

**PICOHYDRO POWER PLANT PLANNING ON THE BANYUBIRU
RIVER'S IRRIGATION IN JATIADI VILLAGE, PROBOLINGGO
REGENCY**

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ABSTRACT

Renewable energy continues to be developed as an effort to replace fossil energy which is getting less availability. The utilization of renewable energy such as utilizing river flows as a Pico-hydro Power Plant (PLTPH) is still minimal to be done. The Banyubiru River in Jatiadi village is one of the places that has the potential for PLTPH and has minimal lighting on the road that was connecting the hamlet. This study aims to determine the potential for generating power in the Banyubiru River flow, determine the most ideal type of turbine, determine the power from road lighting and determine the economic estimation of PLTPH development. The method used is direct measurement and interviews with the community to obtain forecast data that occurs during the dry season and rainy season. The results show that the potential power in the Banyubiru River flow is 2,084 kW which will be sufficient to meet the electricity needs for road lighting. The ideal type of turbine to use is cross flow. The investment for the construction of the Banyubiru River PLTPH is not economically feasible based on the NPV value of -Rp. 96,880,969,00 and the value of $IRR < MARR$. The construction of the Banyubiru River PLTPH should not be carried out, while road lighting should use electricity from PLN.

Keywords : Economic Feasibility, PLTPH, Potency.