RANCANG BANGUN GENERATOR LISTRIK TENAGA PIKOHIDRO DENGAN MENGGUNAKAN ALTERNATOR SEPEDA MOTOR

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ABSTRACT

The potential for new renewable energy is abundant and endless, one of which is water energy. The potential for hydroelectric power in Indonesia reaches around 7,500 MW. In the picohydro generator, water energy is utilized to drive a water turbine and a water turbine is used to drive a generator which functions as a conversion of electrical energy. Generally, generators available on the market are of the high speed induction type which require high rotation, besides that the installation is more complicated and requires a lot of money to manufacture and maintain. Therefore a generator with a low speed is needed, so that it can work optimally at a water speed that is not constant. This research makes a radial flux generator using a motorcycle alternator. The design results produce a generator with a wire size of 0.5 mm with a total of 1650 turns with a speed variant of 100-1500 rpm. Testing the generator at a speed of 1500 rpm with no load produces a voltage of 221.7 VAC. Testing with a light load of 30 watts produces a voltage of 219.3 VAC, a current of 0.187 A and a power of 41.0091 W. Testing a generator with a load of 100 watts produces a voltage of 202.5 VAC, a current of 0.336 A, and a power of 68.04 W.

Keywords: Voltage, Generator, Power