

EXPERIMENTAL COMPARISON OF VARIOUS PARAMETERS OF THREE BLADED SAVONIUS WIND TURBINE TESTED AT THE END OF WIND TUNNEL AND INSTALLED ON THE TOP OF AUTOMOBILE

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Abstract

Compare to other renewable sources wind energy is the major important source for power production. In present days wind turbine technology is increasing all over the world. In this project three bladed savonius wind turbine is designed, fabricated. The various parameters of wind turbine such as power developed by the wind turbine, power coefficient, tip speed ratio, torque, torque coefficient, power developed by the wind, actual power output from the wind turbine are calculated for different air velocities. Thus a comparison is evaluated from the wind parameters when the wind turbine is tested at the end of wind tunnel and when the turbine is installed on the top of automobile. The results are tabulated in the table. Numerical investigation was also carried for savonius wind turbine to find out aerodynamic characteristics. The aerodynamic characteristics are velocity flow, pressure coefficient, turbulence, velocity magnitude are analyzed by using CFD (computational fluid dynamics GAMBIT and FLUENT software. Then the results are compared for conclusion.

Keywords: Power developed by the wind, Power developed by the turbine, Tip speed ratio, Power coefficient, Torque, Torque coefficient, Actual power output.