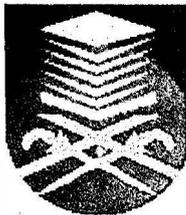


**ENERGY EFFICIENCY MANAGEMENT IN APPLICATION TO  
THE FACULTY OF ELECTRICAL ENGINEERING BUILDING AT  
THE SHAH ALAM UiTM CAMPUS**

This thesis is presented in partial fulfillment for the award ...  
of the Bachelor in Electrical Engineering (Hons.) of  
**UNIVERSITI TEKNOLOGI MARA**



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## **ABSTRACT**

This thesis describes a study of energy management to achieve better efficiency in application to the Faculty of Electrical Engineering building at the Shah Alam UiTM campus. It describes the techniques used to develop efficient energy consumption and improved usage of the air-conditioning system. The lighting system proposed will be more energy efficient, cost effective and yields better lighting at low cost.

Electricity is provided by TNB under its C1 tariff. The utility costs under this tariff are RM 17.30 per kilowatt of demand per month (KW) and RM 0.208 per kilo watt-hour (KWh) of electricity.

The result of an energy efficiency study performed for this building is summarized to be compared with the existing condition which is inefficient at present. A cost estimate on was performed for each measure and the simple payback period was calculated.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Introduction**

Many developing nations have widening gaps between electric supply and demand even though significant fractions of their populations have yet to receive electric services. Low cost energy efficient equipment and devices are particularly attractive options that can reduce demand while maintaining and even increasing energy services in developing nations where standards are already low. As long as a utility's cost to conserve a KWh during the time of power shortage is less than the cost of generating a KWh, the utility system should consider investing to conserve rather than generate electricity for meeting the demand. There have been many new developments in the lighting industry. Lamps have been developed yielding higher efficiency, improved colour rendering and longer lives. This can reduce the energy consumption for electricity and costs.

The costs of lighting for the simple payback are typically between 1 and 3 years. The purpose of this project is to estimate and evaluate demand side and energy auditing that would reduce energy costs and concentrate on energy savings in lighting and air-conditioning systems in application to the Faculty of Electrical Engineering building. More efficient lighting and air-conditioning systems at this side will increase productivity and reduce cost.