A Hybrid Wind Generator Design for Low Wind Speed Application

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Abstract

Electricity can be generated from renewable energy sources such as wind, solar, hydro, biomass and much more. Using renewable energy in generating electricity can reduce the carbon dioxide emission. Nowadays, generation electricity technology is growing rapidly. It shows the combination of source energy to form hybrid is more reliable especially in country at equatorial region l ike Malaysia which has two seasonal shifts. Malaysia receives abundant of sunlight in a year but the wind speed in this country is too low which is around 3m/s. A hybrid wind generator converts the wind and solar sources into electricity for domestic usage and capable in supplying AC and DC loads. Many factors that need to consider wisely in designing a hybrid wind system to have better performance. The wind turbine has three blades and employs VAWT that able to detect slow wind speed. The solar radiation c aptured by solar panel, then converted into electrical energy. The wind turbine and solar panel are connected in series. Lead acid battery is used to store excess energy and also as back up during shortage supply. The output system is varying based on the solar radiation and wind speed. The output of this project is depending on the availability of the source. Higher in wind speed and solar radiation gives better output.

Keywords : PV, Hybrid wind generator, AC, DC, VAWT