

Stiffer, Longer Aerodynamic Blade Enabler

Publieke samenvatting / Public summary

Aanleiding

Modern wind turbine design is a multi-disciplinary exercise and often require compromises between structural and aerodynamic requirements. Flatback airfoil sections offer a good compromise between such requirements due to the high lift coefficient, high lift curve slope, lower sensitivity to erosion while having higher sectional area and moment of inertia. These properties allow for design of lighter blades driving the cost of energy further down. Additionally, they also experience smaller loads under extreme conditions. However, the main challenge in adopting such concepts is in accurate performance prediction during the multi-disciplinary design stage.

Doelstelling

Within this project, a novel double wake methodology is implemented into the state of the art airfoil design and analysis tool RFOIL in collaboration with industrial partners. This will enable wind turbine designers to use innovative concepts like flatback airfoils to design lighter and cheaper wind turbine blades that can withstand larger extreme loads.

Projectinformatie / Project information

Projectnummer / Project number

TKITOE_WOZ_2302_ECN_SLABE

Subsidiebedrag / Grant amount

€ 100.088,00

Algemene informatie / General information

Penvoerder / Secretariat

TNO

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