

# ACT Blade

A Scottish start-up has developed a wind turbine blade that could boost energy production by nearly 9%.

ACT Blade was set up in 2015 after a feasibility study funded by Innovate UK proved its longer 55m blade was technically viable and could offer significant savings. Early analysis suggests the blade could reduce the levelised cost of energy by nearly 7%, giving it the potential to make a significant impact in renewable energy.

Founder Dr Sabrina Malpede says Innovate UK funding has helped every step of the way, from resourcing the team and enabling staff retention to supporting the IP process and helping unlock further investment.

Currently wind energy provides up to 15% of Europe's electricity demand. To create more power, turbines need longer blades. However, most blades are made of fibreglass, which is too heavy to be lengthened and expensive to produce. The blades also erode over time and have to be replaced.

Sabrina was working in the yachting industry when she began to wonder if the same textile used in modern sails could be used to make wind turbines. The idea was so powerful she entered it into an Innovation Challenge run by the Offshore Renewable Energy Catapult, one of Innovate UK's centres set up to support UK businesses.

The resulting collaboration led to the creation of the ACT Blade, the world's first textile blade that was 24% lighter than a traditional fibreglass blade. If a blade is lighter, it can be made longer. Not only that but when compared to a conventional blade the ACT Blade uses less material and so less waste is produced in production.

As the textile covers the entire surface of the blade, the ACT Blade does not need to be painted. A further benefit is that ACT Blades are component-based and therefore relatively easy to dismantle and separate out for recycling.

Sabrina said: "Innovate UK funding has helped the company massively and on several layers. Deployment of new technologies in the wind industry is too expensive and risky for private investors alone."

A prototype 13m-long blade was successfully tested at the Offshore Renewable Energy Facility in Blyth in March 2020. Three blades will be tested on a working wind turbine at the Energy Technology Centre in East Kilbride and will be producing energy by the end of 2020.

Now a team of eight, ACT Blade is developing a commercial strategy, beginning with 50m replacements for blades on 2MW turbines that will be tested in 2022 on a commercial turbine then commercialised by 2023. The company was also chosen to visit San Francisco at the beginning of 2020 on an Innovate UK-supported Clean+Cool mission.