ABSTRACT

The increasing demand for electricity and the Indonesian government's commitment to reducing carbon emissions have created an urgent need for renewable energy development, including Micro-hydro Power Plants (MHP). PT. Brantas Total Energi, a subsidiary of PT. Brantas Energi, plans to develop the Batanghari MHP project in West Sumatra. This study aims to evaluate the investment feasibility of this project from both financial and risk perspectives and to provide recommendations for the project's continuation.

The research method involves financial analysis using four key indicators: Internal Rate of Return (IRR), Net Present Value (NPV), Discounted Payback Period (DPP), and Profitability Index (PI). Additionally, a sensitivity analysis is conducted to assess the investment risks associated with changes in key variables, such as electricity selling tariffs, investment costs, and power production levels.

The findings reveal that the Batanghari MHP project has an IRR of 12.25%, a positive NPV of IDR 31.257 billion, a DPP of 15 years, and a PI of 1.18, indicating the financial feasibility of the project. However, the sensitivity analysis shows that the project is quite sensitive to fluctuations in tariffs and investment costs. In the worst-case scenario, where electricity tariffs decrease and investment costs increase, the project may become unfeasible. Therefore, it is recommended that PT. Brantas Energi and PT. Brantas Total Energi conduct regular risk monitoring and consider mitigation strategies, such as renegotiating tariffs or controlling investment costs, to ensure the project's sustainability and profitability.

***Keywords**: Micro-hydro Power Plant, IRR, NPV, Discounted Payback Period, Profitability Index, sensitivity analysis*