

Experimental Investigation Of A Funnel – Based Wind Turbine System

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ABSTRACT

Energy usage in Malaysia has increased gradually over the year. The electric usage grows 82% from the year of 1990 to the year of 2012. There is potential for wind power generation in Malaysia, but the availability of wind in Malaysia varies in location. The idea was to create a wind turbine that is vertical and funnel in shape and it can collect wind from any direction. With the prototype built, an experimental study on the funnel-based wind turbine system was studied by varying various parameters. With the help of few measuring instruments, all the data were collected and compiled. The data is analyzed and calculations were made using Microsoft Excel and MATLAB. The results show that the venturi in the funnel-based wind turbine is capable to increase the wind speed from 69.2% up to a maximum of 208.22%. The wind turbine is also able to generate 5.1 V of electricity at the wind speed of 5.38 m/s. The results prove that the funnel-based wind turbine system is suitable to be used in Malaysia especially in household area.