A STUDY ON DESIGNING GAS HANDLING SYSTEM AND TRANSPORTATION SYSTEM: GAS DEMAND IN BALI

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Abstract

In Bali island there were 1,765,372 of motor vehicle with region area about 5,636,660 km². That makes emission in Bali island is so high thus the use of gas fuel in the future must be more effective. It’s estimated at the year 2012, gas demands for Java-Bali is about 32,8 MMSCFD this makes Bali island needs supply LNG to fulfill those demand. Cluster LNG as the new technology of LNG containment is suitable for being implemented in Bali island for it’s effectiveness. The concept of Cluster LNG will be effective for use at close distance because the natural gas supply for Bali came from Pagerungan. The government will soon build 5 Fuel Gas Filling Station (SPBG) in Bali island. In this study not only discusses the design of gas handling system at the LNG receiving terminal and at the SPBG but also solving the transportation problem for the distribution system in Bali. Gas Handling System in the LNG receiving terminal and the SPBG using the concept of Cluster LNG. Transportation patterns are designed based on the Vehicle Routing Problem (VRP) methods with the objective the problem is to find optimal routes to minimize the cost of the route. Optimal route can be either single route or multiple route. Constraints in determining the optimal route is the capacity of LNG trucks and delivery time limit. Total cost of investment needed to design a gas handling system at LNG receiving and at SPBG with the route cost required for
distribution of LNG from the LNG terminal to SPBG is U.S. $ 29,001,485. The results that obtained from transportation patterns to distribute LNG from LNG receiving terminal to SPBG are 6 trucks.

Keyword: Cluster LNG, vehicle routing problem, single route, multiple route.