The Effect of Different Airfoils on Wind Turbine Energy Production

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The purpose of this experiment was to determine which airfoil would have the greatest effect in wind energy production. There were four different airfoils tested: NACA0018, NACA23012, SG6043, and NACA8615. It was hypothesized that the airfoil NACA8615 would produce the most energy because of the amount of camber and the thickness ratio. To test this experiment, construct and 3D print three of each blade made from each airfoil. Attach these wings to a pre-made model wind turbine. Set the turbine twenty feet from an propellered airplane and let each set spin for four rounds of 30 seconds each. Use a multimeter to record the highest voltage of each trial. The results show that the hypothesis was supported by the experiment because the airfoil NACA8615 produced the highest average with an average voltage of 6.01. This is followed by NACA23012, NACA0018, and SG6043.

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