CONCEPTUAL DESIGN AND OPERATION OF CNG (COMPRESSED NATURAL GAS) CARRIER VESSEL TO SUPPORT OPERATION OF GAS POWER PLANTS IN BAWEAN

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ABSTRACT

PT PLN (persero) has delegated PT PJB to plan three gas power plants in Bawean which each has 1 mega watt capacity. Considering the needs of power plants development, CNG (Compressed Natural Gas) carrier vessel has important role to supply gas. The purpose of this final project is to investigate the appropriate type of gas vessel to supply gas for power plants. Type of ships compared are barge (tow-barge), SPCB (Self Propelled Container Barge), SPCB-Geared (Self-Loading-Unloading Self Propelled Container Barge) and LCT (Landing Craft Tank). The method used is Integer Linear Programming (ILP) in order to select solution by the lowest cost. The optimization result showed that SPCB-Geared 28 TEUs capacity which is operated on 8 knot cost has the lowest cost i.e. Rp 5,758,403 per TEUs. The second optimization is that determining optimum design based on preliminary design criteria. The result of optimum design has the optimal size, where the length (Lpp) = 44.47 m, width (B) = 8.5 m, height (H) = 4.26 m, Draught (T) = 2.8 m.

Keyword : CNG, ILP, Optimization, Preliminary Design