
OverviewGeneral aerodynamicsTypesAdvantagesDisadvantagesResearchApplicationsExternal linksA vertical-axis wind turbine (VAWT) is a type of wind turbine where the main rotor shaft is set transverse to the wind while the main components are located at the base of the turbine. This arrangement allows the generator and gearbox to be located close to the ground, facilitating service and repair. VAWTs do not need to be pointed into the wind, which removes the need for wind-sensing and orientation mechanisms. Major drawb...

Introducing variable design methods on VAWT provides better adaptability to the various oncoming wind conditions. This paper presents state-of-the-art variable methods for performance ...

It is important to achieve the best possible performance from wind turbines to extract maximum amount of energy from the wind flow. This research work aims at designing a small-scale ...

We propose a new approach to realize the optimum control of the pitch angles of the blades on a variable-pitch straight-blade type of vertical-axis wind turbine.

Abstract This study introduces a passive wake control strategy for vertical axis wind turbine (VAWT) arrays using arc-shaped deflectors.

Compared to horizontal turbines, vertical axis wind turbines can achieve higher rotational speeds and maintain stability in stronger winds--up to 60 m/s. With the right materials and control ...

The world"s tallest vertical-axis wind turbine, in Cap-Chat, Quebec. It is 110 m tall and produces 4 MW of power. [1] Vortexis schematic Vertical axis wind turbine offshore A vertical-axis wind turbine (VAWT) ...

Here, we experimentally demonstrate the potential of individual blade pitching as a control strategy and explain the flow physics that yields the performance enhancement.

nt learning method is designed for the turbine to adaptively tu. can converg. quickly, making it capable of

handling complex wind conditions in an urban . studied. Comparisons to two benchmarks have ...

VP control smooths torque profiles, enhancing turbine stability and lifespan. Peak power coef. > 1.07 at Tip speed ratio 6 exceed 200 % than fixed-pitch turbine. AI-driven analysis identifies ...

A three blades vertical axis wind turbine simulation is performed to study the unsteady aerodynamic characteristics with blade pitch control. Several fixed and variable blade pitch models under different ...

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