

UNIVERSITI TEKNOLOGI MARA

**ENERGY AUDIT AND SAVING
OPPORTUNITY AT TNB DISTRIBUTION
OFFICE BUILDING**

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Thesis submitted in fulfillment of the requirements
for the degree of
Master of Engineering Management

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Author's Declaration

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non- academic institution for any degree or qualification.

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ABSTRACT

Energy consumption and its implications to environment have raised concerns. The introductions of new technology and high standard of living have made commercial buildings one of the highest energy user. In Malaysia and other developing and developed countries almost half of the total electricity generated, are consumed by residential and commercial buildings. Some action are needed to be taken to reduce energy usage or efficiency usage of energy in the commercial building; such an energy audit and energy saving measures are the suitable tools for reducing energy usage. The objective of energy audit is to identify or determine how energy is being used in the building. The method of conducted energy audit involves desktop audit, site investigation, field data measurement and data analysis. From the data collected, indices such as BEI, COP, OTTV and RTTV for the audited building can be identified. The comparison between indices finding from the audited building with indices recommended by MS 1525 will determine energy efficiency status of the audited building. When the audited building energy efficiency status has been defined, energy saving measures can be introduced for reducing energy usage in the audited building. By implementing all recommended energy saving measures audited building energy consumption can be reduced by about 34% or 1,440,366 Whr per year, representing RM 450,391.00 in monetary value. The estimated budget cost of implementing the energy saving measures is RM 813,330.00 with 1.8 years simple payback period. By implementing all recommended energy saving measure, the BEI would be reduced from 243.44 kWhr/m²/year to 159.72 kWhr/m²/year.

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