



Guadeloupe is the first place to have the new Typhoon class LTW80 turbines with LS39-H blades up and running

Next-generation blades for LEITWIND's Typhoon turbine

Successfully developing and manufacturing wind turbine blades that can cope with hurricane-strength winds is a unique challenge – here's how Leitwind has tackled it

Leitwind has worked hard in R&D and manufacturing to develop and produce a wind turbine with blades that can withstand the kind of severe wind conditions (winds ranging up to hurricane strength) typical of the Caribbean rainy season. The new LS39-H blade is designed for the specific 'Typhoon' version of the LTW80 wind turbine – the most reliable on the market.

Developed to withstand the demanding characteristics of tropical cyclones such as extreme wind speeds, strong turbulence and rapid changes in wind direction, the new Typhoon LTW80 turbine version will also alleviate the higher likelihood of electricity grid failure and danger of flooding due to heavy rains.

Thanks to the rigorous yet adaptable Leitwind blade manufacturing process, the new LS39-H blade resistance has been almost doubled by modifying production tools. The blade has also unlocked the wind potential of hurricane and typhoon sites, such as islands, and given its customers the possibility of reducing the levelised cost of their energy by installing modern and efficient multi-megawatt wind turbines. With the latest developments, Leitwind has put itself at the forefront of the industry in terms of innovation and reliability.

The LS39-H blade development represents a global project for the Leitwind blade team, in-house design and coordination in Italy, manufacturing in

India and testing in the US.

The first six Typhoon class LTW80 turbines, featuring a 1.65MW output and a hub height of 48m, will be installed on the island group of Guadeloupe in the Caribbean Sea. Once constructed, the blades will be exposed to severe winds, with gusts of up to 70m/s (250km/h or 155mph). The loading capacity and safety of the new blades have been meticulously tested at the Wind Technology Testing Centre in Boston, US, where they passed all static, fatigue and ultimate tests.

Rising to the challenge

The logistics associated with this project are complex and challenging: due to several restrictions on shipping, the components can be supplied only during the night. Furthermore, the main crane used to raise the "star" must be delivered by ship, since the archipelago doesn't have such equipment. Finally, the Covid-19 pandemic presented further issues: the time schedule had to be adjusted, new unforeseen factors had to be considered and mindsets had to become more flexible, all the while ensuring employee safety.

This project has certainly tested Leitwind, but the team identified efficient solutions to guarantee delivery within the time frames as well as efficient long-term performance, meeting Leitwind's quality standards.