

ABSTRAK

PT PLN (Persero) Pusharlis Bandung merupakan unit kerja strategis yang bertanggung jawab terhadap riset dan pengembangan sistem kelistrikan nasional. Permasalahan saat ini menggunakan jasa subkontraktor dalam proses pemotongan plat logam untuk pembuatan panel listrik. Praktik ini menimbulkan ketergantungan pada pihak ketiga dalam proses produksi. Penelitian ini dilakukan untuk menganalisis kelayakan investasi mesin CNC *Laser Cutting* sebagai alternatif internalisasi proses pemotongan material, membandingkan efisiensi biaya antara penggunaan jasa subkontraktor dan penggunaan mesin CNC secara internal serta memberikan rekomendasi strategis berdasarkan hasil evaluasi keuangan dan operasional. Penelitian ini menggunakan pendekatan deskriptif kuantitatif dengan studi kasus di lingkungan PT PLN (Persero) Pusharlis Bandung. Data diperoleh melalui wawancara, observasi, dokumentasi historis biaya, serta proyeksi volume produksi perusahaan. Pemilihan metode NPV, IRR, dan *Payback Period* dilakukan karena ketiganya dapat menggambarkan kelayakan investasi secara komprehensif berdasarkan pertimbangan nilai waktu uang, risiko, dan waktu pengembalian investasi. Hasil penelitian menunjukkan bahwa pengadaan mesin CNC *Laser Cutting* dinilai layak secara finansial, menunjukkan bahwa meskipun biaya investasi mesin CNC sebesar Rp 6.493.687.000 lebih tinggi dari total biaya subkon selama lima tahun (Rp 2.260.144.268), investasi ini dinilai layak secara finansial dengan NPV sebesar Rp 3.798.213.604, IRR sebesar 30,08%, dan *Payback Period* selama 3,1 tahun. Selain layak secara ekonomi, investasi ini juga memberikan efisiensi biaya produksi dan mendukung kemandirian proses secara internal.

Kata Kunci: CNC *Laser Cutting*, kelayakan investasi, efisiensi biaya, NPV, IRR, *Payback Period*, internalisasi

ABSTRACT

PT PLN (Persero) Pusharlis Bandung is a strategic work unit responsible for research and development of the national electricity system. The current problem is the continued use of subcontractor services in the metal plate cutting process for the manufacture of electrical panels. This practice creates dependence on third parties in the production process. This study was conducted to analyze the feasibility of investing in a CNC Laser Cutting machine as an alternative to internalizing the material cutting process, comparing the cost efficiency between using subcontractor services and using a CNC machine internally and providing strategic recommendations based on the results of financial and operational evaluations. This study uses a quantitative descriptive approach with a case study within PT PLN (Persero) Pusharlis Bandung. Data were obtained through interviews, observations, historical cost documentation, and projections of the company's production volume. The selection of the NPV, IRR, and Payback Period methods was carried out because all three can describe the feasibility of an investment comprehensively based on considerations of the time value of money, risk, and investment payback period. The results of the study indicate that the procurement of a CNC Laser Cutting machine is financially feasible, indicating that although the investment cost of the CNC machine is Rp 6,493,687,000 higher than the total subcontracting cost for five years (Rp 2,260,144,268), this investment is financially feasible with an NPV of Rp 3,798,213,604, an IRR of 30.08%, and a Payback Period of 3.1 years. In addition to being economically feasible, this investment also provides production cost efficiency and supports the independence of internal processes.

Keywords: CNC Laser Cutting, investment feasibility, cost efficiency, NPV, IRR, Payback Period, internalization