

DEADALUS – Design and testing of a Tether System for a Megawatt-scale Airborne Wind Energy System

Publieke samenvatting / Public summary

Ampyx Power is to design a high-strength rope or “tether” for its breakthrough 2 MW Airborne Wind Energy System (AWES), a second-generation wind energy technology using a tethered aircraft. In partnership with DSM, a project has started to demonstrate a tether that is sized to generate up to 2 MW, enough to supply around 2000 households with sustainable energy.

Objective

Daedalus aims to de-risk the development of megawatt-scale AWES and allow for a cost-effective design. The project shall deliver and validate by test a tether system that minimizes the contribution of tether maintenance in megawatt-scale AWES. It shall also deliver the innovative tools and test set-up required to design and test optimized AWES tether systems. The tether is a primary factor in operation cost. Rate of wear, tether diameter and sheave diameter are interacting parameters that drive this cost. The high-end Dyneema material may have to be replaced somewhere between once every three months and once every two years. An optimal tether design and tether lifetime tracking solution can maximize the time between maintenance while minimizing mass will require less tether material to be replaced in maintenance. Minimal inertia and drag of the tether system should result in a smaller, cheaper sizing of generator and aircraft. Preliminary sensitivity analysis shows that a factor of 2-4 improvement can be achieved between

Projectinformatie / Project information

Projectnummer / Project number
TEWZ118013

Subsidiebedrag / Grant amount
€ 631.170,00

Algemene informatie / General information

Penvoerder / Secretariat

Ampyx Power B.V.

Contactpersoon / Contact

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Publicaties en materialen / Publications and attachments

- 14.08.2019

Daedalus (presentation at the Matchmaking Day 2019)

Links

- Flying a plane like a kite (Article, 2019)
- Ampyx Power and DSM join forces to develop a tether that is sized to generate up to 2 MW (Press release, 2018)

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a conservative and an optimal but still safe design.

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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