

ABSTRAK

PRARANCANGAN PABRIK BIOETANOL DARI MOLASE DENGAN KAPASITAS 22.000 TON/TAHUN (Perancangan Menara Distilasi (MD-302))

Oleh

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Pabrik bioetanol dari molase, akan didirikan di Kabupaten Bunga Mayang, Lampung Barat. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik ini direncanakan memproduksi bioetanol sebanyak 22.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah molase sebanyak 10.280,3533 kg/jam.

Penyediaan kebutuhan utilitas pabrik bioetanol terdiri dari unit penyedia dan pengolahan air, unit penyedia *steam*, unit pembangkit listrik, unit penyediaan bahan bakar, unit penyediaan udara *instrument* dan unit pengolahan limbah. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 174 orang.

Dari analisis ekonomi diperoleh :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 778.984.954,495
<i>Working Capital Investment</i>	(WCI)	= Rp 138.623.366.784,98
<i>Total Capital Investment</i>	(TCI)	= Rp 924.155.778.566,51
<i>Break Even Point</i>	(BEP)	= 40,9 %
<i>Shut Down Point</i>	(SDP)	= 22,46 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 4,05 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 3,08 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 19,13 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 26,97 %
<i>Discounted cash flow</i>	(DCF)	= 29,93 %

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

ABSTRACT

PREDESIGN OF BIOETHANOL PLANT FROM MOLASSES WITH CAPACITY 22.000 TONS/YEAR (Design of Distillation Column (MD-302))

By

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A bioethanol plant from molasses will be built in Kecamatan Bunga Mayang, Lampung Barat. This plant will be established by considering the availability of raw materials, adequate transportation facilities, easily available labor and environmental conditions.

The plant is planned to produce 22,000 tons/year of bioethanol, with an operating time of 24 hours/day, 330 days/year. The raw material used is molasses as much as 10,280.3533 kg/hour.

Supplying the utility needs of the bioethanol plant consists of water supply and treatment units, steam supply units, power generation units, fuel supply units, instrument air supply unit and waste treatment unit. The form of the company is a Limited Liability Company (PT) using a line and staff organizational structure with a total of 174 employees.

From the economic analysis is obtained:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 789.434.782.660
<i>Working Capital Investment</i>	(WCI)	= Rp 139.312.020.469
<i>Total Capital Investment</i>	(TCI)	= Rp 928.746.803.128
<i>Break Even Point</i>	(BEP)	= 41,47 %
<i>Shut Down Point</i>	(SDP)	= 28 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,16 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,39 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 30,95 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 27,08 %
<i>Discounted cash flow</i>	(DCF)	= 29,93 %

Considering the explanation above, it is appropriate that the establishment of this Bioethanol factory be studied further, because it is a profitable factory and has a better future.