

***Design of Three Phase Wind Turbine Generator
Based on Single Side***

Ahmad Fahriannur, S.T., M.T (*as Chief Counselor*)

Rozy Wahyudi

*Study Program of Renewable Energy Engineering
Majoring of Engineering*

ABSTRACT

Research ever conducted by Dida et al. (2016) stated that the average wind speed in Indonesia throughout the year is more than 4.16 m/s, especially in the south of the equator. Wind energy can be used to drive a wind turbine connected to a generator. In the wind turbine there is a generator that functions to convert the rotation of the wind turbine shaft into electrical energy. Currently, generators that are commonly used in wind turbines are dominated by radial flux generators with high rotation to produce ideal power. Based on these problems, a generator with low rotation and torque is needed at low wind speeds, such as an axial flux generator that is stable at low rotation and torque. This research will make a one-sided axial flux permanent magnet generator. The electric power generated by the generator in this study can be used to charge a 18650 type battery which has a standard voltage of 3.7 VDC. In the charging process, the battery has an initial voltage of around 2.62 V, then after charging it uses a generator voltage output that has been stepped up using a DC boost converter of 13.1 VDC and charging current in the 30th minute is only 0.00104 A, the battery voltage increases to 3.051 VDC for 30 minutes.

Keywords: *Permanent Magnet Generator, Axial Flux Generator, Wind Turbine, DC Boost Converter*