
Investigating the Performance of Indoor Environment and Energy Management Implementation System in Office Building

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Abstract

One of the fastest growing trends in the field of innovations is energy efficiency. This area can contribute to the sustainability development of the country by reducing the energy intensity of the economy. Energy and environment plays a key role in achieving the desired economic growth for the country. Worldwide industries use 40 percent energy for material and consumption protection to fulfil human needs. One of the approach in order to reduce the emission of greenhouse gases to the environment is by conserving energy. This could be executed by implementing energy management especially in office buildings. Energy management can also increase the efficiency of energy in the building. This study focus on the performance indoor environment and energy management system implementation in office building. Energy management is one of the contemporary challenges, thus study adopts an exploratory approach by using a tool developed by UNIDO called EnMS or Energy Management System. Findings show that by implementing indoor environment and energy management can reduce electricity consumption up to 30%. However, the awareness on energy management in Malaysia is still very low. The lack of awareness towards energy conservation among users can be enhanced by implementing indoor environment and energy management. Therefore, serious initiatives by the organization are needed to promote the effectiveness of indoor environment and energy management.

Keywords: indoor environment, energy management, building

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INTRODUCTION

The World Energy Outlook projected world primary energy demand would grow by 1.6% per year from 2006 to 2030. The energy usage in developing countries like Malaysia is expected to increase due to economic expansion which will exhaust the limited energy resources. The energy crisis also will increase the gap between demand and supply of energy. Today's world is looking for energy solution and alternative due to the threat of energy shortage, sky rocket energy price, unsecure of energy supply and the issue of enormous wastage. The world community should think globally and act locally to solve this issue by creating a long-term programme in order to optimize the limited source of energy (Anandarajagopal et al. 2011).

Malaysian Government has highlighted that energy efficiency is one of the important elements in its energy policy framework. One proven method in managing energy efficiency is through indoor environment and energy management. Energy management helps to improve environmental quality and maximize profits by minimizing energy demand. Reducing energy demand helps to reduce cost. For Malaysia, the industrial sector is the second largest consumer of energy. Until 2013, the buildings had consumed 40% of world's energy and this shows a 30% increment in energy consumption from the past 30 years. Factors like population growth, increasing demand of services provided by buildings and increase level of human comfort along with increase of time spent in the building assure that this upward trend in energy demand will continue. Rahman et al. (2010) stated that almost 42% of total annual energy