

# Managing field life

Offshore wind farm

The renewable energy market is undoubtedly on the rise, particularly in Europe, where wind power is now the second largest source of electricity behind gas-fired power plants. According to a recent report from Wind Europe, the number of onshore and offshore wind turbines added a record 15.6GW of new energy capacity last year and the industry group also reported that 2017 was a record year for investment in future wind farms with agreements to build another 11.5GW of new capacity, worth around £19.8bn.



Mikkel Lund

While the number of renewable energy projects continues to grow, countries early to the renewable revolution such as Germany have older, aging fields that now require integrated inspection and repair programmes to maximise productivity.

There is now a greater need for specialists in this field to provide the skills and experience to not only support installation of high quality wind farms, but also to maintain them throughout the full lifecycle.

### Enhanced lifecycle management

Sparrows Group is a global provider of expert equipment and integrated engineering services to the energy and industrial industries. Last year the company acquired Alpha Offshore Service A/S in a deal that significantly strengthened the group's operations and maintenance capabilities in the wind energy sector.

There was a demand in the renewable

market for a company, which could support wind farm installation, but also maintain integrity to extend the overall field life past what is currently achievable. The combination of Sparrows equipment and integrity management and Alpha Offshore's specialism in inspection personnel for the renewable market allowed the two to fill this gap.

Denmark-based Alpha Offshore has more than a decade of experience in the renewable market. As a focused supplier of engineering personnel and inspection services the company works with wind farm operators and turbine original equipment manufacturers (OEMs) throughout the installation and commissioning, and operations and maintenance stages of developments.

This offering combined with Sparrows experience in lifting and mechanical handling means the group now supplies a



complete support package for installation, maintenance and repair services to both on and offshore wind developments. Mikkel Lund, chief executive officer at Alpha Offshore explains the importance of this service across offshore wind turbines to ensure a safe and reliable project lifecycle.

### Turbine integrity

‘The integrity of wind turbines is often dependent on the quality of installation and this is something most crucial when related to bolting.

‘Bolts, or studs, are used to anchor and assemble the turbine tower and the nacelle housing for the generator components, and if not effectively monitored, can create costly issues for an operator in the long-term. There are a number of elements to consider during bolt installation, from the type of lubricant used as part of the torque mechanism, to the pattern in which the bolt is actually tightened down. While these aspects may seem small on the surface, they can create huge reliability issues in the future and have drastic results for operators if they are not conducted correctly.’

In the worst cases, turbines have completely collapsed due to incorrect handling during installation or they are highly eroded from lack of integrity management. This is not a historic issue with incidents of it happening



Rope access

as recently as 2015.

Turbine blade inspection and repair is one of the most common projects conducted on offshore wind farms as blades often develop structural damage due to lightning, shipping installation damage and erosion caused by the environment.

Turbine structures are much less accessible

when installed offshore, so reliability is even more important when compared to onshore farms. Strong maintenance and repair strategies are vital to ensure integrity and many operators even choose to have permanent service teams on site in offshore accommodation units to guarantee this.

Mr Lund continued: ‘As a specialist in blade inspection and repairs, Alpha Offshore has



Onshore turbine



Rope access

carried out more than 1000 blade repair projects to date. Our experienced personnel are fully trained in rope access and use this method to safely and efficiently reach the blade and inspect for any damage using a variety of techniques including CVI (close visual inspection), tap tests, cameras and PAUT (phased array inspection). Depending on the size of the wind farm, work scopes can range from an individual blade repair to full inspection and upgrade campaigns of multiple turbines.'

'Currently Alpha has over 20 technicians mobilised on our maiden project for Vestas Australia delivering power upgrades on the Capital and Woodlawn wind farms in New South Wales which has come about as a

direct result of the quality of performance with Vestas in Europe and the USA.'

#### Lifecycle management

While wind energy is set to continue development in existing locations such as the US and Europe, there is huge growth expected in regions including Asia Pacific and Australia. Now more than ever, operators need a full 'turn-key' service provider that will not just support the installation of turbines, but manage the full lifetime of new fields to ensure productivity and reliability from start to finish.

Alpha Offshore's breadth of experience has allowed the company to witness existing issues and understand how to effectively

address them. Undoubtedly, the reliability of future wind farms will continue to advance with effective maintenance and integrity strategies playing a huge role in ensuring the lifetime of fields can be extended beyond what is currently possible.

[www.sparrowsgroup.com](http://www.sparrowsgroup.com)

#### Meet Mikkel: Alpha Offshore Service CEO, Alpha Offshore

Born in Struer, Denmark, Mikkel Lund graduated from Copenhagen University College of Engineering with a Bachelor of Technology Management and Marine Engineering in 1994. He started his career as a junior engineer with ferry operator DFDS, where he used to admire the turbines of the Horns Rev wind farm from Esbjerg, Denmark.

He soon progressed to the company's technical department and after seeing the trend in renewable energy, in 2007, Mikkel established Alpha Offshore. The company offered technical services and maintenance to offshore wind turbines and secured its first contract with MHI Vestas Offshore Wind that same year.

By 2013, Alpha Offshore had amassed more than 50 technicians so Mikkel took the decision to step-back from the field and concentrate on managing and developing the company.

Today, the company has grown to be a globally recognised specialist in the wind sector, completing projects across the United States, Canada, UK, Belgium, Norway and Denmark.