expertise.

To address the need for higher crane availability with lower operational expenditure, and greater independence from external factors, LiMain was created. This allows at least a portion of maintenance to be performed without the need for on-site crane operation.

The design of a modular system architecture has become increasingly important in modern engineering, allowing for flexibility, scalability, and ease of maintenance. LiMain is a prime example of the benefits of modularity.

By breaking down the maintenance process into four distinct modules, Automatic Greasing, Condition Monitoring, Predictive Maintenance, and Remote Maintenance Cycle, this system offers a comprehensive solution to the challenges of maintaining offshore equipment.

The integration of modern sensor technology and decades of experience in construction allows for real-time monitoring and predictive maintenance, setting a new standard in the industry. The all-inclusive approach of the Remote Maintenance Cycle module provides semi-automatic maintenance and self-diagnosis of the crane, minimizing the need for human intervention and increasing efficiency.

The modular approach of LiMain showcases the importance of designing systems with the user in mind, providing a customer-orientated solution that addresses the challenges of maintenance in a comprehensive and innovative manner.

While remote maintenance systems like LiMain can offer numerous benefits, there are also some limitations to consider. Certain maintenance tasks will always require physical access to the equipment, or the use of specialised tools that cannot be performed remotely. It is important for companies to carefully assess the specific needs and requirements of their operations.

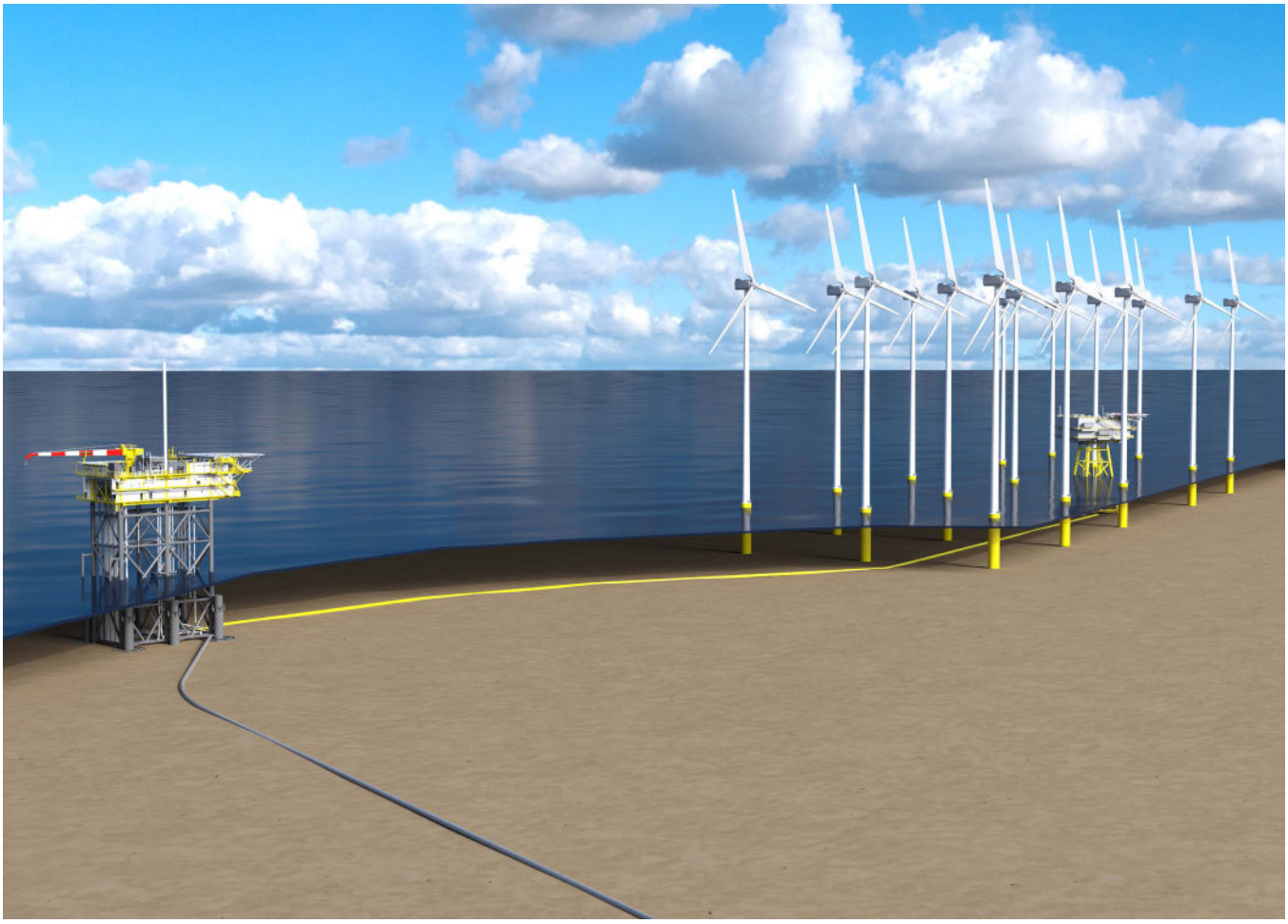
By understanding both the advantages and limitations of remote maintenance, companies can make informed decisions about how to optimise the performance and sustainability of their equipment and operations.

'We commit ourselves to shape the future of maintenance for our customers. LiMain will change the way they think about maintenance,' said Stefan Schneider, Global Application Manager for General Purpose Offshore Cranes. 'The result of our commitment is an intelligent maintenance system, which solves challenges that platform operators have grappled with all around the world for years.'

Besides the usual maintenance processes, LiMain also has a positive effect on general logistics. The ability to pinpoint the optimal time to exchange spare parts eliminates unnecessary service intervals and results in more storage space for other equipment, keeping costs down and availability high.

The wind energy industry is a growing sector that will benefit strategically from this technology as well. The size of installations has been growing steadily, from 11 MW in 2021 to an anticipated 20 MW in 2030. As the energy transition develops, wind farms are increasingly being built in offshore locations, making maintenance of all the necessary equipment a challenge. Automated intelligence is therefore becoming an effective solution to make offshore crane maintenance work more resource efficient.

During a live showcase in autumn 2022, several of the offshore wind industry's leading representatives were introduced to the new system. The demonstration involved controlling an RL 2600 offshore crane located in Rostock, Germany, from a remote-control station in Nenzing, Austria. After the demonstration, attendees had the opportunity to control the crane



themselves from the remote-control station in the office building.

Remote maintenance is an area of great potential for offshore platforms. With the rapid advancement of technology, remote maintenance is expected to become more sophisticated, efficient, and reliable, benefiting not only the businesses but also the environment and human resources.

Remote maintenance with LiMain is currently the only technical solution that allows the crane to be maintained on site only once a year, even over a long period of time. This innovative edge will bring about a new era of convenience, productivity, and safety in the offshore industry. Companies like Liebherr and ONE-Dyas are providing a leading example for this field and what's possible, exploring new technologies and solutions that could transform the offshore industry.

The focus on innovation and infrastructure improvement in remote maintenance aligns with a broader philosophical theme of human progress. It is essential to recognise that remote maintenance technology is not a mere replacement for human labour. Rather, it is a tool that augments and enhances the work of human beings, allowing us to achieve more and do so more efficiently. It represents a collective effort to use technology and human ingenuity to improve the world we live in.

This kind of innovation is essential for advancing our society and addressing the many challenges we face, including climate change and the need for sustainable energy sources. By investing in remote maintenance and other areas of innovation, we can create a better future for ourselves and future generations.

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