

ABSTRACT

Indonesia's national energy policy prioritizes renewable resources to increase the electrification rate and reduce carbon emissions. In Banten Province, Lebak Regency faces a significant electricity deficit, creating an urgent need for new, sustainable power sources. This thesis conducts a comprehensive feasibility study for the development of the Cikamunding Mini Hydroelectric Power Plant (MHPP), a proposed 6.17 MW run-of-river project by PT. XYZ. The study evaluates the project's viability through an in-depth analysis of its market, technical, and financial aspects. The market analysis confirms a secure demand, guaranteed by a Power Purchase Agreement with PT PLN. The technical analysis validates the site's suitability and the robustness of the engineering design, which is projected to generate 35.17 GW annually. The financial evaluation demonstrates the project's strong profitability, yielding a positive Net Present Value (NPV) of Rp 15.96 billion, an Internal Rate of Return (IRR) of 14.68%—well above the cost of capital—and a favorable Payback Period of 7.78 years. The study concludes that the Cikamunding MHPP is a highly feasible and financially attractive investment, aligning with strategic energy goals.

Key words: Feasibility analysis, NPV, PBP, IRR.