

CORRELATION ANALYSIS BETWEEN ENERGY EFFICIENCY AND ENERGY MANAGEMENT AT A CEMENT PLANT USING CORRELATIONAL ANALYSIS

OLUWAFEMI E. IGE & FREDDIE L. INAMBAO

Department of Mechanical Engineering, University of KwaZulu-Natal, Durban, South Africa

ABSTRACT

Since the end of the 9th century, energy efficiency has become an important research topic. Indeed, energy efficiency measures have been identified as among the most valuable means to reduce the harmful impact of climate change. However, in South Africa, the adoption of energy efficiency measures is due to the urgent need to reduce the detrimental effects of climate change and critical energy scarcity. Therefore, this study looks at the relationship between the current practices of energy management, the implementation of energy efficiency measures and the acceptance of energy-efficient measures within cement plants using correlational analysis to increase the performance of energy at South African cement plants. In addition, this study used inferential statistical analysis to establish respondents' perceptions based on their job descriptions.

This study employed a quantitative-type methodology with 55 questionnaires designed and administered to the production and engineering departments. In an attempt to represent the cultural character of the target respondents, 15 questionnaires were delivered through email address, and 40 questionnaires were distributed to the plant's workers with a request to partake in the survey. The inferential analysis shows a difference in the job title of the respondents and the energy manager awareness within the plant with a significance value of $p = 0.036$. While the inferential result from the energy manager awareness and energy efficiency policy, the chi-square p-values showed no critical relationship between respondents' views with a value of 0.263.

KEYWORDS: *Cement Plant, Energy Efficiency, Energy Management, Correlational Analysis & Chi-Square Test*

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