

ABSTRACT

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Optimization of Generator Voltage Settings in MHP with AVR (Automatic Voltage Regulator) System.

1. Indonesia has the potential for large amounts of renewable energy sources such as: bioethanol as a substitute for gasoline, biodiesel as a substitute for solar, geothermal power, micro hydro, solar power, wind power, even garbage / waste that can be used as electricity generation. Minihidro is a small-scale hydroelectric power plant. The purpose of this research is to optimize the potential use of heavy water for PLTM sources and to calculate the power generation of a PLTM from theological calculations. Conducted from September to November 2019 and the types of activities carried out, namely the collection of tools and materials, location surveys and data collection in the Banyorang village and BTHAENG PLTHM 1. Mini Hydro Power Plant in Pattaneteang Village, Tompo Bulu District, Bantaeng Regency, operated since mid 2015 and in terms of power generation it can produce a maximum load usage for 2,276 Mw consumers. Based on the measurement of water discharge in the field, the Batumassong river flow whose water is used as the main source with the results obtained is 4.26 m³ / s. The result of power measurement with theoretical calculations is 53.41 Mw based on the measurement of water discharge and in terms of generating power capacity for each turbine 2.1 Mw (2100 Kw) while the power plant uses two turbines so the total power capacity is 4.2 Mw. When the electrical load changes, causing varying electrical voltage AVR or Automatic Voltage Regulator will work automatically to regulate the voltage to remain stable. To keep the amount of voltage generated by a generator generating electricity remained at a voltage of 220 volts / 380 volts, each power plant or electric generator is equipped with a voltage regulator called the AVR.

Keywords: Renewable energy, Minihidro, AVR.