

**CASE STUDY: EFFICIENCY AND UTILIZATION OF
ELECTRICITY AND A COMPARATIVE STUDY**

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ABSTRACT

The main objective of this project was to compare the electrical energy efficiency and energy utilization between two hospitals namely:

- i. Hospital Nucleus Port Dickson (HNPD)
- ii. Hospital Daerah Tampin (HDT)

The two hospitals were chosen because they were built in two different eras with different set of technical and requirement standard but similar in their functions carried out. The methodology used are Physical Energy Audit and Energy Audit Data analysis, covering:

- i. Field observation.
- ii. Interview hospital staff.
- iii. Document review (monthly electrical bills, Engineering plant's systems operation and maintenance manual, architectural and electrical installation drawing).
- iv. Measurement of lights intensity.
- v. Reading of Ampere meter at Main Switch Board in Main Switch Room.

The data was tabulated and transferred to graph and chart and analysed into chosen comparison element:

- i. Building Energy Index (BEI).
- ii. Rate of energy per bed.
- iii. Energy utilisation division.
- iv. Monthly energy consumed.
- v. Daily load characteristics.
- vi. Lighting level intensity.

Through the analysis it is observed that the new standard of technical and operating requirement is affecting the energy efficiency in hospital.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Energy Efficiency programmes has been formally part of the national energy policy for the last decade [1]. The requirement for energy efficiency is classified under the following areas:

- i. Minimising losses in electrical power and distribution equipment.
- ii. Designing an efficient lighting system.
- iii. Designing an efficient air conditioning system.
- iv. Design criteria of the building envelope.

This paper presents the Energy Audit conducted on two hospitals, which examine and compare the overall trend of energy consumption for both hospitals.

The energy audit is carried out by selecting certain elements such as Building Energy Index (BEI), load characteristics, energy consumption, rate of energy per bed, system and plant installation, building design, consumer's and staff's activities, to make able to compare the result between two hospitals and hence knowing the pattern of energy efficiency and utilization of the two hospitals.

The information presented here allows hospital's power / plant engineers the ideas of hospital's profile of energy consumption and energy efficiency, and to work out the plan and maintenance for future energy conservation.