

A Study on the Effect of Flow Rate on the Power Generated by a Pico Hydro Power Turbine

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ABSTRACT

The experimental investigation was conducted to explore the effect of the flow rate on the power produced by a picohydro power turbine. The pelton turbine is originally an aquarium pump that required 12V and 1.05A of direct current. The pump is functioned as a pelton turbine. The potential energy created by the stream of the water is converted into mechanical rotation of the fans before it generate electricity. The constant magnetic field that is produced by the stator is caused by the impulsion on the electrons in the metal inside of the turbine. A range of velocities were tested on the turbine. The results reveal that the power produced by the turbine is increased as the increment on the velocity of the water. The modified pump can produce 6 watt of power with the velocity of 3 m/s of the water. Thus, the result present in this paper may facilitate the development of the multiple picohydro power turbines which is designed to minimize the abuse of the ecosystem as the development of hydropower generator is usually planted across the habitat of river ecology.

KEYWORDS: Picohydro power; Renewable energy; Pump as turbine

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