

# **ELECTRICAL ENERGY EFFICIENCY ANALYSIS AT PT. CISADANE RAYA CHEMICALS, TANGERANG**

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## **ABSTRACT**

This study aims to evaluate the efficiency of electrical energy usage at PT. Cisadane Raya Chemicals, Tangerang, employs a quantitative approach based on monthly energy consumption and production output data collected over 12 months. The research employs Pearson correlation analysis to determine the relationship between energy consumption and production output, in addition to calculating the Energy Consumption Intensity (ECI) and estimating potential energy savings based on the optimal ECI value. The findings reveal a weak negative correlation of -0.21 between energy consumption and production output, indicating that increased energy use does not necessarily align with production growth. The highest ECI was recorded in March at 646.17 kWh/ton, highlighting significant inefficiencies. Based on this benchmark, the study estimates that energy savings of up to 19.09% of the total annual consumption could be achieved. A fishbone diagram analysis further identifies the root causes of inefficiency, attributing them to human factors, machinery performance, operational methods, and material handling practices.

**Keywords:** Energy Efficiency, Energy Consumption Intensity (ECI), Pearson Correlation, Energy Savings, Fishbone Diagram