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THE PERCEPTIONS OF HOTEL MANAGERS ON USING RENEWABLE ENERGY IN TURKEY*

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Abstract

This study aims to find out the perceptions of managers in 4-5 hotels on using renewable energy and whether they show a significant difference for hotel category, establishment date, hotel staff, hotel type, whether they have green star or the hotel has a technical department in the organizational structure. Survey method, a quantitative approach, was used in the study. The sample consisted of 395 managers in 4-5 star hotels in Turkey. "The Scale of Perceptions of Using Renewable Energy Systems" developed by Türkmenoğlu (2016) was used to collect the data of the study. The obtained data were analyzed by descriptive statistics, t test and one way ANOVA. According to the findings, the respondents' perceived value of renewable energy use was above the average (3, 6883). Also, 5 star hotels, resort hotels, the ones with technical department, hotels with more staff and the hotels whose establishment date are older have a significantly higher perceptions of renewable energy use compared to the other groups.

Keywords: Renewable Energy, Perception of Using Renewable Energy, Hotels
JEL Codes: M00, M10, M19

TÜRKİYE'DE OTEL YÖNETİCİLERİNİN YENİLENEBİLİR ENERJİ KULLANIMI ALGILARININ İNCELENMESİ *

Öz

Bu çalışmanın amacı Türkiye'de faaliyet gösteren 4 ve 5 yıldızlı otellerde görev yapan otel yöneticilerinin yenilenebilir enerji kullanımı algılarının, otel kategorisi, otelin kuruluş yılı, otelin çalışan sayısı, otel çeşidi, otelin yeşil yıldız sahibi olup olmaması, otelin organizasyon yapısında bir teknik departmanın var olup olmaması gibi değişkenlere göre farklılaşıp farklılaşmadığını belirlemektir. Araştırmada nicel yöntemlerden olan tarama modeli kullanılmıştır. Araştırmanın örneklemi Türkiye'de faaliyet gösteren 4 ve 5 yıldızlı otellerden kolayda örnekleme yöntemiyle seçilen toplam 395 otel yöneticisinden oluşmaktadır. Araştırmanın verilerinin toplanmasında Türkmenoğlu (2016) tarafından geliştirilen "Yenilenebilir Enerji Sistemleri Kullanımı Algısı Ölçeği" kullanılmıştır. Elde edilen veriler tanımlayıcı istatistikler, t testi ve tek yönlü varyans analizi (ANOVA) ile çözümlenmiştir. Elde edilen bulgulara göre katılımcıların yenilenebilir enerji kullanımı algısı skoru ortalamanın üzerinde bir değer almıştır (3, 6883). Ayrıca 5 yıldızlı otellerin 4 yıldızlılara göre, sayfiye otellerin şehir otellerine göre, teknik departmana sahip olanların olmayanlara göre, daha fazla çalışanı olanların daha az çalışanı olanlara göre ve kuruluş yılı daha eski olanların olmayanlara göre yenilenebilir enerji kullanımı algılarının istatistiki olarak anlamlı bir şekilde daha yüksek olduğunu göstermiştir.

Anahtar Kelimeler: Yenilenebilir Enerji, Yenilenebilir Enerji Kullanımı Algısı, Oteller
JEL Kodları: M00, M10, M19

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Introduction

The tourism industry is a rapidly growing and becoming a developing sector in the world. While the growth of the tourism sector is making social and economic contribution to the economy of the country, it is possible that the energy used harms the environment. It is estimated that the effect of the tourism sector on total greenhouse gas emissions in the world is 5.3% (UNWTO, 2015). The most energy-intensive businesses in the tourism sector are the hotels (TBD, 2013). One of the reasons for the climate change is excessive carbon dioxide emissions from fossil fuels where large-scale energy-consuming buildings are used. Therefore, the concept of sustainable tourism provides a basic framework for this growth in a balanced manner. Sustainable tourism is a form of development that allows ecological processes to be safeguarded and transmitted to future generations so that the living, inhabitants of the visited region can meet their economic, social and aesthetic needs (WTO, 1998). Considering the size and scope of the sector, increasing the use of renewable energy in the tourism sector plays an important role in reducing harm to the environment.

Studies show that the use of renewable energy sources in the hotels reduces the current energy consumption and damages to the environment (Beccali, 2009: 83). In their research, Vujosevic and Krstic-Furundzic (2017: 140) found that energy costs were among the top costs of the hotels and that the most important factor causing climate changes due to environmental pollution in buildings was energy consumption for ventilation and air conditioning of hotels. Nevertheless, Zografakis et al. (2011: 1323) state that, in their study, the hotels are among the largest energy consumers in the sector. Also, Muhumuza, Zacharopoulos, Mondol, Smyth and Pugsley (2018: 90), studying the energy consumption in the rural areas of developing countries, found that the hotels have the third place after mills and carpenter workshops in consuming energy. Daskalaki and Balaras (2004: 1091) report that in Europe, 61% of energy is consumed by heating, cooling and ventilation, 25% is consumed by service and 15% is consumed by hot water production. Khemiri and Hassairi (2004: 903) note that in a study of Tunisia's hotel industry, savings up to 50% of total energy consumption can be achieved. Again, according to the US Energy Information Administration (EIA) and the European Union, buildings account for about 44% of the total energy consumption. Hotel facilities are among the top 5 in terms of energy consumption in the building sector. Therefore, there is an important potential for energy efficiency in hotels operating in the tourism sector.

When this is the case, when the attitudes of the hotels on why they do not invest in renewable energy sources are examined, it seems that they have the perception that the investment costs are high. Parpairi (2017) found that small- or medium-sized hotels in the Greek market thought that renewable energy was costly to invest.

However Ali et al. (2008) found that four and five star hotels are more willing to invest in renewable energy sources than others in a study on the potential energy saving in the hotel industry in Jordan. On the other hand, the average annual power consumption of a small and medium-sized hotel ranges from 250 to 350 kWh / m2. For large hotels, the average annual energy consumption range from 450 to 700 kWh / m2. Although large-scale hotels are relatively more sensitive to the use of renewable energy sources than small-scale ones, there is greater potential for large-scale hotels to reduce annual energy consumption and increase the use of renewable energy sources (Dalton, Lockington & Baldock, 2009: 955).

In the context of sustainable tourism, the use of renewable energy sources provides significant competitive advantage to hotel operations due to reduced costs as well as reduced environmental damage. There is also a growing awareness for tourists in this regard. Enterprises using these resources will increase their competitive power by providing cost advantages in the sector (Karagiorgasa et al., 2006). Studies on renewable energy in the literature mostly focus on the

preference of tourists using these energy-powered hotels and the purchasing behaviors of those who prefer these hotels (Han, Hsu & Sheu, 2010; Kostakis & Sardianou, 2012; Zografakis et al., 2011). Dalton, Lockington and Baldock (2008) found that 86% of Australian tourists wanted to stay in a hotel that uses renewable energy sources. Additionally, in an American study involving a sample of 445 people, 70% of respondents preferred to stay in a hotel that uses renewable energy resources, and that they believed the necessity of sustainable tourism (Watkins, 1994). Kostakis and Sardianou (2012) found that 45% of tourists who participated in the study in Greece tend to pay more for renewable energy-using hotels. As tourists become sustainable consumers, they say they prefer hotels that use renewable energy.

Turkey has a great potential for renewable energies. (Çapik, Yılmaz & Çavuşoğlu, 2012; Nalan, Murat & Nuri, 2009; Papież, Śmiech, & Frodyma, 2018). However, despite having a significant amount of reserves of renewable energy sources, the actual use of these resources is very low in Turkey (Kaya, 2006; Toklu, 2013). Therefore, Turkey meets more than half of its energy needs through imports (Yüksel & Kaygusuz, 2011). The imported energy has a significant impact on Turkey's economy (Özgur, 2018). Increasing domestic energy production has become a necessity to reduce this negative effect.

When energy consumption in hotels is taken into consideration, increasing use of renewable energy sources in the hotel sector in Turkey will support sustainable development by providing a substantial contribution to the national economy. Thus, touristic activities will be continued without deteriorating the natural, social and cultural structure of the touristic services and the future generations will benefit from the existing resources (Gençer & Gençer, 2019). In addition, this situation will positively affect the purchasing decisions and touristic consumers (Güven, 2019).

In this research, different from previous studies, it was determined how tendencies of hotels for renewable energy usage differed based on the qualities of the hotels and some recommendations was given on energy management practices of the hotels. In this context, the basic research question is "Do the perceptions of hotels on renewable energy differ based on various characteristics of the hotels?"

1. Method

The universe of study consists of 508 five-star and 467 four-star hotels in the statistics of Ministry of Culture and Tourism in İstanbul and Antalya. The main reason for determining the cities, Istanbul and Antalya as the universe of the research is that most of the four- and five-star city hotels are located in Istanbul and the resort hotels are located in Antalya. The sampling method was stratified sampling. Face to face interviews were carried out with the managers in 395 resort and city hotels.

Quantitative research methods have been used to test the purpose of the research. The sample of the study is the hotel managers in 4 or 5 star hotels. Data were collected through a standardized questionnaire. The questionnaire consists of two parts. The first part includes the questions that measure the characteristics of the hotels and the second part includes "Renewable Energy Perception Scale". The scale is a measure developed by Türkmenoğlu (2016), consisting of 8 items and having a 5-Likert type (1 - Absolutely Disagree, 5 - Absolutely Agree). A total of 395 valid questionnaires were collected from the sample consisting of city and summer resort hotels. IBM SPSS Statistics 21 program was used to analyze the data. The data were analyzed using basic statistics (mean and standard deviation), independent samples t-test, one-way variance analysis, Pearson correlation analysis.

2. Results

In this section, the findings of the research are given. Firstly, Skewness (.091) - Kurtosis (.023)

value was examined to test whether the data were normally distributed. The test results show that the data were normally distributed. Cronbach's Alpha coefficient was calculated to test reliability of the scale. Cronbach's Alpha value of the 8-item scale was found to be 0.917. Lastly, confirmatory factor analysis was used for the validity of the scale. As a result of the factor analysis applied to the scale, it was seen that the scale was has one factor structure in accordance with the original [CMIN/DF= 3.08, GFI=0.96, RMSEA=0.73, CFI=0.97, AGFI=0.93, NFI=0.96].

Table 1: *Frequency Distribution of Hotel Characteristics*

Variables	**Category**	**Frequency**	**%**
Hotel category	4-star	302	76,5
	5-star	93	23,5
Hotel establishment year	before 2000	110	27,8
	after 2000	285	72,2
Number of Staff	50 and below	156	39,5
	51-100	122	30,9
	101-150	79	20,0
	151-200	34	8,6
	200 and above	4	1,0
Hotel type	City Hotel	202	51,1
	Resort Hotel	193	48,9
Green star	Yes	99	25,1
	No	296	74,9
Technical department	Yes	314	79,5
	No	81	20,5
Total		**395**	**100**

Table 1 contains frequency analysis of the characteristics of the hotels. Accordingly, 76.5% of the hotels are 4 star and 23.5% of them are 5 star. Also, the results show that 27.8% of the hotels were established before 2000 and 72.2% of them were established after 2000. When the number of staff is examined, it is seen that the majority of the hotels (39.5%) have 1-50 employees. 51.1% of the hotels are city hotels and 48.9% are resort hotels. Only 25.1% of the hotels have a green star. Finally, 79.5% of the hotels have a technical department.

Table 2: *Mean and Standard Deviation Values of Perceptions of Renewable Energy Use*

	Mean	**Standard deviation**
The perceptions of renewable energy use	3,6883	0,65519

When Table 2 was examined, the mean score of perceptions of renewable energy use were higher than the average (3, 6883).

Table 3: *Independent T Test for Hotel Category*

	Category	**n**	**Mean**	**Standard Deviation**	**Mean Difference**	**t**	**F**	**Significance level**
The perceptions of renewable energy use	4 stars	302	3,5919	,03701	,4094	-5,459	,689	**,000**
	5 stars	93	4,0013	,06185				

Table 3 shows that the use of renewable energy is significantly different between the hotel categories (p = 0.000). The mean of the 5-star hotels' perception of renewable energy use (4,0013) was higher than that of 4 star (3,7397) with a mean difference of 0,2845 and this difference was statistically significant (p = 0,000).

Table 4: *Independent T-Test for Hotel Type*

	Category	**n**	**Mean**	**Standard Deviation**	**Mean Difference**	**t**	**F**	**Significance level**
The perceptions of renewable energy use	City Hotel	202	3,4561	,64006	0,4752	-7,725	4,520	**,034**
	Resort Hotel	193	3,9313	,57959				

Table 4 shows that the perception of renewable energy use differs between the types of hotels (p <0,050). The mean of the city hotels is higher than the resort hotels. Therefore, the perception of renewable energy use in resort hotels is significantly higher than the hotels in the city.

Table 5: *Independent T-Test for the Hotels with/without Green Star*

	Category	n	Mean	Standard Deviation	Mean Difference	t	F	Significance level
The perceptions of renewable energy use	Yes	99	3,9141	,65457	0,3013	4,038	,574	,449
	No	296	3,6128	,63888				

Table 5 contains Independent T Test data that tests whether the perception of the use of renewable energy varies between the hotels with a green star and without a green star. The results show that there is no statistically significant difference between the groups (p> 0,050).

Table 6: *Independent T-Test for the Presence of the Technical Department*

	Category	n	Mean	Standard Deviation	Mean Difference	t	F	Significance level
The perceptions of renewable energy use	Yes	314	3,7799	,60652	0,4466	5,682	11,734	**,001**
	No	81	3,3333	,71725				

Table 6 contains Independent T Test data that tests whether the perception of renewable energy use varies between the hotels with and without technical department. The results show that there is statistically difference between the groups in the perception of renewable energy (p <0,050). The perception of renewable energy use of the hotels with technical departments is higher than the ones without technical departments.

Table 7 shows the one-way variance analysis to test whether the perceptions of renewable energy use differ in the hotels with different number of staff

Table 7: *One-Way Variance Analysis for the hotels with different number of staff*

		Sum of Squares	**df**	**Mean Square**	**F**	**p**
The perceptions of renewable energy use	Between groups	26,530	4	6,632	18,138	**,000**
	In Group	142,607	390	,366		
	Total	169,136	394			

According to the results of one way ANOVA, the use of renewable energy differs between the hotels with different number of staff (p = 0,000). Scheffe Analysis and descriptive statistics were used to investigate the difference in detail. These findings are presented in Table 8.

Table 8: *Scheffe Analysis and Descriptive Statistics of The Hotels with Different Number of Staff*

	Number of Employees	**n**	**Mean**	**Standard Deviation**	
The perceptions of renewable energy use	50 ve below	156	3,4367	,65719	
	51-100	122	3,6588	,75895	
	101-150	79	3,9968	,66434	
	151-200	34	4,1618	1,17258	
	200 ve above	4	4,2813	,65719	
	Scheffe Analysis				
	Categorical Match			**Mean Difference**	**p**
	The hotels with 101-150 employees	The hotels with 50 and below employees		0,5601	**,000**
	The hotels with 101-150 employees	The hotels with 51-100 employees		0,3380	**,005**

As can be seen in Table 8, the perceptions of renewable energy use by hotels with 101-150 employees there is a statistically higher than the hotels with 50 or fewer employees and 51-100 employees.

Table 9: *Pearson Correlation Analysis Between Variables*

	The perceptions of renewable energy use
Foundation year	**,161****

***Correlation is significant at 0.01 level (2-tailed).*

Another important finding is that the older the hotels are, the level of perception of renewable energy usage will also increase.

3. Discussion and Conclusion

This study was conducted to examine the perceptions of renewable energy use with the hotel managers working in 4 and 5 star hotels in Turkey. It can be said that the perceptions of the hotel managers on renewable energy is relatively high. This indicates that there is a positive attitude of the hotels towards renewable energy in Turkey.

According to the findings, 5-star hotels are more sensitive to the use of renewable energy than 4-star hotels. The studies in the literature also supports that the tendency for the use of renewable energy increases as the number of stars increases (Ali, et al. 2008).

The resorts are more inclined to use renewable energy than city hotels. This may be due to the fact that most of the resort hotels situate in the Aegean and Mediterranean Region where sunny days are more than the other parts of Turkey.

The perception of renewable energy use of the hotels with technical departments is higher than the ones without technical departments. Therefore, it can be concluded that the presence of a technical department in hotel management is an important part of planning and implementing energy policies.

In terms of the number of employees, the results show that large-scale hotels with more employees tend to use renewable energy more often than those with less employees. However, the hotels whose establishments are older are more sensitive to renewable energy use than newly established hotels. It can be said that the hotels that have institutional and sustainable structure have competitive advantage because of giving importance to the use of renewable energy.

Theoretical implications: This research reveals the perceptions of the hotel managers in 4 and 5- star hotels on using renewable energy and how it differs by the hotel category, the hotel establishment year, number of employees, hotel type, whether it has green star and it has a technical department organizational structure. Therefore, it contributes to the literature in terms of determining the main characteristics of those who are successful in achieving sustainable competitive advantage among hotels.

Practical implications: The use of renewable energy sources provides a significant competitive advantage to the hotels due to the reduced costs as well as reducing environmental pollution (Karagiorgas et al., 2006). It also seems that tourists prefer these green hotels more. Dalton, Lockington and Baldock (2008) found in their study that 86% of Australian tourists want to stay in these hotels. However, Watkins (1994) found that 70% of American tourists prefer to stay in a hotel that uses renewable energy sources. According to the results of the research, it can be said that small scale hotels need to use renewable energy and have a technical department in their organizational structures in order to have competitive advantage.

Limitations and Further Research: This research is limited to how hotel managers' perceptions

of renewable energy use vary by some hotel features. Conducting the research in different sectors and samples will increase its generalizability. In addition, the reasons for the negative attitudes of small and medium-sized enterprises towards the use of renewable energy can be examined in depth through qualitative research. Some recommendations can be given for the use of renewable energy sources in hotels in Turkey. Training sessions can be organized and financially supported to increase the use of renewable energy systems in small and medium-sized hotels, which are seen to be less conscious of renewable energy systems. Furthermore, designing technical department as a separate unit in management and organization structure of hotels can play an important role in ensuring sustainable competitive advantage

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