



GEV
WIND POWER

Blade Maintenance Services

Powered by
Innovation



Intelligent Maintenance

GEV Wind Power is the trusted partner to the World's leading wind energy companies and recognised as a market leader in blade maintenance services. With a presence throughout Europe and North America, GEV Wind Power is a true global service provider.

GEV Wind Power use patented and award winning technology together with innovative solutions to ensure scheduled and reactive maintenance is completed on time and budget.

The main goal is to quickly return assets to service and maximise energy production.

As a business with a **strong performance legacy** in the challenging oil & gas sector, GEV Wind Power understand that health & safety has to be at the heart of everything it does. Running an internal 1st4safety awareness programme, GEV Wind Power have an **impeccable safety record** that dates back to the business's incorporation in 2008.



Wind turbines are logically located in windy and remote areas that are attractive for energy production, but challenging for maintenance. Unpredictable weather impacts the downtime of turbines and adds further costs to the O&M programme.

GEV Wind Power has invented and developed a patented habitat solution that retrofits to market available access platforms. This creates the perfect protective working environment for blade maintenance and repairs to be completed.

Maintenance productivity is increased and, with the added benefit of 24 hour working, GEV Wind Power are able to eliminate the cost uncertainty of weather downtime.

The **award winning GEV Wind Power Ventura Habitat** represents “game changing” technology and will help wind farm owners reduce maintenance costs, improve AEP and the competitiveness of wind generated energy.

Maximising
Downtime Productivity



Blade Services

GEV Wind Power perform a range of blade maintenance services including:

- QA / QC “factory to site” blade damage validation
- Routine and complex structural blade repairs
- Installation and replacement of retrofits, such as vortex generators and other Aerodynamic Power Curve Upgrades
- Lightning Protection System testing and replacement
- Leading Edge Protection installation
- Cost effective blade inspection solutions using cutting edge panoblade camera systems and UAV’s. GEV Wind Power can inspect up to 5 turbines a day meaning that the assessment of a wind farm can be completed in weeks rather than months
- Close visual inspection by rope access or access platform can be provided where more detailed analysis is required

GEV Wind Power’s four year track record is impressive, with over **160,000** man hours recorded, working on approximately **1,400** turbines. The business has been entrusted to provide blade maintenance services on over **4.0GW** of installed capacity.

Innovative Solutions

Owners and operators are continually looking for more ways to reduce operating costs and drive down the cost of energy. This challenge is at the very core of GEV Wind Power's objectives.

Existing data gathering and reporting systems are cumbersome and time consuming. GEV Wind Power have developed a tablet based, near real-time maintenance system - Intuitive Reporting and Inspection System (I-RIS) with proprietary software. This is utilised by all GEV Wind Power technicians.

I-RIS digitises field processes and activities to improve safety, quality and technician efficiency. It is subsequently instrumental in reducing costs.

Damage and repair imagery, timesheet information and task reporting are all captured at the point of field activity through the I-RIS system. This reduces the time spent on manual back office processes and delaying the information flow to clients.

Faster troubleshooting and immediate communication helps identify root causes quicker and consequently results in the faster return to service for clients. In turn, owners experience more energy production and a reduction of turbine downtime.

Important project information is captured and analysed by GEV Wind Power's in-house technical team. Real-time feedback can then be shared through I-RIS for technicians to take immediate action.

The I-RIS system is a key component of GEV Wind Power's philosophy to continuously improve the Industry's O&M process and **produce more clean energy.**

Reducing
Operating costs



Preventative Maintenance Plan

One of the key elements of the Preventative Maintenance Programme (PMP) is a fixed pricing strategy, where GEV Wind Power can determine a year round service plan for wind farm operators. This provides the ability to accurately budget for maintenance costs and maximises energy production.

The principle is to offer a per turbine price point that covers the following:

- Full site inspection each year to assess damage and determine repair priority
- Agreed schedule of planned maintenance work with the client
- Fixed price budget, including lost time for weather and all ground expenses (off-shore costs subject to mobilisation costs).
- Use of I-RIS reporting system and Ventura Habitat solution where applicable to guarantee high levels of downtime productivity
- Regular progress report to client and analysis of damage type to enable an informed discussion on further preventative measures
- Reactive service to cover urgent repairs

GEV Wind Power benefit from a strong Group track record operating in other sectors to deliver world-class asset integrity and fabric maintenance services.

GEV Wind Power can therefore expertly support wind energy clients' wider requirements including:

- Turbine coating repairs
- Transition piece anti-corrosion solutions
- Offshore substation fabric maintenance
- Turbine and structure cleaning services
- Bolt replacement and safety equipment repair / change out
- Statutory inspection services
- Access solutions
- Coating inspecting accredited to NACE & ICORR standards

Further support is available through the supply of qualified and experienced technicians from the Group's talent pool to support activity from installation and assembly through to servicing. This would typically cover the following tasks:

- Pre-assembly of all components prior to installation
- Tensioning/torqueing
- Installation snagging
- NDT structural checks

Breadth of
Services

Service Excellence

Often a service provider is chosen with little attention to its quality programme, associated management systems and industry validation. The result of this lack of emphasis on end to end quality is poor turbine maintenance, lost component life and reduced energy production.

In contrast GEV Wind Power believe that a commitment to service quality, technical excellence and employee development is fundamental to differentiating ourselves from other service providers.

GEV Wind Power has **committed over £1m per annum** on technician training and over **£1.25m** in the past 4 years on R&D. This allows the business to continually develop cost saving solutions and pass these directly on to the client. GEV Wind Power have invested heavily to create **in house technical expertise** that provides live support to its field technicians.

It is a given that GEV Wind Power's management systems are aligned with those of its clients and audited by the World's leading certification bodies, to international standards.



1st4Safety is the name of GEV Wind Power's ongoing safety programme which has been implemented and embraced by all employees of the business.

The company has an exemplary safety record honed from the Group's extensive experience working in some of the harshest offshore environments in the World.

The processes employed in assessing work risks and hazards is diligent and thorough and compliant with the UK North Sea Oil & Gas industry, which is recognised as the **leading standard in health & safety protocol**.



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