EXPERIMENTAL STUDY ELECTRICAL GENERATING SYSTEM AT SMALL SCALE VERTICAL AXIS WIND TURBINE

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Abstract

Experimental studies in electrical generating systems at small scale vertical axis wind turbine (VAWT) have been done. In this research a system convert wind turbine mechanic energy into electrical energy by wind done some six variations to get best performance. The variations consist of variation I using length of the arm 48 cm, without protection blade, gearbox ratio 2:7; variation II using length of the arm 48 cm, without protection blade, gearbox ratio 1:5; variation III using length of the arm 48 cm, with protection blade, gearbox ratio 2:7; variation IV using length of the arm 48 cm, with protection blade, gearbox ratio 1:5; variation V using length of the arm 170 cm, without protection blade, gearbox ratio 2:7 and variation VI using length of the arm 170 cm. Testing is done by replacing the arm, and the cover and the gearbox ratios. Based on the test results from each variation, obtained the best performance of the rpm, voltage, current and power coefficient is best obtained when using a variation IV ie 23:19 rpm, 4.6 volt, 5.61 mA and 0.01 in wind speed 2 m / s

Keywords: wind turbine, performance
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