Resources, Conservation & Recycling 126 (2017) 62–73

Contents lists available at ScienceDirect

Resources, Conservation & Recycling

journal homepage: www.elsevier.com/locate/resconrec

Full length article

Impacts of energy management practices on energy efficiency and carbon emissions reduction: A survey of malaysian manufacturing firms

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ARTICLE INFO

Keywords:
Green house gases
Energy management practices
Energy efficiency
Carbon emissions
Manufacturing firms
Malaysia

ABSTRACT

Carbon dioxide (CO_2) is the most prevalent Greenhouse gas (GHG) produced by human activities. Industrialization has been among the primary factors for increased CO_2 production, mostly through the consumption of electricity and the burning of fossil fuels. To investigate the current practices of energy management in Malaysian manufacturing firms, this study collected survey data from ISO 14000 certified firms. The study found that energy management practices are still very much in their infancy, and concern for carbon emissions is limited in the Malaysian manufacturing context. A lack of competitive pressure for developing environmentally friendly management practices generally prevails among industrial firms, although marginal improvements in energy management practices and energy efficiency are evident. The study found that energy audit and energy efficiency are two critical factors for reducing carbon emissions. The study also found that energy awareness, knowledge, and commitment are related to energy efficiency. One key outcome of the study was the development of a new theoretical model of energy management practices. The findings of this study have opened new research and development opportunities to identify alternatives to monetizing environmental concepts such as carbon emissions and energy efficiency.