

ABSTRACT

The energy crisis and environmental lately become a global issue. Burning oil and coal produces environmental pollution and CO₂ causing global warming. Global warming can be characterized by climate change, drought, flood, etc. Utilization of renewable energy sources into the solution in the future to meet the needs of environmentally friendly energy. One source of renewable energy's potential in our country is a coastal wind energy utilization. Characteristics of coastal winds in Indonesia is fast it is possible to make wind power suitable for this condition.

This study aims to determine the torque, power, and efficiency of multi-blade wind turbine savonius and compared with standard savonius turbines. Both models are the same height, which is 70 cm. Turbine 4 levels by between 0.25 d, length L / 4 and friction angle 45°. Specified d 30 cm, D 52.5 cm, H 70 cm, and overlap portion of the two buckets 7.5 cm. Turbine savonius standard with a pair of buckets with overlap portion of the two buckets 0.25 d, the length L. Tests conducted in Parangrucuk Beach.

From the test results, the turbine is capable of rotating at a low speed, which is the average speed of flow of 3.04 m / s at the Parangrucuk Beach. Turbine torque savonius 4 levels lower than the standard turbine savonius 0.124 Nm and 0.025 for standard turbine turbines 4 levels. Savonius turbine standards has a higher efficiency is 14.3% compared with 4 levels turbine savonius is 2.6%.

keywords : Efficiency, Power, Renewable energy sources, Savonius multi blade, Shore wind energy, standard Savonius, Turbine Efficiency, Torque.