ABSTRACT

Water is a potential energy source as a power plant. Hydroelectric power plant is increasingly strategic as one of the renewable energy sources, considering the potential for energy sources from fossils and coal will decrease. Picohydro power plant is an alternative producer of small-scale electricity that utilizes river water flow as energy to drive turbines, converts potential water energy into mechanical work, rotates turbines and generators to produce small-scale electric power, which is a maximum of 5 kW. In this final project, the manufacture and testing of propeller turbine for picohydro power plant. Propeller turbine testing includes testing the efficiency of the propeller turbine based on the output power by the generator as well as testing the static characteristics. The variables that tested in this project are water discharge, water pressure, voltage and electric current. From the research results obtained static characteristics are the average input water flow rate is 9,24×10^{-5} m^3/s, the average output voltage is 6.77 V, the average output current is 0.042 A. The efficiency of propeller turbine is 0,43%.

Keyword: Picohydro power plant, static characteristics, efficiency.