



ASAPe

ADD-ON SYSTEMS TO BOOST WIND TURBINE PERFORMANCE

ASAPe is a project aiming to perfect real-time monitoring and flow control systems for wind turbine blades, in order to reduce load and thus increase their useful life. It involves actively adapting the aerodynamic properties of the blade using actuators.

Increasing the lifespan of wind turbines is one of the main challenges facing wind farm operators, and requires investigation. One factor which is often linked to the premature ageing of turbines is the accumulated load from strong sheer upstream of the rotor, due to either poor functioning of the turbine or to the atmosphere in which it is operating, or both.

One solution currently being planned would limit the impact which these disruptive factors have on the turbine: retrofitting 'add-on' adjustment systems. These retrospectively adjust the aerodynamic surface of the turbine blade to improve its performance.

The ASAPe project plans to develop a series of original, robust and straightforward add-on systems. These will combine Epenon and/or wireless pressure sensors with pulsed jet actuators which can adapt the turbine blades' aerodynamics and thus reduce the aerodynamic load.

This system will be brought to maturity by testing a bidimensional turbine blade profile in the aerodynamic wind tunnel at LHEEA (intermediate-scale gusts) and in the CSTB's Jules Verne wind tunnel (full-scale Level One fluctuating wind).

Partners

COM_PROJECTS_CATEGORIE_PARTNER_ENTREPRISES

Mer Agitée, La Forêt-Fouesnant

Research centers

LHEEA (Laboratoire de recherche en Hydrodynamique, Énergétique et Environnement Atmosphérique) UMR 6598 (CNRS-Centrale Nantes), Nantes [\[Project Developer\]](#)
CSTB – Soufflerie J. Verne, Nantes

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- WEAMEC

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159 K€