Studi Potensi Pembangkit Listrik Tenaga Surya (*Floating*) Terapung Di Bendungan Sampean Baru Kecamatan Tapen Kabupaten Bondowoso (*Study of the Potential of a Floating Solar Power Plant at the Sampean Baru Dam, Tapen District, Bondowoso Regency)*

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ABSTRACT

Solar Power Plants are environmentally friendly power plants, PLTS installations often experience limited land in their development, so a solution is needed, one of which is by using floating reservoirs/dams. One of the dams has not yet been maximized, so it is an opportunity for the Sampean Baru Dam to develop floating PLTS. The PLTMH (Microhydro Power Plant) at the Sampean Baru Dam has a power of 1.8 Mw which supplies the Syukur feeder with a capacity of 3.47 Mw. The location of this research was carried out at Sampean Baru Dam for 2 months by recording parameters of solar irradiation, temperature, wind and water elevation. The highest irradiation measurement results were 6.96 (kWh/m2/day) and the lowest were 1.91 (kWh/m2/day). The dam measurement has a maximum power potential that can be generated of 3.27 Mw using an area of 20,000 m2, but the opportunity to reduce PLN's power load is that the floating PLTS power generated is 1.67 Mw with an area of 10,221 m2 used. The Floating PLTS system was created on the grid by PLN based on Minister of Energy and Mineral Resources Regulation Number 31 of 2009 concerning the purchase price of electricity by PLN and minimizing the amount of capital in its development. The cost required for floating PLTS at the Sampean Baru Dam for 1.67 MW of power is IDR 31,201,990,000 and the capital will be returned in the 16th year. Based on Minister of Energy and Mineral Resources Regulation No. 16 of 2016, the tariff for electricity from the sun is IDR 14.5 – 16.5 Cent USD/kW. The results of calculations using the Profitability Index, Benefit Cost Ratio and Payback Period methods, the value (>l) shows that the floating PLTS at the Sampean Baru Dam is suitable for development, but the Net Present Value calculation value is (<l) so it is not suitable for development.

***Keywords**: Dam, Floating , PI, PLTS*