

**MAKERERE**



**UNIVERSITY**

**COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY.**

**SCHOOL OF ENGINEERING.**

**DEPARTMENT OF COMPUTER AND ELECTRICAL ENGINEERING.**

**PROJECT TITLE: ENERGY SAVING IN UGANDA INDUSTRIES,**

**CASE STUDY UGANDA BAATI LTD.**

**FINAL YEAR PROJECT REPORT**

**BY**

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## **ABSTRACT**

This project presents energy saving in Uganda industries case study being Uganda Baati Ltd, the main objective was to investigate and minimize power losses and wastages in the industry. This was achieved by the collection and analysis of energy consumption (bills) data and other related information (production data) from the plant, on-site measurements of the electrical load inventory which is the motors using a data logger (power quality analyzer) and analyzing the data to identify energy gaps and finally cost evaluation of the solutions provided.

The findings from the audit were , the industry was running on low power factor with poor servicing of capacitor banks or no capacitor banks at some large motors, the average percentage motor loading of most motors was way below the required 50 % for optimum running of such systems, only one motor was operating under a variable frequency drive, an oversized motor was identified , generally most of the motors in the industry were running under low capacity utilization for longer periods of time and there was inefficient technology of some equipment and lighting system. Recommendations included power factor correction by installation and regular servicing of capacitor banks, demand control limiting and load management, upgrade to high efficient premium NEMA motors with higher efficiency's, upgrade to LED lights, proper motor sizing ,VFD installation and machine scheduling which includes operating machines for shorter periods of time at optimum capacity, in our conclusion we found that there is great energy saving potential in Uganda Baati Ltd with shorter pay back periods averaging to 1.68 years from the solutions suggested which generally minimizes the energy bills thus less cost will be spent on electricity when the solutions are implemented by the company .