

**Evaluation Of The Performance Of a Microhydro Installation Without an
Electronic Load Controller (ELC) at The MHP Tanah Merah Probolinggo
Regency**

Ir. Michael Joko Wibowo, M.T (Thesis Supervisor)

Danang Hari Nur Cahyo

Study Program of Renewable Energi Engineering
Department of Engineering

ABSTRACT

The Tanah Merah Micro-hydro Power Plant (MHP) was built in 2021. This power plant is designed to be able to produce 2.88 kW of power to supply electricity needs in one of the residential complexes of Tanah Merah Hamlet. Due to the absence of Automatic Voltage regulator (AVR) and Electronic Load Controller (ELC) as the electrical components of the MHP. This causes deviations in voltage, frequency and power factor from the permissible values, which causes a lot of citizens' electronic equipment to be damaged quickly. The purpose of this study was to evaluate the overall performance of the MHP components. By using direct measurement methods and survey methods aimed at residents. Based on the efficiency of the resulting power, this plant has a power efficiency of 9.23% of the total potential power of the MHP that enters the system of 5.77 kW. The current amount of power that the Tanah Merah MHP can produce is an average of 533 Watts. With power quality, voltage, frequency, and power factor are 141-306 Volts, 0-171 Hz, and 0.64-0.97, respectively.

Keyword: MHP, Performance, Power quality

