

## ABSTRACT

*PT X is a state-owned (State-Owned Enterprise) company that manages and operates oil, gas, new and renewable energy business in Indonesia. PT X logistics activities are carried out by ship for oil and gas distribution processes both in close and long distance. The case studied in this final project is the case that happened at PT X Port in Manggis area of Bali Province. This port is the port of distribution of oil and gas distribution process. According to Data Integrated Port Time in 2016 the use of ships is still less efficient because the time the ship was in the harbor longer than the time of sailing with a ratio of 64% to 36%. One of the causes of the length of ships in the port is the lack of oil docks that in this final project will be called a jetty.*

*This study discusses the feasibility analysis of the alternative selection of additional jetty capacity at the Port of Manggis of Bali Province by considering the value of NPV, IRR, and BCR of alternative scenarios of adding jetty capacity. In addition Incremental Cost is used from the addition of jetty. The cost component of this analysis is the operational cost of the ship, the rental cost of the vessel, the investment cost of jetty and the operational cost of the jetty. The operational costs of the vessel and the cost of the rental vessel are derived from the average multiplication of ship system time with the Charter rate. The average ship system time is obtained from the model simulation using promodel software, while the data charter rate, investment cost and jetty operations are obtained from PT X data.*

*The results of this study indicate that the three scenarios in terms of business is not feasible because the value of NPV  $< 0$  and IRR value does not exceed the MARR set PT X. In terms of the benefits of scenario 1 was chosen because the value of BCR  $> 1$ . The benefits are saving ship system time, operational cost savings owned vessels and cost savings on vessel rental.*

*Key words : Time of ship system, Promodel, NPV, IRR, BCR, Incremental Cost*