

ENERGY-SAVING PRACTICES IN THE HOTEL INDUSTRY: AN EMPLOYEE-LEVEL STUDY

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ABSTRACT

The tourism industry, including hotels, contributes to increasing job employment and the gross domestic product of many countries. Despite the benefits provided by the hotel industry to many countries worldwide, hotels also contribute to the adverse environmental effects through high energy consumption. This issue has encouraged the hospitality industry to be more energy efficient. Employees can help to improve workplace energy saving, but their perception of energy-saving practices has not received thorough empirical investigation. Hotel employees play an essential role in affecting guests' experiences and overall hotel performance. Hence, the researcher should investigate the perception of energy-saving practices appropriately. This study investigates the perception of hotel employees on energy-saving practices. The data was collected through the cross-sectional survey method, and the SPSS was used for data analysis. The results showed the employee's perception of energy-saving practices could be categorized into six components. In addition, the study also found that the most critical adopted practices to the least important adopted energy-saving practices based on employee's perceptions. The employees perceive that the management establishment of the plan, policies, and activities to encourage energy-saving practices are the most adopted energy-saving practices in their workplace. Theoretically, the study extended the literature on tourism, specifically the hotel industry, on environmental management by linking these two constructs to employees' perceptions in one study.

Keywords: energy-saving practices, energy-efficient, employee's perception, hotel industry, tourism industry, environmental management

INTRODUCTION

Environmental concerns worldwide have raised businesses' awareness to revise their productions and services aligned with this matter (Jolink&Niesten, 2015). Among these businesses, the service sector organizations represent the largest and fastest-growing segment of the national economies (Apte et al., 2008). For instance, The Worldbank (2021) statistics illustrated that the service industries contribute 72.8% of

the UK's GDP and 77.3% of the total GDP in the United States. Meanwhile, Japan also showed a similar trend in Asia, with the GDP percentage in services industries being higher than in manufacturing industries with 69.3%. Similarly, the service industry's GDP in European countries is also high; France is 71.2% and Italy 66.7%.

These statistics showed that the service industry is at the highest level of achievement in today's business operations. Besides that, in 2019, service industries presented the highest number of job opportunities in world employment growth, representing 50.58% of world workers, whereas manufacturing employed only 22.7% of global employment (ILO, 2020). However, the issue arises due to the massive development of the services industry, which makes them, be the main contributor to the environmental pollution resulting from their extreme usage of physical components and natural resources (Ellger&Scheiner, 1997; Greenan et al., 1997; Grove et al., 1996; Wong et al., 2013). So, to reduce the negative environmental impact produced by today's businesses, more attention needs to be given to the service organizations since their significant percentage of business operations and the amount of contribution they give to environmental pollution.

To respond to this issue, the tourism industry, one of the service providers, has evolved and moved forward to become a more environmental-friendly entity due to the increasing awareness and demand for green practices and sustainability (Hu et al., 2010). Besides, past literature also claimed that the negative impacts of tourism actions and activities are expected (Weaver, 2002; Xu & Hu, 2021). For example, during the Rio Earth Summit in 1992, the environmental and social impacts of the tourism industry were the primary focus and in-depth discussion (Graci, 2009). Besides, there has also been a growing concern from the customers as they experienced an increased awareness of environmental damage and excessive consumption of goods, energy, and water (Bohdanowicz, 2005). In addition, theoretical and empirical studies by previous research suggested that while tourism has a positive contribution to economic growth and development, it is also held responsible for its adverse impacts on the environment. The most frequently reported negative environmental effects are to include diminishing plant biodiversity (Pickering et al., 2011), wildlife disruptions (Steven et al., 2011), water pollution (Hardiman & Burgin, 2010), environmental damage (Lee et al., 2019; Mair&Jago, 2010a; Ozturk et al., 2016; Whitfield et al., 2014; Whitfield &Dioko, 2012), increasing noise, decreasing air quality, and rising of biodiversity loss (Jiang et al., 1996; Lv, 2003; Xie et al., 2009). Such environmental harms have increased the concern for the environment among all stakeholders in the tourism industry who highly contribute to promoting an environmentally sustainable movement (Han et al., 2017; Lee et al., 2019; Whitfield et al., 2014).

Due to the significance of global concern and awareness from businesses and guests, the impacts of tourism on the environment have also been a major issue discussed in tourism articles for many years (Sharma et al., 2019). From the broad spectrum, the impacts of tourism can be classified as economic, environmental, and sociocultural (Nunkoo&Gursoy, 2012). In addition, the effect can be positive, negative, or both (Gursoy et al., 2019). Although much attention is given in the early studies on economic and positive impacts on the tourism industry, namely Madrigal (1993) and Perdue et al. (1990), adverse environmental effects have now become a significant

concern in recent studies such as MacNeill and Wozniak (2018), Sharma et al. (2019) and Wu and Chen (2016).

The tourism industry itself is multi-sectors, and one of the sectors is the hotel industry. The hotel industry plays a major player in environmental harm among the tourism component. However, its impacts have not been as direct and intense as those in automobiles, airlines, and cruise ships (Timothy & Teye, 2009). To date, hotels are one of the highest sources contributing to environmental pollution in the tourism industry (Bohdanowicz & Martinac, 2007; Mbasera et al., 2016; Tim Knowles et al., 1999). This is due to the significant consumption of an excessive number of resources and energy (Y. C. Chen & Chen, 2012).

Furthermore, Bohdanowicz and Martinac (2007) also argued that 75% of environmental pollution is caused by the hotel industry's over-consuming energy, water, and materials while operating a business. However, despite its negative impact on the environment, this industry has continuously provided economic and employment benefits in the tourism industry and other relevant sectors such as construction, agriculture, and telecommunications (UNWTO, 2018). Furthermore, hotel entities that have successfully adopted environmentally friendly practices experience the benefits of reducing hotel expenses by reducing energy, water, and waste (Eldemerdash & Mohamed, 2013). More revenues through the improvement of destination quality which attracts more customers (Anuwichanont et al., 2011), differentiation from competitors (Hays & Ozretić-Došen, 2014), good reputation, and positive brand effects (Y. C. Chen & Chen, 2012). Therefore, it is crucial to align the growth and impacts of this industry on the world's economy and the environment. The initiative is developed to balance their efforts to maximize economic growth and their responsibility to minimize the damages made to the environment.

Meanwhile, the issues of employees in environmentally friendly practices are often overlooked in previous literature (Wells et al., 2016). Nevertheless, it is generally accepted that employees' involvement is crucial to organizational environmentally friendly practices and also the adoption of policies leading toward more environmentally sustainable business operations (Daily et al., 2012; Paillé et al., 2013, 2014; Ramus & Killmer, 2007; Renwick et al., 2013). Thus, the initial gap in this study is concerned with the lack of investigation of employees in green literature. For example, one of the research conducted in the Malaysian hotel industry by Yusof and Jamaludin (2013), who had investigated the barriers to green practices implementation, found that one of the barriers is the difficulty in managing and training the employees to change to green practices. According to the authors, some employees have less commitment to green practices and tend to resign easily because of the extra work and training that they must perform. Thus, it is important to include employees in decision-making about environmentally friendly practices and see the green practices from the lens of employees so that the hotel providers can develop a strategic plan to overcome this challenge. Therefore, the primary goal of our study was to provide insight into the perception of employees on their hotel's energy-saving practices.

Meanwhile, another study conducted by Yusof and Jamaludin (2014) had found that the most adopted green practices by Malaysian hotel operators are energy, waste, and water. Other studies such as Kapusuzoglu (2014), Anatasia (2015); Kalayci and Koksai (2015); Cetin and Ecevit (2017) also emphasized energy consumption as one

of the main drivers of environmental degradation. Therefore, this study needs to focus on energy-saving practices to measure pro-environmental practices in the workplace. Therefore, this study primarily aims to investigate the green energy practices in the hotel industry from the employees' perspective.

On top of that, European countries also face similar challenges. Thus, reducing increasing energy efficiency by decreasing energy consumption and carbon emissions through EU environmental policy is an agenda nowadays for those countries (Sayegh et al., 2021). According to the US Energy Information Administration (EIA) and the European Union, approximately 44% of the total energy consumption are from commercial building (Parpaïri, 2017). From this percentage of energy consumption, hotel buildings are among the top five (HES, 2011). Furthermore, energy is mentioned to consume intensively in hotels because of the variety of services they provide to guests and operate 24 hours a day. For instance, in southern European hotels, this percentage becomes higher by approximately 25 to 30% (Michalena& Lagos, 2011). Meanwhile, the Greek hotel is accountable for 10% of the country's total energy consumption, which is contributed by hot water production, heating, and cooling (HES, 2011; Moia-Pol et al., 2005). Specifically, 72 to 75% of Greek hotel total energy consumption is used for space conditioning (heating and air conditioning) and hot water production, 6 to 9% is used for lighting, and 9 to 15% for catering. However, various studies reveal that hotels can save at least 10-15% of their energy consumption if they employ energy efficiency practices (HES, 2011). Thus, maximizing energy efficiency, as well as the use of renewable energy resources and technologies in the hotel industry, is the crucial step towards achieving this goal, which agrees with the EU environmental policy (Bohdanowicz, 2005; Bohdanowicz&Martinac, 2007; Jouhara&Meskimmon, 2018; Vourdoubas, 2018; Zientara et al., 2020).

One of the initiatives taken to achieve EU environmental policy is Renewable Energy Technologies (RET), which focuses on Greek hotels. However, an investigation found that RETs were only used in 11 hotels and that solar systems were the most common RET used (Karagiorgas et al., 2006, 2007). Another initiative is called "nearly Zero Energy Hotels" (neZEH), which is a response to the Energy Performance of Buildings Directive (EPBD) (European Commission, 2010). In the EPBD recast (article 2) a neZEB is defined as "a building that has a very high energy performance; renewable sources should cover the nearly zero or very low amount of energy required to a very significant extent, which also includes energy from renewable sources produced on-site or nearby." From the recent data, 18 countries have set an official definition. However, the intention is under approval in one country, whereas the definition is under development in nine countries. Based on these arguments, this study also aims to give a general overview of the strategies applied in hotels, which will help create a viable list of sustainable options at the end of this work for EU countries to motivate and initiate replications in their hotels' sector.

LITERATURE REVIEW

The annual Global Risks Perception Survey (GRPS) results show that environmental risks remain among the five significant risks by likelihood and four by impact (Bahadure, 2017). At the same time, tourism is stated to produce 4.6% of GHG emissions, with the hotel industry contributing to almost 20% of GHG emissions within

the tourism-related industry (UNWTO 2019). Specifically, the hotel industry contributes an enormous negative impact on the environment. Firstly, they use excessive resources (Bohdanowicz&Martinac, 2007), such as energy, water, and non-durable goods (Chan et al., 2014; Mohd Noor & Kumar, 2014). Secondly, according to a Green seal (2012) statistic, the average of hotel purchased products was massive, which could be compared as one week of the hotel products purchased were equal to more than one hundred families typically do in a year. Thirdly, the primary concern of the hotel is to provide comfortable services such as providing their customers with hot water in the bathroom; food and drinks, linens and towels changing programs; lighting; air conditioning; limousines; water, and swimming pools. This situation makes the industry directly or indirectly destroys the environment (Mohd Noor & Kumar, 2014). Finally although a hotel produces no gross environmental pollution and consumes comparatively few non-renewable resources, the environmental impacts on the hotels are visible when considered collectively (combinations of the various hotel in the same area) (Nezakati et al., 2015). Due to this large percentage, the UNWTO targeted a 50% reduction in greenhouse gas emissions from the tourism sector by 2035 (UNWTO 2019). In contrast, tourism research had overlooked these environmental studies that could produce only 1,500 publications in 25 years (Buckley, 2011). Thus, based on these arguments, the study of environmentally friendly practices in the hotel industry is necessary, much needed, and valuable in taking a step toward reducing these negative impacts and assisting the UNWTO to achieve the target.

Energy production is related to carbon emissions origin from fossil fuels; thus, consumption contributes to total emissions and is an essential driver of global climate change (Zierler, 2017). In addition, energy prices have also increased, and energy supplies have decreased globally. Furthermore, the speed of diversity loss has become faster, and the number of species has declined by about 60% since 1970, which negatively impacts health and social-economic development (Khan & Chang, 2018; Norton et al., 2012). Hotel facilities are energy-intensive, which contributes to high energy costs. The consumption of energy by hotels is higher than other commercial buildings. They are ranked among the top five in the tertiary building sector (Solutions, 2011). It is argued that hotels are related to high energy wastage and low energy efficiency. Their energy usage goes to 50% for air-conditioning, 20% for lighting, and the rest for kitchen, laundry, and other purposes (IFC, 2013). It is assumed that hotels waste up to 42% of the energy used to heat and cool spaces. Due to high energy usage, energy costs are also high, where they account for 3 to 6% of overall hotel operating costs. Hence, based on these arguments, it is evident that efforts to conserve energy should be directed at the hotel. Additionally, many hotels have started introducing energy-saving practices due to external pressure from customers and the government and increased energy costs. Overall, the rise in energy costs, awareness of guests to sustainability, and the height of the environmentally friendly movement in the hotel industry have increased the attention of hotels on energy management initiatives (Cingoski&Petrevska, 2018; Mensah &Blankson, 2013; Prud'homme& Raymond, 2016).

Energy-saving practices are enormously crucial to hotels because they could offer savings of at least 20% and energy utilities are the ones of the most controllable among other resources (Natural Resources Canada, 2003). Besides, Diamantis and Ladkin (1999) also indicate that adopting environmentally friendly practices, including

energy-saving, would promote environmentally sustainable development in the hospitality industry. Furthermore, many hotels acknowledge that adopting eco-friendly practices is an ethical practice and beneficial in reducing costs, image enhancement, creating market differentiation, and corporate social responsibility (Mair&Jago, 2010b; Radwan et al., 2012). Also, empirical studies have demonstrated that the adoption of green practices by the hospitality industry could also achieve the economic benefits (Álvarez Gil et al., 2001; Blanco et al., 2009; Y. C. Chen & Chen, 2012; Eiadat et al., 2008; Singal, 2014), competitive advantages (Goodman, 2000; Pereira-Moliner et al., 2015), and customer satisfaction and loyalty (Kassinis&Soteriou, 2009).

In terms of economic benefits, the Department of Environment (DOE) UK report reveals that by applying green practices, any household or organization could reduce energy savings by up to 20% (Yusof&Jamaludin, 2013). Additionally, Butler (2008) also mentioned that green hotel providers could gain profit by lowering the cost of energy, waste, water, emission cost, operational and maintenance cost. Meanwhile, Manaktola and Jauhari (2007) find that eco-friendly hotels benefit from fulfilling customers' needs in the marketplace and lower operating costs by reducing solid waste, energy, and water consumption. Finally, Punitha and Rasdi (2013), Chen and Chen (2012), and Rahman et al. (2012) argue that being green in today's marketplace will improve the brand image of the hotels. The results conclude that being environmentally responsible enhances the efficiency of hotels, specifically in terms of improving energy efficiency and waste management.

Nevertheless, studies conducted by the International Hotels Environment Initiative (IHEI) reveal that 90% of hotel guests prefer to stay in a hotel that cares for the environment. Therefore, in the long run, hotels' investment in environmentally green practices can be cost-effective and improve their competitiveness by attracting environmentally concerned consumers. Yet, despite the gain in efficiency, emissions from tourism are still expected to increase by 135% over the three decades from 2005 to 2035 (United Nations World Tourism Organization, United Nations Environment Program, World Meteorological Organization, 2008). Therefore, based on the enormous potential benefit that they might receive if they successfully implement environmentally friendly practices, they should conduct further investigation to motivate hotels to implement them.

However, the hotel industry struggles to decrease environmental threats and become more environmentally friendly due to the ongoing environmental problems they have contributed (Jones et al., 2014). Although the main target is for an organization to adopt green practices, the role of individual employees is also equally significant (Lamm et al., 2015). Indeed, the hospitality industry requires team cooperation and assistance among co-workers (W.-J. Chen, 2016). Compared to other sectors, the hotel industry tends to be labor-intensive, where most of the activities depend on the human touch to meet the expectations of their customers (Barreda et al., 2016; Berezina et al., 2016; Hayes & Ninemeier, 2009). Therefore, hotel employees are significant stakeholders who often play a critical front-line role that affects customers' experiences, which impact the hotel's performance, including its financial success (Su & Swanson, 2019). However, the studies on the environmental practices of hotels and their employees' environmental behaviour remain unexplored and often ignored (Chou, 2014). The employees' perception and participation level also take advantage of the hotel to become a green hotel (Klewtong, 2018). The hotel should learn and

know whether their employees perceive these policies or not and whether they intend on environmentally friendly practices to help the green policy succeed before promoting it to guests (Klewtong, 2018). Employees can help to improve workplace pro-environmental behaviour, but the perception of their energy-saving behaviour has not received in-depth empirical investigation. The participation of employees is crucial for the success of a hotel's energy-saving activities. Energy-saving behaviour is pro-environmental behaviour and can be described as reducing energy use by individuals. Thus, reducing energy use through preservation is one of the more cost-effective ways to decrease greenhouse gas emissions.

METHODOLOGY

The Malaysian hotel industry is the population of this research. Meanwhile, the target population in this study is divided into two: the green hotel and the non-green hotel. The accessible population is the group of hotels that received the ASEAN Green Hotel Standard for green hotels and the Malaysian Association of Hotels (MAH) for non-green hotels. Therefore, the sampling frame for the green hotels represents all the hotels in Malaysia that are certified by the ASEAN Green Hotel Standard. The reason for choosing these hotels is that the ASEAN Green Hotel Standard proves that they have engaged in implementing green practices and have a good understanding of the adoption of green practices. ASEAN Green Hotel Standard is one of the valid environmental certification standards among Asian countries given every two years to acknowledge a hotel business that takes environmentally friendly issues into their concerns (Nezakati et al. 2015). Meanwhile, the sampling frame for non-green hotels represents all the hotels in Malaysia that are registered with the Malaysian Association of Hotels (MAH).

In this research, an employee is the unit of analysis. An employee is a term that refers to an individual who works part-time or full-time under a contract of employment, whether oral or written, express or implied. Some studies have recognized rights and duties – an employee is also known as a worker. The selection criterion for the sample of this study using the targeted unit of analysis is for the employee that works in a Malaysian hotel.

Therefore, in summary, data were collected from hotel employees covering all departments and positions in selected hotels in Malaysia. A self-administered questionnaire was delivered to the potential respondents using a paper survey. This method is chosen because not all employees at the hotel work with a computer in their daily operations. For instance, employees working in housekeeping, food, beverage, and security and safety departments do not need to use computers; thus, these types of employees rarely have time to use a computer. Therefore, to ensure that this study can collect the data from various departments in the hotel, a paper type of survey seems to be more appropriate.

In this study, the researcher developed survey instruments to review the past literature ASEAN Green Hotel Standard (2016) and Yusof and Jamaludin (2013). However, some items were rephrased to ensure that they were straightforward to understand by respondents at all levels. A self-administrated questionnaire was employed to collect the data from a large sample of Malaysia. The questionnaire is an effective method when it involves a massive sample of the population (Hair et al., 2007) because respondents will be asked the same question in the same order, thus eliminating the

mess and confusion of the data obtained (Ekinci, 2015). Besides that, it is easier to code and analyse the data obtained with a large sample since all the questions asked and answers are similar between respondents. The questionnaire can be administered in person, mailed to the respondent, or distributed electronically. The purpose of the questionnaires is to assist the researcher in investigating the perception of employees on energy-saving practices in the workplace. Specifically, this survey is interested in individual opinions about energy-saving activities in the hotel. Since the unit of analysis for this study are the hotel's employee, in-person techniques are more appropriate, assuming that not all employees have access to a computer during their working time due to their nature of work.

FINDINGS

This study received 413 responses. After excluding those invalid responses, the remaining 407 were retained, representing a valid response rate of 55.75 percent. During the three months of data collection, early and late responses were registered; thus, the researcher can evaluate the effect of response bias on the results. Non-response bias is identified as the difference between respondents and non-respondents in the survey questions. Armstrong and Overton (1977) suggested that the research effectively tests non-response bias by comparing early and late respondents. Thus, this study will apply this method to test and confirm that the non-response bias would not affect the investigation.

Table 1: Table of chi-square test for early response and late response

Variable	Categories	Early response	Late response	X ²	Sig.
Age of respondents	Below 25 years old	7	7	0.511	0.774
	21 – 40 year old	19	17		
	41 years old and above	4	6		
Gender	Male	18	15	0.606	0.436
	Female	12	15		
Race	Malay	20	25	4.533	0.209
	Chinese	2	3		
	Indian	7	2		
	Others	1	0		
Education's level	Primary/Secondary School	21	13	5.732	0.057
	University's Diploma	7	9		
	Bachelor's Degree and above	2	8		
Working experience	Less than 2 years	8	15	2.423	0.298
	2 – 5 years	6	8		
	More than 5 years	8	5		

The differences in the demographic data, considered categorical data, were analysed using Chi-square in Cross-tabulation, and table 1 shows the result of the Chi-square. The non-response bias was analysed using SPSS. From the result obtained, it could be seen that there were no significant differences in the demographic characteristics among the early and late responses ($p < 0.05$). The analysis suggested that the non-response bias was not presented in terms of the demographic characteristics of this study.

Table 2: Demographic characteristics of the respondents

Respondent's profile	Range	Frequencies	
		N = 407	Percentage (%)
Types of hotels	Green awarded hotel	138	33.9
	Non-green awarded hotel	269	66.1
Age	Below 25 years old	132	32.4
	26 – 40 year old	213	52.3
	41 years old and above	59	14.5
	Unknown	3	0.7
Gender	Male	209	51.4
	Female	194	47.7
	Unknown	4	1.0
Race	Malay	297	73.0
	Chinese	49	12.0
	Indian	43	10.6
	Others	16	3.9
	Unknown	2	0.5
Education's Level	Primary/Secondary School	184	45.2
	University's Diploma	134	32.9
	Bachelor's Degree and above	84	20.6
	Unknown	5	1.2
Working experiences in the current hotel	Less than 2 years	145	35.6
	2 – 5 years	122	30.0
	More than 5 years	90	22.1
	Unknown	50	12.3

Then, the respondent's demographic was checked for representativeness. Table 2 shows the results of the demographic information. Almost an equal number of respondents who participated in this survey came from both genders (male=51.04%, female=47.7%). Furthermore, for the age of respondents at the time the survey was conducted, 52.3% of employees were between the age of 26-40 years old (n=213), followed by 32.4% less than 25 years old (n=132). Meanwhile, education background showed that 45% of the respondents completed schooling (n=184), and 32.9% gained a university diploma (n=134). Finally, in terms of working experience, 45.6% of respondents (n=267) had less than five years of working experience with their current hotel.

Table 3: Table of mean and standard deviation for types of energy saving practices in hotel

Energy Saving Practices	Mean	Standard Deviation
Establish plan, policies, and activities to encourage energy saving practices	.8288	.32990
Utilise electrical appliances and equipment with energy saving efficiency	.7568	.40141
Encourage staffs to participate in energy efficient activities	.8133	.36405
Efficiently design for installation sites of power and energy metering equipment	.6450	.45742
Collect records of energy consumption for every location	.7482	.42239
Encourage guests to conserve energy by using energy saving friendly reminder in the guest room and advertisement boards	.7629	.41036

Then, we identified the types of energy efficiency practices adopted in the hotel industry according to the employee's perceptions. Table 3 reports the most essential adopted practices to the least important adopted through the mean and standard deviation results based on employee perception. The findings suggest that, in general, the employees perceive that the management establishment of plans, policies, and activities to encourage energy-saving practices is the most adopted practice, with a mean score of 0.8288. Secondly, encouraging staff to participate in energy-efficient activities and encouraging guests to conserve energy by using energy-saving friendly reminders in the guest room and advertisement boards also shows higher results with the mean score of 0.8133 and 0.7629, respectively. The third and fourth practices perceived by employees as adopted by their hotel are utilizing electrical appliances and equipment with energy-saving efficiency and collecting energy consumption records for every location with the mean score of 0.7568 and 0.7482. Finally, the employees' least applied energy-saving practice is designing for installation sites of power and energy metering equipment with a mean score of 0.6450.

Table 4: Table of frequency for each component of energy saving practices

Component	Energy Saving Practices	Frequency	Percentage (%)
1	Establish plan, policies, and activities to encourage energy saving practices.		
	• Energy saving policy	352	86.5
	• Air Cond set to 23 to 24 degrees	318	78.1
2	Utilise electrical appliances and equipment with energy saving efficiency.		
	• Energy efficient lighting	320	78.6
	• Auto sensor-controlled lighting	296	72.7

3	Encourage staffs to participate in energy efficient activities. <ul style="list-style-type: none"> • Use energy saving equipment in the office • Switch off light at unoccupied spaces 	323 339	79.4 83.3
4	Efficiently design for installation sites of power and energy metering equipment. <ul style="list-style-type: none"> • Install occupancy-based room unit controllers • Renewable energy-solar panel 	273 252	67.1 61.9
5	Collect records of energy consumption for every location. <ul style="list-style-type: none"> • Sub metering • Record the number of utilities used 	301 308	74.0 75.7
6	Encourage guests to conserve energy by using energy saving friendly reminder in the guest room and advertisement boards. <ul style="list-style-type: none"> • Use of energy saving equipment in the guest room • Linen & towel replacement program 	311 310	76.4 76.2

Further on, we go in-depth by identifying the frequency of practices for each component of energy-saving practices. For example, component 1 in Table 4 refers to establishing plans, policies, and activities to encourage energy-saving practices. In this component, the employees perceive the energy-saving policy as the most frequent practice since most hotels have established a general environmentally friendly policy regardless of the green or non-green certificate. Furthermore, most of this policy is accessible to employees and hotel guests through the hotel website. On the other hand, regular maintenance of the Air Cond system and Air Cond set to 23 to 24 degrees perceive as the employees' most minor practices in component 1. Yet, Air Cond is related to emitting harmful gasses to the environment and negatively impacting the atmosphere like other fossil fuel machines did. Thus, considering the reduction of Air Cond usage in the hotel, one way to achieve it is through adjusting users' behaviour, employees and guests respectively, towards Air Cond (Wang et al. 2019).

Component 2, referred to as utilizing electrical appliances and equipment with energy-saving efficiency in Table 4, reflects the employees' perception of the energy-saving instruments used in their hotel. Hotels are expected to reduce and replace it with some energy-efficient appliances because energy is a cost factor. However, the findings are alarming since they point to minimal energy-efficient sources and new innovative approaches to saving energy consumption to only lighting. Furthermore, these practices' low impact on reducing the negative environmental implications indicates that they are limitations for the hotels' energy efficiency improvement concept.

Component 3 in Table 4 is referred to as encouraging employees to participate in energy-efficient activities. The first sub-component identifies the use of energy-saving equipment in the office. The employees are ideally required to identify any leaks, excessive lighting, and other marks of energy waste to reduce the impact and become more energy efficient. The employees also perceive energy saving by closing unused

lighting manually during day and night-time. The second component is auto sensor-controlled lighting in hotel compounds. Employees perceive this application could reduce operational costs and sustain the energy efficiency practices in the long term because it requires less effort since it automatically controls the lighting.

Component 4 is on efficient design for installation sites of power and energy metering equipment. An almost equal number of employees perceive their hotel adopted install occupancy-based room unit controllers (67.1%) and renewable energy-solar panels (69.1%), which shows the frequent minor practices adopted compared to other components. Since both room unit controllers and solar panel technology are costly, most hoteliers cannot yet afford to apply this technology in their daily operations (Yusuf & Jamaluddin, 2013). Besides, installing both appliances required building renovation and modification, affecting the building envelope (windows, walls, and roofs) (Xiang et al., 2019). Component 5 on the collection records of energy consumption for every location, which requires the installation sub-meter and records the number of utilities used. The findings show more than 70% participate in the installation sub-meter and record the number of utilities used.

The final component encourages guests to conserve energy by using energy-saving friendly reminders in the guest room and advertisement boards. The guest demands for linen and towel changes are assessed as decisive factors influencing the hotel's performance and customer satisfaction. Thus, to avoid low ratings by the guests, they are given a choice to use the same towels and linens for the duration of the stay or not. Each hotel practiced this method and simultaneously increased guest satisfaction by showing their care and participating in energy efficiency and climate change.

DISCUSSION & CONCLUSION

A hotel is stated as one of the facilities that use a large amount of energy, contributing to high energy costs. Thus, energy-efficient practices are significantly crucial to hotels since they provide at least 20% savings in cost (Natural Resources Canada, 2003). Besides, hotel providers should understand their employees' perception of environmentally friendly practices to investigate whether they could become a success or not before promoting them to their guests. Thus, the level of employees' perception of environmentally friendly practices also makes an advantage to the hotel to be an energy-saving hotel. Therefore, the present study brings empirical evidence on the employee's perception of energy-saving adoption employed by their hotel and then looks explicitly at each of these energy-saving practices.

This study has several theoretical implications. First, the findings extend the knowledge of the energy-saving practices adopted in the hotel industry through employees' perceptions. Linking employees' perception and energy-saving practices would improve how employees perceive and understand their organization's energy-saving practices. This finding uncovers the underlying mechanism of how employees perceive environmentally friendly practices, specifically energy-saving practices. Secondly, directing the current research towards exploring employees' perception of their workplace's environmental behaviour is considered appropriate to expand the knowledge from the existing theoretical perspective by concentrating on employee behaviour in the hotel industry context. Subsequently, there is an expected relationship between the hotel industry development and energy efficiency impacts.

The main intention of the management is to focus its activities in line with reducing operating costs by introducing a new and innovative approach to energy saving that preserves the environment. Reducing the operating costs will simultaneously increase the profit and allow improved competitiveness in the hotel industry. Besides, introducing energy-efficient practices improves guests' comfort, enhances hotel aesthetic value, and reduces energy system failures. Thus, this study provides an empirical perspective on these practices to develop the literature on environmental protection.

The findings of the study have some policy implications. Employees must develop a more favourable environmental attitude. Therefore, turning off lights when leaving the office and using energy-efficient equipment can help save energy. In addition, sending employees for training on energy-saving mechanisms will be a proactive way to reduce energy consumption. Hotels must also make available resources, knowledge, and skills about electricity saving. It can be achieved by replacing old technology with high electricity use with new technology with low energy use. Hotels must develop and communicate their sustainability policy to employees to improve organizational energy-saving. The output of this work is a list of proposed energy-saving systems/strategies that could implement in EU countries' hotels. This study provides suggestions and benchmarking regarding environmentally friendly practices adopted by EU countries, with a specific focus on energy-saving practices. Some of these energy-saving strategies do not involve significant investments. The hotel owners and hotel designers have a substantial list of choices to consider, and based on an energy audit, the implementation of strategies is interesting. Energy-saving strategies can be decided after a serious energy audit and a cost-benefit study. In addition, the country could develop financial policies for investors.

Despite the contributions of this study, this research is subject to several limitations, which can be the starting point for future research. Firstly, the interpretation of the empirical results of this study might be affected by the single-country data characteristics. In particular, data were collected in the Asian region, which might differ in culture, geography, building structure, and weather from the European countries. Therefore, the researcher should survey the European countries to generalize the result. Additionally, the scope of the research is to investigate employees' perceptions of their hotel energy-saving practices without examining if perceptions affect their pro-environmental behaviour at the workplace. Thus, a correlation study is vital to confirm the employee's perceptions could contribute to their pro-environmental behaviour. Finally, another issue that will yield important policy implications would be empirically testing the effectiveness of energy-saving practices toward saving the environment and saving the cost—future empirical analysis on the effect of these energy-saving practices on the environment, society, and finance.

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