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## Article

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## MANAGERIAL CHALLENGES RELATED TO THE EFFICIENT USE OF ENERGY RESOURCES IN THE HOTEL INDUSTRY

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### Abstract

Management commitment and perception of the need to adapt and adjust hotel operations in the face of the energy crisis on the path of reducing energy consumption under the REPowerEU plan have been little addressed in the literature, although it is a very topical issue. This research fills this gap with a qualitative study aimed at analysing the way hotel managers in Bucharest perceive the energy crisis. The research questions were related to how the energy crisis affects their operational activities and what measures were taken to reduce energy consumption and change business behaviour. The method chosen was the semi-structured interview in order to obtain complex and detailed answers based on direct interactions at the individual level, given the profile of the interviewees (top managers). The thematic analysis method was used to analyse and interpret the responses recorded in the interviews. As important results of the study, it is worth mentioning: the highlighting of the perception of the energy crisis and its impact at the level of the hotel units, but above all, the identification of the measures implemented or sought by the management of the hotel units to reduce energy consumption (such as the monitoring of consumption, integrated systems for managing consumption and maintenance, the involvement of employees, but also of customers, and last but not least, the investment in alternative energy sources).

**Keywords:** Bucharest hotels, energy savings, energy efficiency, managerial perceptions, energy crisis.

**JEL Classification:** Z31, Q49, Q38, P28, O14, M14, L83, D22.

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## Introduction

The REPowerEU plan was issued in 2022 by the European Commission as a response to the difficulties encountered on the world energy market, enhanced by the Russian invasion of Ukraine. With a view towards energy saving, production of clean energy, and energy sources diversification, REPowerEU represents the means to create the new energy infrastructure of Europe that will enable the use of sustainable energy sources, thus reducing the dependency on the Russian fossil fuels (European Commission, 2023) for both domestic and business uses.

Renewable sources, energy saving or clean energy are terms known to the tourism businesses, as the domain they operate in is a highly energy intensive one. According to studies (Wang et al., 2020; Elkhwesky, 2022; Cingoski and Petrevska, 2018) interest has been shown in recent years in possibilities to reduce costs and different measures, meant to reduce energy consumption, have been implemented. The recent geopolitical turmoil has added urgency and resource scarcity to the mix, thus driving the prices up, which subsequently threatened to increase operational costs.

Reduction of energy consumption and behavioural changes in hotel businesses came as a natural response to the energy crisis and the threatening increase in the prices of natural gas and electricity.

Although recent studies (Nizic and Matos, 2018; Ubeda-Garcia et al., 2020; Mihalic et al., 2021; Becerra-Vicario et al., 2022) have examined the relationship between the energy crisis and the need to reduce consumption in hotel businesses, to the best of our knowledge, little to no attention has been paid to the managerial implication and perception of the need to adapt and adjust hotel activity through adoption of measures meant to cope with the energy crisis, on the way of reducing energy consumption, within the REPowerEU plan.

The present scientific article aims to fill this research gap, through qualitative research that analysed how managers in city hotels, located in Bucharest, perceive the energy crisis. The research questions referred to the way the energy crisis was translated into their operational activity and what measures were taken to reduce energy consumption and change business behaviour.

These research questions were transposed into items in the interview guide. They related to the managerial perception regarding issues such as the impact of the crisis on the business operational activities, the need to reduce energy consumption, the implementation of cost reduction measures starting with spring of 2022, involvement of employees and guests into the business behavioural change towards energy efficiency.

This paper thus contributes to the scientific literature with highly valuable research that thoroughly investigates how the top management of city hotels in Bucharest cope with the threats of the energy crisis, the way they chose to introduce measures of reducing energy consumption within the hotels they run, and the way the business behaviour changed as a result of need to be more energy efficient.

The article is structured into 3 main sections. The Review of the scientific literature section looks into specific research available so far regarding the managerial perception on the need to reduce energy consumption and the ways this aim is fulfilled in the operational activity of hotels. The Research methodology section provides information on the way research was conducted, while the Results and Discussion section presents the main findings of the study.

The Conclusions section presents the managerial implications of the findings, along with future directions of study.

### **1. Review of the scientific literature**

The REPowerEU Plan (REPowerEU, 2023) is meant to rapidly reduce the European dependence on fossil fuels imported from Russia, along with a switch towards clean, green energy, a topic that has been of interest within the recent period (Sun et al., 2023; Li et al., 2023). The three pillars of the Plan refer to saving energy resources, the production of clean energy, and the diversification of energy sources (Economica, 2023). The reduction of energy consumption, through voluntary measures or changes in behaviour pattern, as a way of saving energy resources seems to be one of the first-hand solutions to help implement the REPowerEU guidelines, as this reduction is expected to account for 14% of the desired reductions of gas imports from Russia (Kuzemko et al., 2022). After the start of the Ukraine war, policymakers have responded with urgent measures (Kurmayer, 2022) and starting July 2022, almost all EU members have agreed to reduce gas demand by 15% (Economica, 2023), with industrial users being those rationed in the first line (Koch et al., 2022).

At the individual country level, each state member has chosen its own course of action. France took measures to keep a certain level of energy and gas prices, Portugal and Spain adopted regulations that cap the prices of natural gas (Orihuela, 2022), Germany and Italy partially financed the support measures, Romania and Belgium have implemented measures to aid consumers with their energy bills (Abbetan and Hieminga, 2022), at the same time imposing power companies to reduce the bills issued (Kuzemko et al., 2022).

In Romania, the Emergency Ordinance no 27/2022, issued in March of the same year, established capped prices for the energy used by domestic and business consumers, for the period April 1<sup>st</sup> 2022 - March 31, 2023. The Emergency Ordinance no. 119/2022, issued in September of the same year, brought changes to the previous ordinance, by prolonging the capped prices period until August 31, 2023, for the consumption of both natural gas and electricity (PWC, 2022). On 11 December 2022 a law that further regulates the levels of capped prices for - Law 357/2022 - came into life; the price for natural gas for business consumers was capped to a maximum of 0.37 RON/kWh and the price for electricity was capped to a maximum of 1 to 1.3 RON/kWh (EY, 2022). These measures came as a lifeline for decision factors from hotel businesses that were looking at a staggering price of 3 RON/kWh with great concern. Furthermore, Romania is to receive about 1.4 billion euros as a non-refundable financial support, out of the 20 billion available (Euronews, 2023), and the Ministry of Energy and the Ministry of Investments and European Projects are in charge of identifying the necessary adjustments in order to accomplish the objectives of the Plan (Ministry of Energy, 2022).

Recommendations aimed at reducing the energy consumption of end users, with a view towards a behavioural change, have been issued within national campaigns. These ranged from changing home appliances with ones that are more energy efficient (Enel, 2022), installing solar panels, smart thermostats (Engie, 2022), through the use of energy-saving light bulbs, motion sensors, to setting the correct refrigerator temperature or unplugging phone chargers when not used (Local Energy Agency of Alba, 2022). Specific recommendations for the hotel industry were also issued, as this domain of activity contributes greatly to the emission of greenhouse gases, with an average of 180 kg of CO<sub>2</sub>

per square metre of room surface (Booking, 2023). In terms of benefits of these, apart from cost reductions, which are probably the most important element from a managerial perception within the industry, other listed refer to lowering the carbon footprint and the improvement of comfort level for both customers and staff (Greentourism, 2023). The first and foremost important recommendation was to have a comprehensive image of the energy consumption within the hotel, which should be achieved through monitoring of consumption and costs, which would be compared to benchmarked values (Hotel Energy Solutions, 2023). A very poor energy consumption is higher than 450 kWh/m<sup>2</sup>/year, while an excellent one is lower than 195 kWh/m<sup>2</sup>/year, according to the same benchmark. Other recommendations implied a more energy efficient lighting system, as LED lamps have a three times higher cost effectiveness than previous generation systems (Greentourism, 2023), implementing control systems that are linked to occupancy reports, using motion sensors and photocell control (Booking, 2023). Furthermore, reducing the room temperature by 1 degree during winter can lead to cost reductions of approximately 10%, a recommendation that further requires the use of smart thermostats for energy savings management (Hotel Energy Solutions, 2023). The ultimate and most costly investment with long-term benefits is related to green energy, which subsequently leads to a phase-out of fossil fuels in the hotel industry (Recharge, 2019).

Energy efficiency in the hotel industry has been the main focus of many studies over the years, as accommodation companies are ranked among the top five largest energy consumers in the tourism industry (Greentourism, 2023). According to Kularatne et al. (2019), about 50% of the electricity used in a hotel is consumed by the air conditioning systems, 20% by the lighting installations, and 30% by kitchen appliances and laundry facilities. At the same time, the energy costs amount to about 15% of the total operational costs (Bohdanowicz et al., 2020).

Former studies (Deng and Burnett, 2000; Onut and Soner, 2006; Khemiri and Hassairi, 2005) have revealed that the level of average total energy use was established at 564kwh/m<sup>2</sup>, with 79% used for electricity sources. The same studies provided that to become energy efficient, hotels had to implement measures to reduce energy consumption by an average of 45%. (Green Lodging, 2022). The level of waste is, however, assessed as high in the hotel industry, with a potential average of 25% of energy that is wasted, resulting from a study in South-European hotels (Greentourism, 2023). The highest possibility to save energy comes from more efficient lighting, with a potential maximum savings of 70%, followed by hot water, 50%, cooling, 30%, and heating, 20% (Cornell Centre for Hospitality Research, 2022).

Eco-friendly practices in hotels around the world have been implemented for decades and with the emergence of green hotels, the trend has become stronger. Various types of cost reduction measures have been implemented, ranging from very simple measures to investments in energy-efficient equipment. However, in many cases, the input elements result in considerably high initial costs, such as installation of HVAC (heating, ventilation, air conditioning) systems, more energy efficient light systems.

Apart from the long-term benefits in reducing energy cost and consumption, studies have shown that tourists seem to be more willing to stay in hotels that offer green services and are more likely to choose to pay for those rather than for classic services (Wang et al., 2020; Mittal and Dhar, 2016). This situation is rooted in the social trend of environmental awareness about the need to be more energy efficient (Yu et al., 2017; Chan and Wong, 2006), which has recently been enhanced by the urge to become less dependent on Russian fossil fuels (European Commission, 2022; Elkhwesky, 2022).

In terms of the managerial perception on the need to reduce energy consumption, tourism studies (Nizic and Matos, 2018; Dhirasana et al., 2020) show that hotel top management has been relatively more willing to adopt measures to reduce the energy use, such as the replacement (or acquisition) of more energy efficient equipment, the so-called managerial adjustments. Managers in the hotel industry, as factors of decision, have been considered in the tourism scientific literature as the main drivers of change (Becerra Vicario et al., 2022). They are the ones to decide whether an energy efficient change is to be implemented, based on an equation of perceived need for change, costs and hotel operation adjustments (Nizic and Matos, 2018; Krupskiy and Grynko, 2018; Chen and Chen 2012). However, adoption and implementation of new technologies for renewable resources that come with higher initial costs and long-term amortisation are not on the priority list (Chan et al., 2020; Dhirasana et al., 2020; Kasim, 2009). Also, managers seem to be not sufficiently informed about energy efficiency measures and their benefits, although the level of awareness of energy efficiency is satisfactory.

However, the financial aspects might be detrimental to investing in more energy-efficient equipment. A study on managerial perception on energy efficiency (Cingoski and Petrevska, 2018) has revealed that although the top decision factors in hotels recognise the benefits of an environmental proactiveness within the industry, they are hesitant at the moment of implementing such measures in the hotels they are running. This lack of interest is most commonly attributed to scarce financial resources, increased operating costs, and limited use possibilities for renewable resources. Therefore, although certain forms of energy consumption reduction are used (Nizic and Matos, 2018), more advanced cost-cutting investments are postponed (Ubeda-Garcia et al., 2020), even if managers acknowledge better performance in the longer term, a better return on investment, and higher profits (Mihalic et al., 2021). The relationship between environmental performance and financial performance is also considered by managers, according to a study by Becerra-Vicario et al. (2022), as energy and eco-efficiency lead to reputation improvement.

The importance of the human element is undeniable, according to studies (Fu et al., 2022; Ahmad et al., 2022; Hori et al., 2014) when dealing with energy efficiency issues, whether they are hotel employees or guests. Most studies focus on the supply side, neglecting to some extent the demand side. A study cited by Fu et al. (2022) revealed that 25% of energy is wasted in hotels due to wrong behaviours towards its consumption. Through appropriately managed and implemented CSR, employees will tend to identify with an organisation that is set on sound ethical grounds and will follow the guidelines for sustainable energy use (Afsar and Umrani, 2020). Furthermore, the employees of an energy efficient hotel will be prone to adopt such behaviour themselves (Fu et al., 2022).

Numerous studies in the scientific literature have focused on guest behaviour in hotels, following different behavioural models (Zhao et al., 2014; Yao et al., 2015; Xie et al., 2019; Csoknyai, 2019), as hotel guests' behaviour has a substantial influence on energy efficiency. This behaviour is, however, hard to evaluate, as guests tend to have very different patterns, that have been studied primarily through observation, understanding, and predicting (Karatas et al., 2017; Palani and Karatas, 2021; Li et al., 2017). A comprehensive study by Palani and Karatas (2022) has shown a direct connection between a proposed set of incentives and a change related to the energy efficiency behaviour of guests.

## 2. Research methodology

This study is an exploratory study and aims to show the impact of the economic crisis on hotel operations by focussing on how current energy pressures are perceived at the hotel level, how these challenges are reported, and how hotels are dealing with or preparing for them. We draw on the perspectives of managers as key actors faced with capturing and managing these changes, paying particular attention to how they shape courses of action by reporting on the RePowerEU plan.

We chose qualitative analysis because it offers the possibility of in-depth explanatory feedback given the current situation, which is characterised by numerous changes and uncertainty. Furthermore, qualitative research offers the advantage of a personalised approach that includes the human element (Saunders et al., 2015). We assume that qualitative research has a disadvantage related to the limited representativeness and the limited possibilities of generalising the results (Silverman, 2000), considering that it is an appropriate strategy to approach the studied realities in situations where respondents are difficult to access, as is the case with top management positions in hotel facilities (Filimonau and Kricova, 2017).

The research questions we started with were:

- *I1: How is the energy crisis implemented at the hotel unit level from the perspective of its management?*
- *I2: What cost and consumption efficiency measures have been taken or are planned for the near future at the management level of hotel units in light of the current energy crisis?*

Semi-structured face-to-face interviews were used for data collection. We chose this research method to obtain complex and detailed answers based on direct interactions at the individual level, also considering the profile of the interviewees (people in important positions whose particular context must be specifically understood). Based on the two research questions, the four directions of the interview grid were developed. These, in turn, were branched into components of interest, also integrating elements from the literature considered relevant in the context under study. The four directions of analysis are as follows: Perception of Impact, Motivation for the Need to Reduce Energy Costs (EC), Actions to Reduce EC, and Barriers.

The present study presents the responses of managers of 10 hotels in Bucharest (Table no. 1), covering 1113 of the 10947 hotels existing in the city. For the hotels included in the study, the year of the last renovation is between 2006 and 2021.

Participants were selected from managers of 3-, 4-, and 5-star hotels in Bucharest, Romania. We chose to analyse at the level of the country's capital because Bucharest is the gateway to Romania for hotel groups and chains. After opening in Bucharest, hotel brands expanded to other cities in Romania (Braşov, Cluj, Timișoara, Sibiu, and others). From the point of view of relevance to the studied problem, this fact is equally expressed in importance, experience and vision, but also in the fact that these hotel units (UH), having a higher age, were aligned to the standards of the time they were open, but did not proactively undertake all the necessary investments and activities to meet the latest energy efficiency criteria of today's reality. For these reasons, we considered these cases more complex for the present investigation, compared to including mainly newer hotels in the study. Heterogeneity was an important criterion in the selection of the participating UHs, so that a diverse range of

responses was covered and new specific situations could be identified. For this reason, the decision to conduct the survey at the Bucharest level was advantageous, as it offered the possibility to cover different types of hotel with this study: hotels that have been operating for several years but also very new ones, chain hotels (characterised by a high level of expertise and complex procedures) and independent hotels (characterised by greater flexibility but under different pressures) that operate independently but also under a franchise or management contract.

**Table no. 1. Study participants**

<b>Respondent</b>	<b>Gender</b>	<b>Hotel type</b>	<b>Hotel classification</b>	<b>Hotel type of management</b>	<b>Last renovation (year)</b>
<b>General manager</b>	M	Independent	3*	Own management	2010
<b>General manager</b>	F	International chain	3*	Management contract	2018
<b>Operations manager</b>	M	International chain	4*	Franchise	2016
<b>Operations manager</b>	F	International chain	4*	Management contract	2006
<b>General manager</b>	M	Independent	4*	Own management	2009
<b>General manager</b>	F	Independent	4*	Own management	2012
<b>General manager</b>	F	Independent	4*	Own management	2019
<b>General manager</b>	M	Independent	5*	Own management	2008
<b>Sales manager</b>	F	National chain	5*	Own management	2009
<b>Finance manager</b>	F	International chain	5*	Franchise	2021

The interviews were conducted on site or through online sessions (Zoom) between March 6 and 11, 2023, with interviews lasting 30-45 minutes. To conduct the interviews, the managers interviewed were contacted by telephone and, after receiving consent to participate, a brief description of the research along with the interview grid was emailed to them. As this was a semi-structured interview, the flow and topics of the interviews were adapted to the specifics of each UH, with interviewees adding additional elements to those in the original grid or identifying some of the topics raised as less relevant to their hotel. To avoid giving socially desirable answers, an aspect known as a possible risk for qualitative research (King and Bruner, 2000), and to facilitate the highlighting of some detailed aspects valuable for the present study, ensuring the anonymity of the participants was an important criterion for agreeing to participate in the study. Some of them did not want the interviews to be recorded, in which case the answers were written down during the interview. After each interview, which was conducted on the same day, detailed notes were transcribed and summarised in individual sheets for each housing unit.



### 3. Results and discussion

According to data available on December 31, 2022 (Ministry of Entrepreneurship and Tourism, 2023), of the total of 1602 hotels in Romania, 140 operate in Bucharest, most of which have 4 stars (55) or 3 stars (53). In terms of the number of rooms offered by Bucharest hotels, most are in 4-star units (5,080 rooms), followed by 3-star units (2,390 rooms) and 5-star units (2,042 rooms). The classification by comfort category is relevant because it is related to the adaptation to certain standards and procedures that also affect energy efficiency.

From an operational perspective, of the 140 hotel units in Bucharest, 99 are independently operated (4255 rooms), 27 units are subsidiaries of international chains (5111 rooms), and 14 belong to national hotel chains (1581 rooms). Present in the Bucharest market are Intercontinental Hotel Group (with Intercontinental, Crowne Plaza, and Holiday Inn brands), Accor Group (Ibis, Ibis Style, Mercure, Novotel, Pullman), Marriott International (JW Marriott, Autograph Collection, Sheraton, Courtyard, Moxy), Radisson (Radisson Blu and Park Inn), Wyndham Hotels&Resorts (Ramada), Hilton (Garden Inn and Doubletree), CH Hotels, but also the national hotel groups Phenicia Hotels, Continental Hotels, Euro Hotels, SIR.

To analyse and interpret the responses recorded in the interviews, we used the method of thematic analysis. Subsequently, we identified the factors associated with the variations in costs and energy consumption that are considered irrelevant or relevant to value (positive or negative association) from the perspective of their own activity. Since these associations reflect the perceptions of the managers interviewed, the value of the results lies in the presentation of the current state of vision at the level of the UH decision makers studied, with potential to explain the current state, identify opportunities for positive change, and formulate possible recommendations. The factors analysed were divided into three categories according to the degree of control that the management stakeholders have over them: external factors (manifested predominantly outside the control of the UH and its managers), internal factors (under the control of the hotel management and manifested at the UH), and factors of mixed nature (related to external elements but partially controllable by management control). The positive association with the issue of efficient management of energy consumption and costs indicates an openness on the part of hotel managers to activities at the level of these factors as equally relevant, important to consider and address through existing or future applicable actions, and helpful and supportive to the hotel's business goals and results. The negative association indicates hotel managers' concern about these factors, which they consider important in terms of energy efficiency, but which have a negative impact on the level of results or opportunities for hotel management. The lack of association suggests a lack of interest from the manager in these types of factors. Analysis of research results indicates heterogeneous perceptions of these factors and their value framework, with some of them found in multiple categories (Table no. 2).

In what follows, these factors are discussed in detail, presented as a summary of the four assumed research directions, and in relation to the state of knowledge identified in the literature. To maintain anonymity, the responses are cited in the text based on coding (R1, R2,...R10), without direct correspondence to the order in Table 1, but maintaining consistency (for all data specific to a UH, the same code was assigned for all components discussed).

**Table no. 2. Thematic analysis of hotel unit managers' perceptions of relevant factors related to the energy crisis and directions for reducing costs and/or energy consumption at the level of the activity carried out**

Factors / type of association	(-) Negative association with the energy subject	(+) Positive association with the energy topic	(0) Lack of association
External factors (outside the area of hotel activities/outside the control of hotel management)	- contracts with suppliers		- uncertainty regarding the future
	- costs directly derived from the increase in energy prices	- capping the price of energy	
	- the effects of the pandemic (Covid19) - the war in Ukraine - workforce		-
External & internal factors	- Average Daily Rate (ADR)		-
	- high costs (for retrofits/equipment for alternative solutions/centralised automation and control systems) - low level of brand reliability, price and performance in the case of accessible changes	- guest involvement (lighting and small consumers in the room – TV, fridge, etc., cleaning the room and changing towels/linen)	
	- guest satisfaction		
Internal factors (in the area of hotel activity/under management control)	- cost-benefit for measures to reduce consumption (associated with ADR)		
	Managerial factors - other investments/ business projects outside the hotel - other investments/ projects within the hotel - lack of information/ knowledge	- laundry - employee training - automatic/centralized systems, BMS - non-automatic solutions for lighting and HVAC management	- social responsibility
	- the image of a sustainable hotel		

**(1) Perception of the energy crisis and its effects on the hotel level**

Thematic analysis of responses on managers' perceptions of the energy crisis identified six major factors impacting hotel realities, of which three were important (direct impact of cost increases, contracts with suppliers or energy price capping) and three secondary factors that were interrelated (impact of the pandemic, the impact of the war in Ukraine, and labour shortages), the latter of which contextually contributed to how the impact of the energy crisis was perceived, both positively (by supporting other factors that mitigated the impact, such as increased levels of ADR and occupancy) and negatively (added pressure on management) through their impact.

*The direct impact of the energy crisis on hotels* was perceived differently, although the rising cost of energy (CE) affects all entities. Many respondents indicated that the timing of the CE increase caused a medium to high level of uncertainty and tension. Perceived impacts were described as "immense, added pressure and stress on management" (R1), "large" (R7, R9),

"drastic" (R6), "causing panic" (R10), "alarming [as a situation where] we have problems (...) and [which] is unclear because we don't know how long the growth will last and how much the prices will go up; we didn't know what to do and we consulted with suppliers expecting increases of 50-100%...we worked the budget with 100 options" (R4).

The impact of the increase on CE has been reflected in an increase in operating costs, as these operating costs, along with staff costs, carry the greatest weight (R7), increasing to "double their weight relative to total costs - from 5% to 10%" (R8) - or total revenues "from 2.5% to 5% of revenues" (R5) or "8% of revenues in 2022 compared to 3.5% in 2019" (R3). It also drove up the cost per room "by 30% just from the increase in electricity costs" (R1). The perspectives provided by the managers interviewed showed that "these costs are reflected differently in key performance indicators (KPIs) depending on the specifics of the hotel and its own challenges" (R4). Some hotels "organically absorbed this increase in room cost due to very high average occupancy and above-market ADR" (R5), with several interviewees noting that they experienced a spike in demand and an increase in ADR immediately after the post-pandemic restrictions were lifted, so "price increases were not difficult to absorb" (R9). However, other hotels experienced a decrease in the profit margin because they were unable to increase prices in proportion to the increase in operating costs (R8).

*Most of the respondents described the energy price cap* as a necessary and life-saving measure that brings comfort and balance and contributes to stabilisation, but it is viewed with both hope and concern. "Thanks to the 1 leu/kw cap, the cost increase was not as high compared to the budget estimates, which was comforting" (R4). The problem is related to the uncertainty of government support after August of the current year. If the cap is removed, we will have to renegotiate the contracts. With the price cap we can survive... without the cap, we would have to double the accommodation prices based on the prices in the current contracts" (R2). For some hotels, the cap was not applied given the requirements of OUG 27 and 199/2022, leaving the hotel at the mercy of contextual and market factors: (R3).

## **(2) Motivations assumed by hotel managers to increase energy efficiency.**

The need to save energy is part of the new realities that those in charge of hotels are aware of and consider important. The study conducted shows a direct and clear link between the interest in taking some steps in this direction and pragmatic motivations related to cost pressures, where reducing consumption plays an instrumental role and is not seen as an end in itself or related to environmental goals. With a high ADR, utility costs are not perceived as pressing and energy efficiency, while an issue of greater interest than in the past, is not a priority. There are hotels in this situation for which managing requests is more of a challenge. "Congratulations to the group's partner hotels for using the walk-in process for sold-out rooms! We have an ADR and occupancy rate above market average, so cost increases are not a problem." (R5) These increased levels of ADR are due to a combination of factors and are not considered a positive effect related to increased electricity costs. "Increasing occupancy, hotel prices in Bucharest, supplier prices, all these and other factors have led to an increase in ADR" (R7).

*In the cost-benefit equation*, the increase in prices and the reduction of CE are addressed by the managers interviewed in terms of the actions taken and their short-, medium-, and long-term effects, but also in terms of the way they are managed. Overall, managers refer to different reporting in the given context in terms of cost and consumption, paying more attention to these components that were not a priority before. Energy efficiency and

sustainable investments for hotels have become more important as business elements, not just as desirable options. "We consider energy consumption much more carefully, even for new purchases... Energy efficiency is clearly a criterion for selecting new equipment" (R4); "we actively monitor operating costs; we have purchased more expensive products with a longer life" (R8). "Before the CE increase, we did not do many of the things we do today. The need to save money is more urgent now" (R9).

**Guest satisfaction** was only sporadically perceived by managers as a relevant positive factor related to energy efficiency. Rather, possible negative associations were mentioned, which were successfully avoided in most cases. This conclusion contrasts with the results of other studies, which indicate an increasing customer orientation towards hotels that offer green services (Wang et al., 2020; Mittal and Dhar, 2016) and are more energy efficient (Yu et al., 2017; Chan and Wong, 2006). The result can be attributed to the limited scope of the research (as an exploratory study) and the restrictive subjectivity of the respondents, whose statements on the appropriate measures should be viewed through the filter of predominantly pragmatic business criteria or could reflect the reality itself. Most of the respondents indicated that they try to implement changes without reducing the level of customer satisfaction (R9) and that they have not registered any complaints from guests about inconvenience (R1, R3, R5, R6, R7). The perspectives presented by some of the managers interviewed show a demanding profile of the customers, especially the Romanian ones –"the customers have different demands on the conditions at home - they want it warmer/colder than the temperature they are familiar with. Romanians in particular" (R3). Positive associations were mentioned in the case of proactive communication: The actions implemented did not affect customer satisfaction and they appreciated the communication of these changes, especially in the business segment (R6).

Similarly, **the image of a sustainable hotel** was identified as a relevant positive factor for cost reduction only if it can be linked to communication with strategic impact, treating guests as partners in energy efficiency efforts: "Sustainability of the hotel by implementing some measures to reduce energy consumption brings predictability of costs and a certain degree of independence - you can implement it if customers join in; it is a long-term thinking that requires effort, consistency and communication" (R7). The majority of respondents indicated that this factor was not relevant, or they placed it in the category of tactical communication, with the role of advertising or alignment with the practices of the hotel group to which they belong: "Various activities are more likely to be communicated through social media, and at the group level the environmental, social and governance (ESG) strategy is noticeable" (R7). **The responsibility and contribution of the hotel unit to reduce energy consumption** was not stated by respondents as a goal per se, but rather as "out of the flow".

### **(3) Measures implemented or targeted by the hotel management**

**Monitoring consumption** has become a topic of interest for everyone, especially in light of the rise in energy prices. "Before that time, like many others, we did not think about the problem of consumption because it was not a pressure" (R10). Cost pressure led to conducting an energy efficiency audit of the entire hotel (R9) or internal audits for most operational activities (R7) or starting a consumption analysis programme, after which we decided and implemented a series of measures (R2). In the case of group hotels, these analyses and monitoring have been carried out as a group policy, with detailed statistics on consumption and its evolution according to the number of guests and occupancy rate (R3, R4, R7), with the aim of complete automation (R3).

**Integrated consumption and maintenance management systems** are very useful solutions, but are only used in some hotel units. The most powerful option is the BMS-based one present in the newly renovated units: "All facilities were designed from the opening to save resources: Water, gas, electricity" (R5); "we have a BMS throughout the building, and that supports cost reduction" (R4). This type of system also allows the programming of the operation of equipment as needed, adapted to GO and usage (R7). The provision of automation systems is an assumed goal, and for those that do not yet have such systems, partial solutions will be used until these changes are put into operation: Equipment maintenance programme and its replacement in case of failure (R9), separation of the operation of the AC equipment in the rooms from those in the event rooms (R8), switching off all consumers in the room (lights, TV, AC) when the customer leaves the room by pulling the access card (R1).

**Stakeholder behaviour** (staff and guests) has been shown to be an area where action is being taken, but can be expanded to achieve results already documented in the literature (Afsar and Umrani, 2020; Fu et al., 2022). All managers mentioned conducting training with staff aimed at holding them accountable for reducing consumption as much as possible: in their own activities (back office, kitchen, etc.) - Informing and encouraging staff to reduce consumption: turning off lights and monitors/computers in offices, efficient use of stove tops or other appliances (R2, R5, R8, R9, R10); by immediately reporting identified problems so that they are fixed as soon as possible (R1) and in the area of room maintenance - "maids were forced to remove customers' own cards to keep consumers out of the room" (R6). In some cases, the responsiveness of staff was mentioned, who "understood the need to reduce consumption, as they had similar problems at home" (R9).

**Ambient temperature** (HVAC) is a very important factor that causes significant consumption and costs. The main implemented solutions are: setting temperature limits with the possibility of customisation to customer needs (R1, R2, R5, R7), reducing unjustified consumption and maintaining a minimum temperature in unoccupied rooms (R7), optimising occupancy costs (R1, R2, R5, R7, R8), adjusting to arrival time (R8). These actions are carried out in different ways: by manual adjustment of thermostats by room attendants (R2, R7, R1) or by programming through the BMS, "with the pre-check-in function, in the morning when rooms are assigned to clients, the ventilation system starts and begins to increase/decrease the temperature (depending on the season)" (R3). It is planned to update the BMS also for common rooms (R3) or event rooms (R7). A simple additional solution that has been implemented in one of the units and can be adopted by others is the use of solar shading devices "that are 80% closed in summer to prevent heating and 100% open in winter" (R7).

**Involving guests** is not a new measure, as information programmes for responsible behaviour (regarding linen/towel changes) have been in place for a long time: printed information materials placed in the room or bathrooms, or more recently via the smart TV in the room. In addition, information activities are carried out regarding temperature limits and actions taken, rather reactive (when there is a complaint (R2)), but some units intend to develop a complex customer information programme to reduce energy consumption in general, starting from the open-mindedness shown by the business segment in particular (R6). It is planned to start a customer loyalty program, combining the specific measures already proposed (R2). Some group hotels have introduced additional measures with a loyalty component: Bonus points for customers who do not request room cleaning during a stay, and we have many

customers who make use of this (R3); under the "go green" programme, the customer receives points if they choose not to have their linen changed in the room (R4).

**Lighting** is mentioned as a controllable factor by direct or automatic solutions. Architectural lighting has been reduced or programmed to operate minimally at night (R2, R9) or the solutions used have been replaced with more energy-efficient ones (R10). Replacing the light bulbs in the hotel with LEDs was a solution mentioned by all interviewees that was implemented for the entire facility - we replaced everything (R4, R7), there were thousands of light bulbs (R8) or partially (R8). The installation of motion detectors "worked throughout the building (R5), partially in the hallways (R2, R6) or even in the back-office rooms" (R4). Reduction of light intensity in common areas was implemented (R9), as well as turning off some consumers that can be opened voluntarily: "The lamps at the tables or in the common areas are touch-sensitive and can be turned on by the customer if desired" (R9). **Other energy-consuming equipment** has been replaced with more efficient equipment, which some facilities cite as a strategic action for all equipment that is no longer used (R4, R9), and where possible, the remodelling is performed through capital repairs (R9). Hotels that made such investments replaced TV, PC equipment in the reception area and offices with those with a higher energy efficiency rating (R6, R9), switched to standby mode more quickly (R6), upgraded conference rooms by equipping them with efficient equipment (R9), made capital repairs to the building's chiller by replacing the compressor, and more, resulting in a 20-30% increase in efficiency (R9).

**Investment in alternative energy sources** is considered to be a measure of interest. "We have an ongoing programme for the installation of photovoltaic systems, a programme that has become a priority due to the increase in electricity costs" (R3). In some cases, these investments have already been made: "We submitted a project for solar panels that we were rushing to get into the implementation phase, and it has been producing electricity since March 2023" (R4). Although government support deemed necessary has not been granted, efforts have continued: "Even though we have not received money through projects with government funding, we may manage to install photovoltaic panels on our own or through other available means" (R9).

#### **(4) Barriers to the implementation of measures to increase energy efficiency**

**Uncertainty about the future** is not perceived as a risk factor. The conducted research shows a high level of optimism and satisfaction on the part of the managers interviewed regarding the current conditions of the hotel market and its future developments: "the situation in tourism seems positive, with an increase in occupancy rate and ADR, 2023 will be a better year than 2019" (R6); "the first three months show a surpassing of the values of 2019" (R4); "we have a 25% increase in ADR with an occupancy rate similar to that of 2019" (R3); "ADR is 160 euros with an occupancy rate of 90%" (R5).

Several **negative factors** are also management-related. The pressures at the management decision-making level are multifaceted and prioritisation is not necessarily based on strategic criteria, as the managers interviewed did not cite energy efficiency as a primary goal. Rising labour costs, staff turnover, and shortages (R9, R7), focus on other projects (R1), stress from extensive work (R10), or waiting for an optimal time for a complete modernisation (R2) are factors that slow down the efficiency of energy cost.

**Financial constraints** were cited in several cases as a major cause standing in the way of change, which is consistent with factors identified in the literature (Cingoski and Petrevska,

2018): "the complete renovation of the HVAC system is intended, but it is associated with costs and time to supervise the work" (R6); "there are certain financial barriers to a complete investment in renovation and replacement of equipment, but the owner is not willing to do it at the moment" (R7); "the cost of equipment is an obstacle in retechnological production spaces" (R1). Despite these costs, these investments are accepted by some of the interviewees because they are associated with long-term development: "We are willing to pay more for products/equipment with high energy efficiency class" (R4).

**Government support** is seen as a necessary and desired leverage. The removal of the cap may be a major problem, and other financial incentives from the state would be welcome (H1). Government support is important to increase business sustainability (R3). However, the state's contribution is seen as insufficient, especially in volatile conditions: "We have no confidence in its actions" (R9).

### Conclusions

In this article, based on the exploratory study conducted, the reality of the hotel environment in Bucharest is highlighted in the context of new energy challenges. The importance of the topic, its long-term implications, the limited approach in the national literature, and the obtained results position this work as a relevant case study for the Romanian area, in the context of the targeted and expected changes within the member countries of the European Union.

For spring 2023, the Bucharest hotel market is characterised by the revival of demand (beyond expectations), of ADR, and also of customer requirements. The main challenges for which managers need to find solutions are related to operational goals, especially in terms of manpower deficit and ongoing operational activities. The challenges related to the energy crisis are put in the background. The pressure of energy costs had an impact that manifested itself differently at the level of the hotels analysed. They were advantaged: group hotels (with clearer procedures and help in the form of consumption and cost centralisation systems) and hotels with a high ADR (did not feel the pressure of the increase in energy cost increase). The energy price cap remains an aid measure for the units to which it applies. This measure helps to satisfy the need for predictability and to be guided by solutions and decisions (external or internal) to reduce the unpredictable factor, an approach that is specific to the whole business environment, as it also results from the research of the authors Becerra-Vicario et al. (2022).

Measures are taken to reduce consumption, varying from one institution to another, from the simplest to the most complex investments, a fact that also emerges from the study by researchers Cingoski and Petrevska (2018). Managers are concerned about this aspect and pay more attention to consumption levels in operation and in the process of retrofitting and modernisation. Energy efficiency is largely seen as instrumental and secondary. Government support is very important and necessary, but government actions to promote energy sustainability are seen as insufficient. The main barriers cited were the following: Cost, bureaucracy and other legal issues, corporate politics (changes are planned but as part of a future comprehensive renovation, not as an immediate push).

It can be said that the results of this study fit very well into the stream of publications on resource efficiency in the hotel industry, and many of these findings confirm previous studies

conducted in other geographic areas, such as those of Kularatne et al. (2019) or Bohdanowicz et al. (2020). We point to the increasing tendency to take action to reduce the cost of energy resources in order to increase economic efficiency, the recognition that involving employees and tourists in promoting responsible consumption is truly an important direction, a fact also emphasised by other authors (Wang et al., 2020), and the awareness of the need to invest in technology in order to increase environmental efficiency, a need previously highlighted by authors such as Yu et al. (2017), while attracting a wider clientele. On the other hand, our study also showed that limited financial resources can be a barrier to investing in green technologies and that government support remains essential for the hotel industry.

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