Wind energy is a clean and renewable energy source. The Darrieus vertical-axis wind turbine has the potential to be an efficient wind turbine with numerous applications. Various optimized designs aimed at enhancing the performance of Darrieus vertical-axis wind turbines are comprehensively reviewed, discussed, and summarized in this paper.

Vertical axis wind turbine (VAWT) is a turbine in which the rotor axis is in the vertical direction. Since the rotor axis is in the vertical direction, these turbines need not be pointed into the wind to be effective make them advantageous for the usage on sites where the wind direction is ???

This paper presents an innovative device called the omni-direction-guide-vane (ODGV) for integration with a vertical axis wind turbine (VAWT) for on-site energy generation. The ODGV is a revolution of the power-augmentation-guide-vane (PAGV) design as fully discussed in the references [5], [7], [8]. It is designed to improve the performance of

VERTICAL AXIS WIND TURBINE

The interest in the vertical axis wind turbines (VAWTs) has been growing due to its aerodynamic advantages in urban regions where wind may be harvested more efficiently compared to the horizontal axis wind turbines (HAWTs) (Paraschivoiu, 2002, Sharpe, 1977, Wang et ???

A single vertical turbine has an efficiency in the range of 35 to 40 percent (though vertical turbine researchers are sure that number will soon reach 50 as well). But, as Tzanakis and Hansen demonstrated in a paper published in Renewable Energy in June 2021, when working together???and arranged properly???vertical-axis turbines have the

Vertical Axis Wind Turbine (VAWT) blades experience stall conditions at lower tip speed ratios during rotation, resulting in inefficient power performance. The power performance can be augmented by improving the blade's aerodynamic efficiency using active or/and passive flow control mechanisms.

VERTICAL AXIS WIND TURBINE

Wind tunnel and numerical study of a straight-bladed Vertical Axis Wind Turbine in three-dimensional analysis (Part II: for predicting flow field and performance) Energy, 104 (2016), pp. 295 - 307, 10.1016/j.energy.2016.03.129

The Vertical axis wind turbine model used in this study is based on the rotor specifications of Li et al. [29] wind tunnel experiments. The straight-bladed H-rotor VAWT consists of two symmetrical NACA 0021 blades with a chord length of ???

The Floating Axis Wind Turbine (FAWT), proposed by Akimono [115], consists of a vertical axis wind turbine with a variable inclination angle [118]. The floater could rotate with the turbine to guarantee stability and buoyancy, and the turbine axis tilts to balance the thrust force. The tilt angle is settled at 30?at nominal power.

VERTICAL AXIS WIND TURBINE

Furthermore, Horizontal Axis Wind Turbine (HAWT) is relatively ineffective in urban situations and face local resistance due to noise, aesthetic, visual and public safety concerns [13]. Alternatively, Vertical Axis Wind Turbine (VAWT) has been predicted as a potential solution for the implementation of WTs in urban and semi-urban areas [14