

# Tekno-Ekonomi Analisis Pemakaian Produk Gas Di Floating, Production, Storage, Offloading Dalam Bentuk Compressed Natural Gas = Techno-Economic Analysis Utilization Gas Production in Floating, Production, Storage, Offloading as Compressed Natural Gas

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## Abstrak

PT. XYZ melakukan kegiatan eksplorasi dan produksi minyak dan gas di lepas pantai menggunakan FPSO dengan produksi utama berupa minyak mentah, gas yang dihasilkan diinjeksikan kembali kedalam sumur. Adanya fasilitas kompresor yang dapat menaikkan tekanan gas sampai 210 bar, kelebihan gas dapat disimpan di storage sebagai CNG. Penyimpanan gas CNG 10 MMscf, CDTS membutuhkan tangki sebanyak satu unit dengan dimensi 10 m x 10 m. CNG tube skid membutuhkan total skid sebanyak 51 units dengan total dimensi 12,19 m x 41,45 m. Biaya capex CDTS lebih murah \$ 700.000 dari CNG tube skid dan biaya opex CDTS \$ 62.102 lebih murah dibandingkan CNG tube skid. Ketersediaan lahan di FPSO yang dapat ditempati CNG storage sebesar 20 m<sup>2</sup>. IRR 11% didapat tarif gas dasar 1,51 USD/MMBtu untuk penjualan 10 MMScfd dan NPV \$12.638.398,34 dengan PBP di tahun ke 7. Hasil analisa sensitivitas menunjukkan dengan menaikkan tarif gas sebesar 100% yaitu 3,011 USD/MMBtu, saat terjadi penurunan laju produksi sebesar 50% maka NPV dan IRR masih dapat diterima. Harga gas ini layak digunakan untuk penjualan gas di atas FPSO karena tidak melebihi penetapan harga gas di pembangkit sebesar 6 USD/MMBtu.

.....PT. XYZ engages in offshore oil and gas exploration and production using an FPSO. The primary production focus is crude oil, and any produced gas is reinjected into the well. A compressor facility with the capacity to increase gas pressure up to 210 bar enables the storage of excess gas as Compressed Natural Gas (CNG). For a CNG gas storage volume of 10 MMscf, CDTS requires a single tank with dimensions of 10 m x 10 m. CNG tube skids necessitates a total of 51 skid units with a combined dimension of 12.19 m x 41.45 m. CDTS exhibits capex costs that are \$700,000 lower than CNG tube skids, and its opex costs are \$62,102 lower as well. The available land on the FPSO for CNG storage is 20 m<sup>2</sup>. An IRR of 11% yields a base gas rate of 1.51 USD/MMBtu for sales of 10 MMScfd, resulting in an NPV of \$12,638,398.34 with a payback period in the 7th year. The sensitivity analysis demonstrates that even with a 50% decrease in production rate, increasing the gas tariff by 100% to 3.011 USD/MMBtu maintains acceptable NPV and IRR values. This gas price is suitable for selling gas above the FPSO as it does not exceed the fixed gas price at the power plant, which is 6 USD/MMBtu.