



INTISARI

Pembangkit Listrik Tenaga Minihidro (PLTM) terletak di Kabupaten Buleleng, Provinsi Bali. Lokasi tersebut mempunyai potensi untuk dikembangkan sebagai PLTM. Dalam rangka mendukung pengembangan ekonomi nasional, Kabupaten Buleleng dan sekitarnya diharapkan dapat mempercepat pengembangan ekonomi daerah dengan cara memanfaatkan potensi energi listrik tenaga air. Penelitian ini bertujuan untuk mengetahui kelayakan finansial berdasarkan perangkat lunak *Ms.Excel* dan *RETscreen*.

Analisis dilakukan dengan menghitung biaya investasi, biaya produksi, manfaat dari penjualan listrik, bunga pinjaman, pajak pendapatan, dan depresiasi berdasarkan data yang diperoleh. Biaya investasi diperoleh berdasarkan Rancangan Anggaran Biaya (RAB) data sekunder serta perhitungan berdasarkan persamaan empiris *RETscreen*. Data kemudian dibuat dalam arus kas yang dianalisis dengan metode evaluasi investasi nilai netto sekarang (*NPV*), rasio biaya manfaat (*BCR*), tingkat pengembalian internal (*IRR*), dan tingkat pengembalian internal modifikasi (*MIRR*). Dilakukan tiga alternatif evaluasi investasi yaitu menggunakan perangkat lunak *Ms. Excel* dan *RETscreen* berdasarkan biaya investasi pada RAB, serta menggunakan perangkat lunak *RETscreen* berdasarkan biaya investasi pada persamaan empiris.

Berdasarkan tiga alternatif pengerjaan, pembangunan PLTM dinyatakan layak dibangun secara finansial dengan hasil *NPV* terbesar adalah Rp278.926.874.602,00; *BCR* terbesar adalah 4,6; *IRR* dengan rentang 27,79% hingga 29,6%; dan *MIRR* dengan rentang 15,52% hingga 15,7%. Selisih hasil yang diberikan dari tiga alternatif relatif kecil, yakni biaya investasi dengan selisih 3% serta hasil evaluasi investasi dengan selisih kurang dari 2%.

Kata Kunci: Pembangkit Listrik Tenaga Minihidro, kelayakan finansial, evaluasi investasi, *Ms. Excel*, *RETscreen*.



ABSTRACT

Mini Hydro Power Plant is located in Buleleng Regency, Bali Province. The location has the potential to be developed as a Mini Hydro Power Plant. In order to support national economic development, Buleleng Regency and surrounding areas are expected to accelerate regional economic development by utilizing the potential of hydroelectric energy. The study aims to find out financial viability based on Ms. Excel and RETscreen software.

The analysis was conducted by calculating investment costs, production costs, benefits from electricity sales, loan interest, income taxes, and depreciation based on the data obtained. Investment costs are obtained based on the Draft Budget from secondary data as well as calculations based on the RETscreen empirical formula. The data is then created in a cash flow which is analyzed by the method of investment evaluation of Net Present Value (NPV), Benefit Cost Ratio (BCR), Internal Rate Return (IRR), and Modified Internal Rate Return (MIRR). Three alternative investment evaluations are carried out using Ms. Excel and RETscreen software based on investment costs from draft budget, as well as using RETscreen software based on investment costs from empirical equations.

Based on three alternatives, the construction of the power plant was declared financially feasible with the largest NPV result is Rp278,926,872,602.00; The largest BCR result is 4.6; IRR with a range of 27.79% to 29.6%; and MIRR with a range of 15.52% to 15.7%. The difference in results provided by the three alternatives is relatively small, which are investment costs with a 3% difference and investment evaluation result with less than 2% difference.

Keyword: *Mini Hydro Power Plant, financial viability, investment evaluation, Ms. Excel, RETscreen.*