ABSTRAK

PRARANCANGAN PABRIK PROPILEN DARI *LIQUEFIED NATURAL GAS* (LNG) KAPASITAS 200.000 TON/TAHUN
(Perancangan *Distillation Column De-ethanizer* (DC-302))

Oleh

NOVIA NURWANA

Propilen merupakan salah satu produk industry kimia yang biasa digunakan sebagai bahan baku polipropilen. Propilen dapat diproduksi melalui beberapa proses diantaranya dehidrogenasi propana dan *methanol to Propylene.* Prarancang pabrik propilen ini dipilih proses *methanol to propylene*, dengan methanol sebagai bahan baku diproduksi sendiri dari *liquefied natural gas* (LNG). Proses ini dipilih karena lebih menguntungkan dari sisi termodinamika dan ekonomi dibadingkan dengan proses lainnya.

Pabrik Propilen akan didirikan di Anggana, Kutai Kertanegara, Kalimantan Timur.Pabrik direncanakan memproduksi propilen sebanyak 200.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah LNG sebanyak 101.905,009 kg/jam. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 273 orang.

Berdasarkan analisis ekonomi diperoleh:

Fixed Capital Investment	(FCI)	=	Rp 6.850.262.495.013,050
Working Capital Investment	(WCI)	=	Rp 1.208.869.852.061,130
Total Capital Investment	(TCI)	=	Rp 8.059.132.347.074,170
Break Even Point	(BEP)	=	30 %
Shut Down Point	(SDP)	=	5 %
Pay Out Time after taxes	$(POT)_a$	=	2,9485 tahun
Return on Investment after taxes	$(ROI)_a$	=	21 %
Discounted cash flow	(DCF)	=	26,4 %

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik propilen ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.

ABSTRACT

PRE-DESIGN OF PROPYLENE PLANT FROM LIQUEFIED NATURAL GAS (LNG) WITH CAPACITY 200.000 TON/YEAR
(Design of Distillation Column De-ethanizer (DC-302))

By

NOVIA NURWANA

Propylene is one of the chemical industry products that is commonly used as a raw material for polypropylene. Propylene can be produced through several processes including the dehydrogenation of propane and methanol to propylene. The pre-design of this propylene plant was chosen by the methanol to propylene process, with methanol as the raw material produced by itself from liquefied natural gas (LNG). This process was chosen because it is more advantageous in terms of thermodynamics and economy compared to other processes.

The propylene plant will be established in Anggana, Kutai Kertanegara, East Kalimantan. The plant is planned to produce 200,000 tons/year of propylene, with an operating time of 24 hours/day, 330 days/year. The raw material used is LNG as much as 101,905,009 kg/hour. The form of the company is a Limited Liability Company (Ltd) using a line and staff organizational structure with a total of 273 employees.

Based on the economic analysis obtained:

Fixed Capital Investment	(FCI)	=	Rp 6.850.262.495.013,050
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Considering the explanation above, it is appropriate to learn the establishment of this propylene plant to further, because it is a profitble factory and has a good future