

# Peningkatan margin kilang melalui efisiensi energi dan optimasi produk berharga dengan implementasi teknologi advanced process control (APC) (studi kasus kilang Balongan) = Improved refinery margin through energy efficiency and optimization valuable products with implementation apc technology advanced process control (case study Balongan refinery)

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## Abstrak

[<b>ABSTRAK</b><br>

Tantangan terbesar bagi Pertamina dalam memutakhirkan bisnisnya dan masuk dalam era globalisasi adalah meningkatkan margin kilang. Salah satu upaya untuk meningkatkan margin kilang adalah mengoperasikan kilang dengan business philosophy yaitu operations excellence "handal, efisien dan optimal". Advanced Process Control (APC) adalah teknologi yang dapat meningkatkan margin kilang melalui efisiensi energi dan optimasi produk lebih berharga dengan cara stabilisasi kontrol proses kemudian menggeser target operasi (set point) mendekati titik operasi optimal. Metode statistika adalah salah satu metode yang dapat digunakan untuk memperkirakan benefit implementasi APC. Dalam penelitian ini, metode statistika digunakan untuk menganalisis dan mengidentifikasi historical data dari beberapa process variable selama setahun untuk membangun suatu model implementasi teknologi APC pada kilang minyak (refinery) khususnya Crude Distillation Unit (CDU). Model yang berhasil dibangun adalah model deterministik berdasarkan analisis probabilistik dan teori yang mendasarinya yang kemudian dikembangkan menjadi model stokastik untuk analisis resiko dan ketidak pastian menggunakan simulasi monte carlo. Penelitian ini berhasil membuktikan bahwa implementasi teknologi APC layak dilakukan dan dapat meningkatkan margin kilang Pertamina RU VI Balongan.

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<b>ABSTRACT</b><br>

The biggest challenge for Pertamina in updating its business and entered the globalization era is increasing refinery margin. One effort to increase the refinery margin is operating with a business philosophy so called operations excellence "reliable, efficient and optimal". Advanced Process Control (APC) is a kind of technology that can improve refinery margins through the energy efficiency and valuable product optimization by way of process control stabilization then shifts operation target (set point) approaching the optimal operating point. Statistical method is one method that can be applied to estimate the benefits of APC implementation. In this research, statistical methods used to analyze and identify the historical data from several process variables during one year to build a

model of APC technology utilization at refineries in particular Crude Distillation Unit (CDU). The model that has been successfully built is a deterministic model based on probabilistic analysis and underlying theories which later developed into a stochastic model for risk analysis and uncertainty using Monte Carlo simulation. This research has successfully proving that implementation of APC technology feasible to conducted and can improve refinery margin of Pertamina RU VI Balongan., The biggest challenge for Pertamina in updating its business and entered the globalization era is increasing refinery margin. One effort to increase the refinery margin is operating with a business philosophy so called operations excellence "reliable, efficient and optimal". Advanced Process Control (APC) is a kind of technology that can improve refinery margins through the energy efficiency and valuable product optimization by way of process control stabilization then shifts operation target (set point) approaching the optimal operating point. Statistical method is one method that can be applied to estimate the benefits of APC implementation. In this research, statistical methods used to analyze and identify the historical data from several process variables during one year to build a model of APC technology utilization at refineries in particular Crude Distillation Unit (CDU). The model that has been successfully built is a deterministic model based on probabilistic analysis and underlying theories which later developed into a stochastic model for risk analysis and uncertainty using Monte Carlo simulation. This research has successfully proving that implementation of APC technology feasible to conducted and can improve refinery margin of Pertamina RU VI Balongan.]