



2nd Online Conference on Multidisciplinary Academic Research
(OCMAR-2020), Australia

ISBN (eBook): 978-0-6482404-6-4

Asia Pacific Institute of Advanced Research (APIAR)

www.apiar.org.au

FINANCIAL FEASIBILITY STUDY ON HYDRO POWER PLANT ON WEST SUMATRA

Sidhi Razinda Kautsar & Sylviana Maya Damayanti
Institut Teknologi Bandung, Bandung, Indonesia.
Corresponding Email: sidhi.razinda@sbm-itb.ac.id

Abstract

As a part of nation worldwide, Indonesia set the target for the renewable energy source. The renewable energy should be 23% of the energy mix generation that mentioned in the RUPTL 2019 -2028. PT. XYZ as the company which have the responsibility regarding the electricity in Indonesia should work hard to find and invest in renewable energy source. In West Sumatra, there is one river that can be potential to create the hydro power plant that expected to generate as much as 296.104.624 kWh. The construction of the hydro power plant itself will be started from the scratch that obviously will cost much money. The company should consider if it is wise to invest in constructing the hydro power plant or not. This research aims to analyze the financial feasibility study of the hydro power plant in West Sumatra, the financial performance of the project, and find which variable that affect the project greatly. This research performs general environment analysis using PESTEL analysis to identify whether the environment support the project execution or not. The financial feasibility analysis performs using the discounted cashflow method and evaluated using Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP). To identify which variable that affected the financial feasibility of the project, the author use sensitivity analysis and scenario analysis. Furthermore, Monte Carlo simulation also performed in this research to give an information regarding the probability impact of the uncertainty from the selected variable. The calculation result shown that the project is financially feasible with NPV of Rp. 2,280,740,802,634, IRR of 15,57% which is higher than the weighted average cost of capital (WACC), and the payback period for 8,69 years. The financial performance also shown a favourable result with the project's profitability index of 4,05. Long-term debt interest rate, capacity factor, price growth rate, CAPEX need, and terminal growth rate are the highest five variable that affect the feasibility of the project. According the Monte Carlo simulation result using 1000 iterations, the project has probability of 29,11% in making the project not feasible.

Keywords: Feasibility Study, PESTEL Analysis, Renewable Energy, Monte Carlo Simulation, Discounted Cashflow.
