عنوان مقاله:

Performance analysis of the effect of airfoil shapes on the straightblade vertical axis wind turbines

محل انتشار:

چهارمین کنفرانس بین المللی مهندسی برق، کامپیوتر، مکانیک و هوش مصنوعی (سال: 1402)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Renewable energies are regarded as a key factor in mitigating global climate changein the future. Among various renewable energy sources, wind energy in particularhas achieved maturity in the energy market, and has experienced the greatest growthworldwide over the past few years. Wind energy was the fastest growing energytechnology in the ۹۰s, in terms of percentage of yearly growth of installed capacityper technology source. In this study, the effect of studying different airfoil shapeson the performance of the vertical axis wind turbines has been studied, afternumerical simulation, it was found that by increasing the pitch angle from -۱۰ to+۱۰ degrees for each tip speed ratio, the power factor reaches its maximum value,which is called the optimal pitch angle. The power factor of the turbine decreaseswith the decrease of the pitch angle from ۰ to -۱۰ degrees in different tip speedratios. It is found that the more negative the pitch angle is, the more the turbinepower factor drops in the proportion of high tip speeds.

کلمات کلیدی:

Vertical axis turbine, airfoil shapes, performance