

Inside the world of wind turbine blade repair – part 2

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Continuing from Part 1, this second part of the article explores the broader picture of a career in wind turbine blade repair. From job prospects, certification requirements, inspection techniques, and access methods, this part uncovers what it takes to succeed as a blade repair technician including a behind-the-scenes look at Bladefence's operational excellence.

A few words about the WIND project itself. The project has been funded by the European Union's Recovery and Resilience Facility (RRF), which is the key instrument of the EU's Recovery Facility (NextGenerationEU). The financing has been granted by the Service Centre for Continuous Learning and Employment (SECLE). The Service Centre promotes the competence development of working-age people and availability of skilled labour. The operations of the Service Centre are overseen by the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment.



Pic. 1. Wind turbines (photo: Suomen uusiutuvat ry).

Career Prospects and Salary

Blade repair technicians are in high demand, especially in Finland, and the global job market for these professionals is strong. According to one of the employees at Bladefence, there are not so many wind turbines blades repair technicians in Finland with total number found through LinkedIn at one point being less than 10. The instructor made mention that the entry-level technicians can earn up to 25 euros per hour. Because the job often requires long hours, many technicians work only six months per year, earning enough during that period to support themselves for the remaining months.

One of the key certifications required for becoming a wind turbine blade repair technician is the GWO (Global Wind Organisation) Blade Repair certification. GWO is an association of wind turbine manufacturers and owners, committed to ensuring a safe and injury-free work environment within the wind industry. The organization develops industry practices and standards aimed at reducing risks for personnel working on-site and minimizing environmental hazards globally.

Maintenance and Inspection

Wind turbine blades are expensive to maintain, and failure to maintain them properly can lead to costly shutdowns. When a wind turbine component fails, it often results in an unscheduled stoppage, which leads to higher repair costs. To prevent this, wind turbines undergo regular inspections using predictive maintenance

software.

Drones are often used to inspect wind turbines blades and capture images of their current condition. These images help technicians assess the state of the blades and determine if further inspection is necessary.

Another way to inspect wind turbines blades is the use of suspended platforms. These platforms are used most especially when close-up inspection of blades is required. They are usually safer than rope access but takes longer time to set up.

The use of ultrasonic sensors to identify internal defects in wind turbines is another means to carry out blade inspection.

There are two main types of maintenance, one performed after the manufacturing of the blades and before installation, and another carried out during the operational life of the blades.

Access Methods

The instructor also mentioned different access methods used during blade repair work. These include suspended platforms, mobile elevated work platforms (MEWPs), and rope access. These methods allow technicians to safely access the blades during repairs and maintenance.

Suspended platforms make it possible to reach blades even at highest turbines and at the same time provide a supportive working environment for complex structural repairs. Suspended platforms are most suitable in moderate wind speeds and are perfect for projects at the greatest heights where short distance mobility is not the main priority.

MEWPs commonly known as skylifts or cherry pickers, offer a secure work platform for technicians, enabling undertaking intricate, heavy-duty tasks. Just like with suspended platforms, MEWPs can also be safely used in moderate wind conditions. Using them can allow turbines to be shutdown, only for hours as compared to days, thereby minimizing downtime. In contrast to suspended platforms, MEWPs are particularly well-suited for projects requiring high mobility over short distances making them suitable for routine inspections and maintenance of large wind farms.

Lastly, rope access offers a swift and efficient solution for working on blades of all kinds. The use of state-of-the-art and modern gear equipment ensures safe ascents and descents for technicians. This means of access is suitable for visual inspections, LPS (Lightning Protection System) testing and minor repairs requiring rapid deployment.

Importance of Documentation

Documentation is another crucial aspect of the job. The instructor highlighted how Bladefence ensures all maintenance and repair operations are logged, documented, and reported. This approach fosters transparency, accountability, and trust among all parties involved in each project. Bladefence also conducts

regular safety checks and incorporates fail-safes to enhance operational safety.

Conclusion

The training, which started at 9 AM, lasted about six hours and was engaging from the start. The instructor's enthusiasm and knowledge provided valuable insights into the wind turbine blade repair industry.

Bladefence, founded in 2011 in Vantaa, Finland, by Janne Niska, Joni Alasaari, and Ville Karkkolainen, has grown significantly over the years. Originally registered as JN Wind Power Services Oy, the company adopted the Bladefence brand later that year. Bladefence became the first Nordic company to receive the Germanischer Lloyd certificate for blade repairs in 2012. Since then, Bladefence has expanded internationally, opening offices in Canada (2016) and Texas, USA.

Bladefence is certified ISO 45001 for occupational health and safety and ISO 9001 for quality management, ensuring that they maintain high standards in both safety and service quality.

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