

Aerodynamic Blade Improvements and Boosting by Add-ons

Publieke samenvatting / Public summary

There is a large potential to increase the performance of aerodynamics for specific turbine blades and site-specific wind conditions. The uncertainty of how these actual improvements can be achieved can currently not all be incorporated in design and simulation software. Therefore there is a need for an innovative approach in order to further improve wind turbine blades by the development of specialized (combinations of) add-ons.

Objective

With the execution of this project, the partners expect to bring the add-on concepts to TRL 7 where the innovations are demonstrated on wind turbine blades under relevant conditions. The main purpose of this project is to prove that a combination of add-ons, based on measurement of site-specific conditions and CFD modeling, can significantly contribute to the efficiency of an operational wind turbine. This goal will be reached by conducting measurements, validations, and demonstrations. Newly gained insights will directly be applied to add-ons.

Short Description of Activities

Activities in the project will consist of analyses, measurements, manufacturing, installation, and demonstration by the 3 partners.

- 2-B Energy is involved in analyses such as the power curve and load analyses, and the tuft measurements analysis. 2-B Energy will furthermore perform research on blade design improvements and conduct the demonstration of the add-ons.

Projectinformatie / Project information

Projectnummer / Project number
TEHE116332

Subsidiebedrag / Grant amount
€ 1.253.889,00

Algemene informatie / General information

Penvoerder / Secretariat
2-B Energy Holding

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- FlowChange is involved in research on the proposed add-ons, the analysis on tuft measurements, design and manufacturing of the add-ons, and will perform the demonstration of the add-ons.
- Delft University of Technology will conduct research on the proposed add-ons, analyze the tuft measurements, and assist in the design of the add-ons by the use of CFD modeling and wind tunnel measurements.

Results

After completion of the project, the consortium aims to realize a combination of add-ons that improve the performance of the wind turbine of 2-B Energy. The results of this project contain valuable knowledge for the project partners about the characteristics of wind turbine blades and the assembly of add-ons. The concept will furthermore contribute to the knowledge of the interaction between add-ons and wind turbine blades.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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