

ABSTRACT

Energy is a very influential thing on human civilization. The world population in 2050 is estimated to reach 9.7 billion while the world's energy consumption in 2040 will exceed 736 quadrillion British Thermal Units (BTUs). So far, the use of energy is still dominated by fossil energy, while the use of non-fossil energy is still low. The use of fossil fuels results in increasing greenhouse gas emissions and drastic climate change. Because it has a serious impact on the environment, an alternative to this fossil fuel is needed.

Therefore the use of other energy sources that are environmentally friendly needs to be developed such as wind energy. Savonius wind turbines are designed to rotate from all wind directions. This turbine was developed and patented by S.J. Savonius in 1920 which has a maximum efficiency of 31%. In addition, the savonius wind turbine does not require large wind speeds to start rotating, so this wind turbine is very suitable for use in Indonesia, which has lower wind speeds than other countries.

From the tests that the author has done, it can be concluded that the measured wind speed at the test site is 1.5 m/s – 3.6 m/s, for the resulting voltage is 5.27 v - 7.89 v with a current of 0.18 A - 0.38 A, the electric power generated by the generator of 0.94 Watt - 2.99 Watt, and the Generator can charge from 74% to 90% requiring +-24 minutes.

Keywords: Energy, Savonius Wind Turbine, Wind Speed.