A Plan for Developing an Ecological Business Approach for a Selected Company

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ABSTRAKT

Předmětem této bakalářské práce je seznámení s problematikou hotelnictví a udržitelného podnikání a vytvoření rozvojového plánu s důrazem na ekologii pro konkrétní hotelový subjekt. Teoretická část obsahuje základní pojmy a problematiku hotelnictví a jeho dělení, dále problematiku udržitelného podnikání a metody dosažení energetické soběstačnosti. V praktické části je provedena hloubková analýza daného hotelového subjektu a následně je sestaven plán ke zvýšení soběstačnosti hotelu a celkové ekologičtější pojetí podnikání. Praktická část také obsahuje podrobný finanční plán k projektu a jeho varianty plus celkové vyhodnocení plánu.

Klíčová slova: udržitelnost, ekologie, soběstačnost, hotelnictví, životní prostředí, finanční plán

ABSTRACT

The main objective of this bachelor's thesis is to understand the concept of hotel industry in connection with sustainable business and create an ecological development plan for a specific hotel subject. The theoretical part covers the basic terminology related to the hotel industry and its division, as well as the issue of sustainable business and methods of achieving energetic self-sufficiency. In the practical part, an in-depth analysis of the hotel subject is performed. Then a plan is compiled to increase the self-sufficiency of the hotel and to create an environmentally friendly concept of business. The practical part also contains a detailed financial plan for the project and its variants, plus an overall evaluation of the plan.

Keywords: sustainability, ecology, self-sufficiency, hospitality, environment, financial plan

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I hereby declare that the print version of my Bachelor's/Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

CONTENTS

INTRODUCTION

This bachelor thesis focuses on the development of a specific company. The company I have chosen is located in South Moravia in Lednice na Moravě, which is a small but famous town, or rather a village. The most prominent dominant of the town is an old castle which is part of the UNESCO. The castle is one of the most famous and frequently visited monuments in the Czech Republic, and tourism is the primary source of income for the company. The company is primarily focused on an accommodation business, either for individual customers and families or for big events. The company owns a restaurant and a hotel, but the restaurant will not be a part of the thesis. The thesis will only focus on the hotel and its surroundings. My intention is to reduce the costs of the hotel and simultaneously make it more self-sufficient with the purpose of reducing the negative impact on nature. I was highly influenced by the consequences of the COVID-19 pandemic in 2020 and by the news that the economy could be back to normal in 2022 or in 2023. The thesis has a theoretical part that will contain all information necessary to understand the topic and a practical part that will focus on the analysis of the hotel, based on which I will suggest changes and their realization. My intention is to make the hotel more sustainable. This will only be manageable by choosing responsible and sustainable resources, by implementing solar panels, and lastly, by more advanced waste sorting. All the mentioned changes will then be used in the marketing and promotion of the hotel.

I. THEORY

1 HOTEL INDUSTRY

The hotel industry is a global industry, the main characteristic of which is that it is continuously changing. The hotel industry is dependent on the economic situation and economic development of the country it is situated in. With traveling becoming more and more affordable, the hotel industry is thriving. However, with changes in external and internal factors, hotels are frequently disappearing, and new ones are being built. In addition to what was mentioned, hotels also have a network of interdependencies such as clients, services, or investors. (Nica 2010, 2)

1.1 Significance of the Hotel Industry

Sheela (2002, 1) claims that the state economy involves many fields, which are also tightly connected to the hotel industry. This particular type of business makes profits by offering different kinds of services to its customers. The services are provided in the form of food, accommodation, entertainment, and other services based on the guest's preferences and limitations.

The hotel industry generates significant benefits for the whole economy, and its contribution to the economy is measured by its output. (Sheela 2002, 21) According to the Ministry for Regional Development, 36.3 million tourists from foreign countries visited the Czech Republic in 2018. In general, tourism generated CZK 295 billion in that year. The tourism sector employed in total 241,000 people, which amounts to 4.44% of the country's employment rate. (Ministry for Regional Development, 2020)

1.2 Traditional Classification of Hotels

Hotels are classified based on many different aspects that determine their quality or target customer. However, among the most common classifications are the following: size of hotel, type of hotel, and class of hotel. These classifications are broadly used and easy to understand by the general population. (Vallen and Vallen 2014, 23)

1.2.1 Size of Hotel

According to their size, hotels are divided into large, medium, and small. Large hotels have 300 rooms or more. Medium hotels have between 100–300 rooms, and small ones have less than 100 rooms. (Vallen and Vallen 2014, 19–20) Another aspect that is a part of the overall criteria is the size of individual rooms. Hotel rooms must also meet a certain size depending

on the hotel's classification. The sizes of rooms range between $8m^2$ to $16m^2$. If the hotel meets quality criteria but not the size, it will be ranked by the lower-class level. (Vallen and Vallen 2014, 24)

1.2.2 Type of Hotel

Vallen and Vallen (2014, 25–26) divided hotels into three main types. Commercial hotels, which are usually business-related and are meant for short-term stays. The next type is residential hotels, which are characterized by long-term stays and a variety of provided services. And the third main type is resort hotels, which are again characterized by long-term stays, a wide scale of activities and services, and usually have large areas around. These types are typical for the United States, where the variety of types is wider, e.g., Extended hotels, which are somewhere between residential hotels and commercial hotels.

In the Czech Republic, the system is different, and it is based on the Official Uniform Classification of Accommodation Facilities in the Czech Republic. According to this document, there are five types of accommodation.

- Hotel
- Hotel Garni
- Motel
- Pension
- Botel

The criteria for these five types of accommodation are provided in the table below.

Type of accommodation	Criteria
Hotel	Accommodation establishment with at least ten guest rooms equipped to provide temporary accommodation and a variety of services.
Hotel Garni	Accommodation with at least ten guest rooms equipped to provide temporary accommodation and equipped only for a limited range of meals.
Motel	Accommodation facility with at least ten guest rooms providing temporary accommodation and related services, especially for motorists. The facility is located near roads with parking and reception. A restaurant can be outside the accommodation.
Pension	Accommodation facility with a minimum of 5 and a maximum of 20 guest rooms, with a limited range of social and additional services. According to the criteria, there is an absence of a restaurant. However, many Pension facilities have a restaurant.
Botel	Accommodation facility located in a permanently moored ship.

Table 1: Types of accommodation in the Czech Republic (adapted from HotelStars.cz)

1.2.3 Class of Hotel

The class of the hotel is usually determined by the price and the rating system. Vallen and Vallen (2014, 21) claim that there exist over 100 rating systems all over the world. Even though some systems are unique, the majority of hotels use the star classification system. This system is the most widespread in Europe and is differently standardized in each country. To overcome the differences in standardization, the World Tourism Organization has

standardized and recommended attributes of each class. The top is the Deluxe class or the Luxury class. On the second level is the First class, which is frequently misjudged as the best one. The third one is the Economy or the Tourist class, and the last are the fourth and fifth levels. The last two levels are usually without private baths or centralized heating systems. (Vallen and Vallen 2014, 23)

Symbols and typical criteria for the star classification system can be found in the table below.

- One-star hotel ★
- Two-star hotel ★★
- Three-star hotel ★★★
- Four-star hotel ★★★★
- Five-star hotel ★★★★★

Categories	**Typical Criteria**
One-star hotel	own sanitation unit, TV set, table, and chair, fax facility at reception, public phones at clients disposal, a safe facility at reception, breakfast
Two-star hotel	Buffet style breakfast, veilleuse by the bed, only use cosmetics, POS
Three-star hotel	Reception open 14 h/day, by phone 24h/day, minibar, Internet connection in the lobby or in the room, sewing kit, shoe care kit, supplementary blanket, and pillow on request, complaints management system
Four-star hotel	Reception open 18h/day, by phone 24h/day, doorman or valet parking, buffet type breakfast, room service, minibar, robe and slippers on request, Internet connection, a la carte restaurant
Five-star hotel	on 24h/day, doorman or valet parking, concierge, personalized pillow mints, minibar, PC with an Internet connection, ironing, and shoe care facilities

Table 2: Hotel categories in the Czech Republic (adapted from HotelStars.cz)

1.3 Hotel Management

Every business has its goals and targets. The same applies to hotels and other tourism establishments. The role of management is to direct the hotel to achieve these targets. Some of the main goals of the hotel management might be to increase the occupancy of rooms or to develop a certain trade, e.g., conferences. Different levels of management will focus on different tasks. The owner or the CEO will be generally concerned with the financial targets of the company. Lower management positions will be focused on the product or service targets along with personnel targets. (Messenger 1990, 54–55)

1.4 Employees and Service

If a hotel or any other kind of accommodation offers rooms and food to its guests, it is a service. Therefore, service is the primary source of income for the hotel. The service is done by employees who are one of the main pillars of the service sector. Hotels need to choose personnel carefully because their guests expect a certain level of environment and quality of these services provided. The personnel should be friendly, efficient, neat, reliable, responsible, able to serve, and able to sell. (Weissinger 2000, 20)

1.5 Working Hours and Pressure of Work

According to Messenger (1990, 7), hotelkeeping is a service industry like other service industries, for example, police or army, for all these are typical non-standard working hours. As some hotels are open 24 hours a day and seven days a week, it means that there must always be staff on duty, to be at service and help customers when necessary. Due to this, the staff has to work on shifts and also during weekends. This puts a great pressure on workers in this industry as the work pace is usually very fast, and a certain amount of responsibility is always necessary.

1.6 Yield Management

According to Kimes (1989, 15), yield management is the process of allocating the right type of capacity to the right type of customer at the right price. The purpose of this process is to maximize revenue. This is why yield management is sometimes also called revenue management. Normally the hotel managers would like to sell all hotel rooms for the highest possible price. However, this policy could mean empty rooms and later decrease in revenue. A way to prevent this is a trade-off. The main goal of the yield management is to explain

these trade-offs. It should answer the question of how many rooms should be provided and to what market segment?

Yield management is used by companies with fixed room capacity. These are hotels and also airlines. Once an airline company buys an airplane, there is a limited number of seats. Airlines use yield management to fill as many seats as possible on each flight. The same is applicable for hotels and other accommodation providers. Managers need to be able to segment the markets for the program to be as effective as possible. Two typical groups are business vs. pleasure travelers. Hotel managers need to apply different marketing strategies for those groups. For pleasure travelers, it could be lower prices but a specific length of stay. For business travelers, it could be a higher price but no time penalty. (Kimes 1989, 16)

1.7 Seasonality

According to Butler (2001, 5–6), seasonality is defined as *"Temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as numbers of visitors, expenditure of visitors, traffic on high-ways and other forms of transportation, employment, and admissions to attractions."* Seasonality as one of the major problems of the tourist industry, has created lots of difficulties and problems such as low investment returns, problems in obtaining capital, or very frequently problems with keeping or hiring enough personnel. Another major problem is the peaking and overuse of facilities which is a direct consequence of seasonality. The problem of seasonality still persists despite the efforts of the public and private sectors, such as pricing and marketing strategies or financial aids. The author also highlights a question if the problem has been properly understood and if it is even solvable.

1.8 Marketing

The purpose of the company's marketing is to convince customers to choose their accommodation and actually make them book a room. The marketing process involves various types of promotion such as television, radio, newspapers, and magazines. (Andrews 2008, 86)

1.8.1 Marketing Mix

The marketing mix is defined as a combination of a variety of tools that can be used to influence sales. The established and most commonly used formulation is called 4Ps. This abbreviation represents product, price, place, and promotion. The product also includes packaging and services, and promotion includes sales, advertising, public relations, and direct marketing. Each company can choose tools they need or that are appropriate for the current stage of the product life cycle. The choice of tools also depends on the size of the company because larger companies can invest more into advertising. For the marketing mix to be successful, all parts of the mix must be connected and integrated. Many companies still have a system where each part of the marketing is managed by different individuals or sections. (Kotler 2003, 108–111)

1.8.2 Digital Marketing

Digital marketing is a relatively new marketing industry that is frequently confused with online marketing. The difference is that online marketing was reaching its final stage of development at the beginning of the 21st century. Companies started to use web pages, emails, or online databases. Many companies also used their web pages for placing banners, and some started to work on their search engine strategy. This all was part of online marketing. Digital marketing emerged with social media. They completely transformed the internet and the behavior of consumers. The process was ultimately accelerated with the emergence of smartphones and other smart devices, meaning that the marketing spread on these devices and their applications were much faster. Analytics has reached the point where companies can understand consumers' behavior in real-time also including demographic and other data. (Kingsnorth 2016, 6)

2 SUSTAINABLE BUSINESS

Sanneh (2018, 2–3) depicts that continuous climate change is a monumental danger not only to human society but to the natural world itself. Levels of CO2 are rising along with increasing heat waves making some places no longer habitable. Lack of water together with insufficiency of farmlands and coral reefs disappearing at an alarming and continuously increasing speed all make this problem closer to becoming no longer irreversible. The author states that an adaptation to climate change should have the highest priority. This should include adapting to new sources of energy, food, and water supplies along with forestry or health. These adaptations should be implemented on regional levels. When it comes to business sustainability, Scott (2010, 2) claims that focusing only on the solution to reduce the negative impact on nature is not enough and that sustainability includes not only the environment but also financial, economic, social, and other aspects. The World Commission on Environment and Development defined sustainability as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

2.1 Green Hotel

The hotel industry, like any other industry, is dependent on natural resources and consumes a significant amount of energy. Hotels and their high consumption include not only energy and water but also a large amount of nonrenewable resources. There is a strong correlation between the consumption of resources and the emission of greenhouse gases, such as CO2, methane, or fluorinated gases. High consumption generates a high production of greenhouse gas emissions, from which carbon dioxide is the most devastating for our environment. This applies especially to large international hotels or hotel chains where consumption is unfavorably high.

A green hotel can also be called an eco-friendly hotel or a sustainable hotel. The main purpose of green hotels is to maintain the quality of their services while focusing on saving energy and resources to decrease an unnecessary waste. To create a more sustainable environment, the hotel should also educate both its employees and guests and encourage them to cooperate to maximize waste reduction and minimize the environmental impact. Chung (2020, 725) also highlights that recent studies showed that tourists are more interested in environmentally friendly products and services. Therefore, this whole process could be mutually beneficial for both sides, the tourists and the hotels. (Chung 2020, 724–725)

2.2 Waste Reduction

Waste reduction is a process during which companies try to eliminate their waste. For the reduction to be successful, in-depth knowledge of the company is necessary. For this reason, a number of experts suggest creating a process map because almost every process or company should benefit from being mapped. This includes the mapping of services, factories, farms, or offices. If the process is done properly, it will reveal valuable information containing from raw materials or packaging to transportation, and can reveal flaws in the production process or services. Once the whole business is examined, possible flaws can be fixed, resulting in a waste decrease. (Scott 2010, 30–33) It is also essential to find partners and suppliers with the same values, because the company can try to reduce its waste but it is without much result if it has unresponsible suppliers. Azevedo (2014, 7) claims that "*Many organizations implement eco-innovation in cooperation with other companies belonging to the same production value chain, such as suppliers and manufacturers, but also with actors belonging to the entire business ecosystem, e.g., universities or shareholders.*"

2.3 Green Building

New buildings are little by little no longer build as a major cause of waste and energy consumption since progress is being made. According to Scott (2010,81–84), new buildings are more often designed for long-term savings than cutting the building expenses in the short term. Financial benefits in terms of less energy or water consumption are not the only benefits. Another important fact is that greener buildings are proven to have better visual, thermal, and acoustic benefits. These benefits have a great effect on the employees in terms of higher productivity, sales, fewer accidents, and several other benefits. Consequently, better and greener buildings are more efficient and often see an increase in profits. Green building does not necessarily mean a new one. Before a company builds a new and efficient building from scratch, it can also upgrade an already existing building to meet adequate levels of efficiency. This solution is usually more cost-effective.

2.4 Energy Management

According to Parmenter and Smith (2016, 7), energy is essential for our survival, and with increasing energy consumption worldwide, efficient energy use is a necessity. This situation led to the formation of energy management, which is also called load management, demand-

side management, or inaccurately energy conservation. The purpose of the energy management is to come up with practices on how to manage energy more effectively and how to reduce energy consumption through more efficient systems or technologies. The term energy efficiency is defined by the authors as *"an alternative method, process, or piece of equipment to produce a given outcome (a product or service, for example) with less energy. Implementation of these types of change hinges largely on the availability of technology and economic justification."* Energy management is beneficial for both short-term and long-term usage, and it is a quicker way of managing energy because it is much faster than building another power plant or another mine. (Parmenter and Smith 2016, 33)

2.5 Reduction of Water Consumption

Scott (2010, 89–90) claims that water is essential for our society and the proper functioning of our bodies. The amount of drinkable water is some 3% of the total amount of water on the planet, and the rest of 97% contains salt. And yet, the consumption of water is increasing worldwide and is creating a potentially hazardous future. In the case of businesses, with a deteriorating water supply and its ever-increasing consumption, this eventually results in higher costs for the companies. Businesses usually waste their water through wasteful production systems, not thinking in the long-term, or they are simply ignoring the alarming water situation even though saving water is worth the effort. There are several ways of how to decrease water consumption, and these include locating wasteful sources, educating employees about how to be more efficient, installation of motion detectors under taps or water flow fixtures. An important part is also to fix and repair leaks as soon as possible and turn off all cooling units when they are not necessary. Increasingly popular is also catching and recycling of grey water and rainwater. According to Allen (2017, 4) can grey water system save up to 70 liters per person per day, depending on the type of system and building and many other variables.

2.6 More Efficient Equipment

Another way of saving energy and resources is to use more efficient equipment. This kind of equipment has the same purpose but can do the job with less energy or consumes fewer resources, e.g., when LED or T5 fluorescent lamps are used for area lighting. Another example could be the usage of efficient motors instead of standard motors. This method can be applied to different types of industrial, commercial, or other equipment. A big help for

customers when trying to use more efficient equipment is that all products are now labeled or rated by their efficiency level. (Parmenter and Smith 2016, 40)

2.7 Energy Production and Energy Storage

Each company can produce and store its own energy. The important fact is to carefully consider which option would be the best not only for the company but also for the environment. The company should focus on cost savings as well as on products with higher levels of efficiency. First, the company needs to consider if an alternative source of energy and its storage is applicable or if a different energy conversion process is necessary. Among the most popular systems being applied nowadays is a photovoltaic system that produces solar energy. Despite the fact that the system is very expensive, the costs to install this technology are decreasing, and on the contrary, usage of photovoltaic systems is increasing. This is all due to the advanced development of this technology along with massive progress in battery technology. (Parmenter and Smith 2016, 44)

Batteries are installed to store surplus energy which can be later used once the sun sets and the solar panels stop producing solar energy. The negative aspect of batteries is that they have to be replaced number of times because of their limited number of life cycles. (Yahyaoui 2018, 5)

2.7.1 Photovoltaic system

As mentioned before, solar panels are one of the most frequently installed energy devices, and as technology advances, the price that was once unacceptable for many households and companies is now more affordable. Moreover, technology is becoming more efficient, productive, and durable. The fact is that solar panels do not require direct sunlight and also work in cloudy or rainy weather. However, with direct sunlight are panels are most effective. The system is also popular because the solar cells have long live service, which reduces environmental impact for a long time period. (Scott 2010, 95–96)

2.7.2 Ground Source Heat Pumps

The ground source heat pumps are designed to extract heat from the ground, more precisely ground, water, or geothermal heat. Water is undoubtedly the best source of heat and still belongs to the ground source section. The advantage of water is its stable temperature, usually above 10 °C. With any water source, local rules and regulations must be taken into

account. When it comes to the ground source, under a certain depth, the temperature tends to be relatively stable with the scale from 5 to 10 °C. With regard to the water source, which is not found that often, the ground source is the most discussed when the heating system is considered. There are two methods applicable. The first is through plastic pipes that are placed in the trenches, and glycol solution flows through them and helps to absorb the heat.

The second method is through a drill hole. This is usually applied in locations with a lack of space. The hole is drilled until the necessary ground temperature is found. The hole can be 50 or more meters deep, depending on the location. (Hundy, Trott and Welch 2016, 395–397)

2.7.3 Air Source Heat Pumps

Performance of the air source heat pumps unfolds from the air temperature. This solution is much cheaper than the ground solution because no drilling or a large area is necessary. This solution also tends to be more effective for locations with mild winters. However, several problems may occur. One of the problems occurring during winter is an ice formation on the outdoor coil, which results in instability of this system during the winter. Another problem might be an affected capacity and efficiency during winter, which is caused by sudden changes in temperature. (Hundy, Trott and Welch 2016, 398–399)

II. ANALYSIS

3 HOTEL DESCRIPTION

The hotel is located within close range of the town center of Lednice, right on the main road when heading to Bulhary. Bulhary is a small village nearby Lednice, and it is famous for its part in frequently sought wine trails of South Moravia. With its 27 rooms and some 750 meters, which equals 7-8 minutes from the center, the hotel provides quiet and comfortable accommodation. The whole complex is located on roughly 2,500 square meters.

The accommodation level is between a guesthouse (pension) and a hotel. But after the latest renovation, the hotel could be ranked as a two-star, possibly a three-star hotel based on the Czech Association of Hotels and Restaurants. But still, some improvements are planned.

3.1 Changes and Renovations

Between the years 2015 and 2020, several changes and renovations were made. In 2015, one of the most significant improvements was the addition of a new wine cellar, built under the old and the new building or, which are also called, building A and building B. The owner uses the names *old* and *new* buildings, even though both have been renovated and are in good condition. The cellar was partly built to attract new customers and partly because it was the owner's dream to have a cellar of his own. As the hotel is not located in the town center, its main guests are visitors to Lednice, accommodated in the hotel, and few other visitors, which is not ideal. The newly built cellar has opened new possibilities as it is used primarily for important events and job-related team buildings that are planned in advance. Future plans are to have it open for everyone, but before this can be realized, the whole company needs further improvements and needs to define its target customer.

The cellar cost over CZK 10,000,000, and this price included the renovation of an already existing big cellar, which can now place up to 80 guests, and two other smaller cellars were built – one for up to 40 guests and the smaller cellar for up to 11 guests. All cellars are interconnected by corridors. There are also premises for storing wine and for wine tasting in small groups. The design of the entire cellar is very traditional, including its red bricks on the walls. Along with the wine cellar, the same hired building company also made a new pavement between the old and the new building and a pergola connected to the new building, enabling smokers to sit outside and smoke even during the rainy days.

3.1.1 Building B

Another significant change was the renovation of the interiors of both main buildings. In 2020 the new building (building B) was renovated. There is a small restaurant that is now used for serving breakfasts, and then there are two other floors above it. Both floors are completely renovated as well. They are equipped with new, custom-made furniture to save space because the rooms are not very spacious. There are new bathrooms and bedrooms. Each room is equipped with air conditioning since the temperatures in summer can be really high inside the rooms. This is a direct consequence of the building being exposed to the sun from early morning until late evening. The building is also connected to the cellar, which is a hidden dominant of the whole complex.

3.1.2 Building A

The *old* building (building A), which faces the street, is the first building that a guest will encounter when arriving. The building has three floors. The reception, as well as three standard rooms and two luxury apartments for families or bigger groups, are located on the ground floor. The second floor and the attic are also renovated and equipped with new furniture, bedrooms, bathrooms, and other equipment.

4 FINANCIAL ANALYSIS

In this chapter, I will analyze the financial state of the hotel. For the financial analysis, I will use the company's data from the years 2018 and 2019, as 2020 was negatively affected by the ongoing COVID-19 pandemic.

4.1 Revenue

The following table describes the company's revenues and costs over those two years. Maurya (2012, 41) describes revenues as something that "*measures the events that get you paid*. "On the other hand, Wolk, Dodd, and Tearny (2003, 373) hold the view that revenue or profit is "*an increase in net assets arising from income-producing activities*" in a certain period of time. To put it simply, revenues are the outputs of a company. The primary method for calculating revenue is by multiplying the number of units sold by the unit's price.

Hotel (CZK)	**2018**	**2019**
Hotel revenue	4,622,860	4,611,477
Wine cellar revenue	2,835,393	2,769,458
Costs (CZK)		
Repairs and reconstruction	3,000,000	2,000,000
Resources	850,000	830,000
Gas	87,194	100,677
Electricity	91,137	86,137
Water	79,949	71,062
Personnel	841,320	928,799
Waste Collection	15,000	15,000
Maintenance repairs	200,000	200,000
Radio, Tv royalties	58,828	58,828
Web pages, updates, maintenance	12,000	12,000
Internet	6,000	6,000
Earnings before taxes (EBT)	2,216,825	3,072,432
Earnings after taxes (EAT)	1,795,628	2,488,670

Table 3: Revenues and expenses: an overview (own creation)

In the table above, we can see the revenues and the costs of the hotel in the years 2018 and 2019. The table has all the necessary data to give us an idea of how the hotel and the company are performing. Both years are very similar except for the repairs that were made each year. Hotel revenue and cellar revenue are very similar and only highlight the hotel's financial stability and its seasonal occupancy. We can observe an increase in gas consumption, but at the same time, there is a decrease in electricity consumption. There is a noticeable difference in personnel costs, which the owner explained as an increase in the workers' salaries by more or less 10%. Maintenance and repairs contain anything from annual maintenance and paintings to exchanges of lightbulbs.

Radio and tv royalties are paid to Czech Television (CT), the public service broadcaster in the Czech Republic, and the price is, number of tv sets multiplied by the months and by the price for one tv set 28×12×135= CZK 45,340. Other royalties are paid to Czech Copyright Protection Association in total CZK 13,468, which is 481×28. When determining the price, discounts and seasonality of the hotel play a crucial role. Considering that building A and B's extensive repairs are not annual, the hotel's earnings should be enough to invest in ecological modifications and enhancements.

4.2 Filled Capacity of the Hotel

The table below shows the filled capacity of the hotel in 2018 and 2019.

The average filled capacity of the hotel in 2018 and 2019		
Year	**2018**	**2019**
Month	**Filled capacity**	**Filled capacity**
January	0%	0%
February	0%	0%
March	0%	0%
April	15%	15%
May	35%	35%
June	40%	40%
July	70%	70%
August	70%	70%
September	50%	50%
October	30%	30%
November	5%	5%
December	5%	5%
The average accommodation was approximately 35-37%		

Table 4: Average filled capacity of the hotel (own creation)

To fully understand the table above, we must realize that the hotel works only seasonally. The average filled capacity of the hotel in the years 2018 and 2019 was almost identical because the difference between the revenues of these two years is negligible. As shown in the table above, the hotel revenue in 2018 was CZK 4,622,860, and in 2019 CZK 4,611,477. The difference has no impact on the average filled capacity, which is, therefore, the same for both years.

To understand the average accommodation capacity, which is approximately 35-37%, we must also take into consideration the location of the hotel. The town and the chateau are a great attraction for tourists, but typically during summer, therefore the accommodation here is somewhat seasonal, meaning that in summer, the capacity is mostly filled, but in winter, it is the opposite. Summer months have the highest number of visitors. During spring and fall, these numbers are below average. The hotel is completely closed during the winter months (i.e., December to February).

4.3 Meteorological Data

The table below contains the meteorological data from Lednice's weather station. The data includes precipitation, temperatures, and sunshine. The reason I included this table is because the recorded data will be analyzed and used to estimate the functionality and effectiveness of several projects discussed later in the thesis.

Data	Average value	Maximum	Minimum
Precipitation			
January	24 mm	76 mm (1977)	0 mm (1990)
February	23 mm	70 mm (1977)	1 mm (2003)
March	29 mm	85 mm (2009)	1 mm (2012)
April	32 mm	95 mm (1972)	3 mm (2007)
May	56 mm	132 mm (2010)	15 mm (1973)
June	64 mm	109 mm (1970)	10 mm (2015)
July	69 mm	221 mm (1997)	8 mm (2013)
August	56 mm	168 mm (2002)	10 mm (1983)
September	45 mm	166 mm (2014)	6 mm (2006)
October	33 mm	124 mm (1964)	4 mm (1995)
November	37 mm	110 mm (1962)	0 mm (2011)
December	28 mm	62 mm (1974)	3 mm (1972)
Temperatures			
January	-1.2 °C	4.6 °C (2007)	-7.8 °C (1985)
February	0.7 °C	5.4 °C (2016)	-5.7 °C (1963)
March	4.8 °C	8.3 °C (2017)	-0.4 °C (1987)
April	10.4 °C	15.5 °C (2018)	7.1 °C (1980)
May	15.1 °C	18.3 °C (2018)	11.4 °C (1991)
June	18.3 °C	23.1 °C (2019)	15.3 °C (1985)
July	20 °C	23.5 °C (2006)	17.2 °C (1979)
August	19.4 °C	23.7 °C (1992)	16.3 °C (1976)
September	14.9 °C	17.9 °C (1999)	12.2 °C (1996)
October	9.5 °C	13.1 °C (1966)	6.4 °C (1974)
November	4.6 °C	7.9 °C (2019)	0 °C (1988)
December	0.3 °C	3.7 °C (1979)	-4.2 °C (1969)
Sunshine			
January	51.2 hours	95.5 hours (1993)	16.5 hours (1970)
February	82.1 hours	136.6 hours(1990)	30.8 hours (2009)
March	131.6 hours	203.7 hours (2012)	66 hours (1985)
April	187.2 hours	300 hours (2007)	118.6 hours (1972)
May	228.7 hours	299.4 hours (2011)	109.3 hours (2010)
June	237.5 hours	324.1 hours (2019)	174.5 hours (1969)
July	249.1 hours	351 hours (2013)	121.9 hours (1979)
August	235.7 hours	308.4 hours (2003)	151.6 hours (1977)
September	171 hours	244.5 hours (2018)	83.2 hours (2001)
October	125.2 hours	191.3 hours (1971)	67.1 hours (2016)
November	58.3 hours	95.6 hours (2015)	11.5 hours (1978)
December	45.2 hours	74.6 hours (2014)	16.5 hours (1969)

Table 5: Precipitation, temperatures, and sunshine in Lednice (adapted from Lednice's weather archive)

In the table above, we can see that there has been a decrease in precipitation in Lednice, and we can assume that this phenomenon will continue, because of the global warming. Based on the statistics, 8 out of 10 months during which the highest precipitation was recorded are more than 20 years old. Those years are from 1962 to 1997. Among the months with minimum rainfall recorded, we can notice an opposite phenomenon, 7 out of 12 months with minimum precipitation recorded are after the year 2000. We can also see an intensification in the number of sunny days and light hours, which offers the hotel an opportunity to focus on solar energy improvements.

5 PLAN OF IMPROVEMENTS

In the improvements plan, I will discuss solar energy, which could help the hotel produce energy of its own and move it closer to energetic self-sufficiency. Then I will also focus on heat pump solutions, waste sorting, finding local suppliers, and finally, water retention will be discussed. Water retention is a disturbing problem in the Czech Republic. All these improvements would later be documented and used for marketing purposes on the company's webpage, which is being modernized, or on the Booking platform, which is the hotel's long-term partner.

5.1 Existing Measures

Based on the thorough research of the hotel and the analysis, it is evident that the hotel is not ecological in numerous aspects and needs several improvements. However, one of the aspects in which the hotel is ecological is extended repairs in previous years and masonry insulations that help the hotel to retain heat. The hotel also sorts waste, but the existing procedure needs a lot of improvements to be more advanced in scale sorting. Another useful feature is that all the rooms have been repaired and are equipped with new and more efficient heating, plus, new and more efficient lights were installed, in many cases LED lights. All the lights in halls and shared areas are self-switching.

The hotel is closed during winters, as previously mentioned, and all the possible measures are taken to reduce costs until spring opening. A lot of devices and machines are turned off, including unused fridges or heating. The heating is turned off for some months, and during the really cold ones is turned on, so it does not freeze. The hotel also works with some local suppliers, which is more practical, comfortable, and leaves a smaller carbon footprint.

5.2 Waste Sorting

Waste sorting is one of the more significant problems that need more attention. The fact is that not only is waste sorting necessary for the environment but is also obligatory for all citizens. The hotel already has a waste sorting system, but it is highly inefficient, and neither employees nor guests are motivated enough.

There is hardly any space for three separate bins in each room, but for a start, it would be practical to have one larger unit in the yard. It is a strategic place because the yard lies between the two main buildings, and every guest must pass through that yard. The bin unit

would be placed there, and everyone holding some plastic or other waste would have the possibility to sort it properly. Two primary examples of its usefulness are. 1) A family arrives at the hotel after a long trip in a car, and during hot summer months, everyone has at least one plastic bottle, which now can be appropriately disposed of. 2) Many of the tourists are cyclists, and after a long day, they can also have many plastic bags and bottles. There will be one bigger waste bin in the yard but well designed to not disrupt the overall impression of the hotel. Another two containers need to be purchased so the smaller ones will be emptied into these bigger ones that are later dealt with by a waste collection company.

Supplier	**Product**	**Price (CZK)**
Petr Soukup a spol. s. r. o.	Container 1 (plastic waste)	6,205
Petr Soukup a spol. s. r. o.	Container 2 (paper waste)	6,090
Kovofit s.r.o.	Waste bin	9,135
Total		21,430

Table 6: Suppliers and costs of waste bins (own creation)

5.3 Solar Energy

An essential part of a green business is the company's own energy production. This can be achieved in many different ways, but for this specific hotel, solar panels are the most suitable solution. As described in the previous tables, May, June, July, August, and September are the five months during which the hotel accommodates most guests, and they are also months with the highest average number of light hours. And to be more precise, these numbers are 228.7 hrs., 237.5 hrs., 249.1 hrs., 235.7 hrs. and 171 hrs. These data provide a piece of significant evidence that the location is suitable for implementing solar panels. Based on the energy consumption data, the hotel consumes approximately 25 MWh per year.

Electricity consumption	
Year	Consumption (kWh)
2018	33,931
2019	24,745

Table 7: Energy consumption (own creation)

Iner Solar		
Name of the product	Voda Maxi	Voda Maxi
Power plant power (kWp)	4,50	9,90
Number of panels	10	22
Type of panel	EXE Solar EXE A-HCM450/144	EXE Solar EXE A-HCM450/144
Powe failure backup	No	No
Price (CZK)	195,000	273,000

Table 8: Solar energy supplier and plant description (own creation)

S-Power		
Name of the product	S-Power CORP	S-Power CORP
Power plant power (kWp)	14,96	19,36
Number of panels	34	44
Type of panel	Canadian Solar 440 Wp	Canadian Solar 440 Wp
Powe failure backup	No	No
Price (CZK)	339,000	424,900

Table 9: Solar energy supplier and plant description (own creation)

To make sure the solutions are as realistic as possible, I contacted several companies that specialize in solar energy power plants and were able to provide this solution for bigger companies and objects. I received four plans from a really small power plant to quite a big one, and the strategy is to choose the best option for the hotel. Photovoltaic panels are suitable for buildings with the highest electricity consumption during the day and have it evenly distributed throughout the year, which is not entirely the case of the hotel. It is seasonal, and lot of guests are away during the day.

There are two main options. The first is to go with the smaller solutions, which will need fewer preparations, permissions and would be less visible, but the energy production would not make a more significant impact. Or the company can choose one of the bigger options, and probably the biggest solution would be the most effective because its yearly production is 19,36 kWp and the hotel's consumption is more or less 25 MWh. The bigger solution would also mean that if the company combined the project with other projects, it could apply for a subsidy which will be described later in the financial resources (see 6.3).

The power plant will help power fridges, lights, and air conditioning. However, the system is not equipped with an accumulator to store energy because this additional component would significantly increase the price of the whole project. Created electricity

that is not directly consumed will be used to heat hot water or will return to the distribution networks, and based on the agreement with the electricity provider, the company buys the electricity from the hotel but for a minimal price. If the company chose the suggested solution S-Power CORP with the 19,36 kWp, the supplier states the investment return is from 6 to 8 years but with the seasonality issues, it would be probably longer. All the components have a solid warranty, the panels even 25 years, but the problem is that in 25 years, the technology would be much more advanced. The average annual energy cost savings would be from CZK 50,000 to CZK 70,000 a year.

5.4 Water Retention

Based on the data from the official weather archive from Lednice, it is generally accepted that the precipitation will probably not increase in the near future, rather the opposite will happen. The decrease in rainfall is caused mainly by global warming, which forces the hotel to rethink its existing consumption strategy and lean over to new and more efficient solutions. In this case, there is an opportunity to focus on water retention. Rainwater which normally drains into the sewer will be stored in two tanks. Each of the main buildings will have its tank into which the rainwater will be stored and later can be used.

Company	**Product**	**Volume (Liters)**	**Price (CZK)**
Ramaco s.r.o.	Nadzemní nádrž Top-Tank 1300 L	1,300	6,700
SINEKO Engineering s.r.o.	Nádrž NAUTILUS 5 m³ “na klíč”	5,000	44,988
Total		6,300	51,688

Table 10: Water tanks suppliers (own creation)

The first tank will be placed behind building B, there is a space that can be used precisely for this purpose. The tank is plastic, therefore it does not require a lot of work to implement and get working. However, the second tank will be built into the ground, which requires a lot of preparatory work. This is why the tank should be purchased with all the essential services included.

The hotel also has a well that has a water pump installed and is used for irrigating. The well serves as a significant water source during spring, and early summer, later combined with the tanks, offers significant water storage. There is one more advantage, and it is the seasonality that will provide the time necessary to fill both tanks. The season will

consequently start with enough water in the well and another additional 6,300 liters of rainwater that can be used later.

5.5 Heat Pump

Another solution to reduce energy costs is by using a heat pump. Not only is the pump very effective and useful, but majority of these devices also take up little space. Under current conditions, we must consider two types of heat pumps. The first type works on a ground-water principle, and the second type works on an air-water principle.

The ground-water principle is considered to be the most effective solution. The reason for this is that it absorbs heat from beneath the earth's surface. And as the earth core is still warm, the heat pump has an unlimited source of heat for the whole year. Another advantage of this solution is its reduced noise, it is considered to be the quietest solution. This characteristic is crucial for the hotel when deciding whether to use it because there should not be any additional noise that could potentially disturb the guests.

Alpha innotec	
Name of the unit	SWCV 162H(K)3M
Power of the unit min/max (kW)	3,20 / 17,20 kW
Price of the unit (CZK)	284,953
Accessories (CZK)	5,471 - 56,585
Total price (CZK)	290, 424 – 341,538

Table 11: Heat pump supplier and unit description (own creation)

The price of the unit can vary because there are more options suitable for the hotel, and the price is also without the required service, implementation, and additional materials. The problem with this solution is that it is usually the most expensive one. There are two versions that can be implemented. The first one is by installing flat-plate collectors, but for this solution to be feasible, the hotel would need to have a large, designated area. The collectors are usually installed 1.3 meters underground within this area to collect the heat. This type is not suitable for the hotel, because even if the hotel had an area this vast, there could not be anything built above these collectors after the installation, i.e., no roads, no parking lot, no trees, only grass to not damage the construction.

The second type works through geothermal drills. These drills can be in one or two places based on their efficiency and the capacity of the building. Even though this solution

is the most effective and quiet, the hotel would need geothermal exploration and a building permit. The drilling holes can have different depths, but the most effective ones are 100 or even 200 meters deep. Each drilled meter costs CZK 1,000. So, the drilling itself can cost more or less CZK 200,000 then the unit is necessary and additional services and materials. All this makes the project the most complex to accomplish and also the most expensive. (Alpha-innotec, n.d.)

The air-water principle is more suitable for the hotel, and according to the S-Power project manager, it is also the most common solution in the Czech Republic.

S-Power		
Name of the unit	SLM 6-17 vzduch-voda	AL 32 vzduch-voda
Floor area	up to 350 m²	up to 600 m²
Water tank capacity (liters)	500	800
Heat loss (kW)	11 – 17	25- 32
Price (CZK)	484,000	684,000

Table 12: Heat pump supplier and unit description (own creation)

As mentioned before, this type is the most common, and it is even more efficient when combined with a solar power plant. In practice, the heat pump produces heat absorbed from the air, and the energy necessary to power the heat pump is taken from the solar power plant. One of the problems might be noise, but SLM series units are the quietest ones. The table above contains two typical solutions for bigger structures, but it is impossible to know the exact unit suitable for the hotel without an analysis conducted by a professional. Such analysis would require information about the area of all rooms, the number of rooms, type of heating device, and many more. (S-Power, n.d.)

5.6 Responsible Resources

A more complicated and usually more expensive solution is to switch to a local supplier. Even though this approach would be more responsible and ecological, there are several downsides to it. The supplier may be local but can be expensive, low quality, or provide only a small range of goods. Another serious problem that could possibly arise is that the local supplier will be unable to meet demand since the supplying company usually cooperates with many local companies during the main season.

5.6.1 Laundry

In this way, the hotel is more advanced, and for example, its main laundry is now only 6 km from the hotel's location. The previous laundry was some 28 kilometers away. The new solution is more practical. In case of an emergency, the owner or the hotel manager can simply call the laundry and be there within a couple of minutes if additional towels, sheets, or tablecloths are necessary. The negative aspect is that the hotel now has its own more premium sheets and towels, which were damaged in some cases. Even though the hotel has spare ones, buying premium sheets could be more expensive in the future years.

5.6.2 Cleaning Products

Fosfa is a company situated some 14 km from the hotel, and it specializes in ecological cleaning products. Clean rooms are essential for the hotel and its reputation. Consequently, cleaning products are consumed in significant numbers. Fosfa offers products that come in ecological packaging, and its ingredients have a less negative impact on the environment. Many of the products do not contain any allergens, perfumes, or preservatives, which is reflected in the price of these products. The hotel could try and use these products during the season, and if it finds the products to be effective in producing less waste, the hotel could replace the old cleaning products with these new ones.

5.6.3 Wine

The local wine selection is another simple solution which makes the company more ecological and at the same time satisfies the demand of its guests. The wine is an indispensable part of the company's culture and also the main enticement of the hotel's cellar. The cellar offers many different brands of wine, and most of them are from South Moravia. All the leading brands are local, making this whole process more ecological. The hotel cooperates with brands such as Sonberk, Sůkal, or Mlýnek and the cooperation improves and strengthens every year.

5.7 Marketing Plan

Let me now shift the focus to the existing marketing strategy of the hotel, which needs to be improved. The company has its own web page, which is outsourced and costs CZK 12,000 a year. Then it has long-term cooperation with the Booking platform, which is one of the largest digital traveling companies that provide easy and quick online reservations. All the projects and improvements would be thoroughly documented and presented on the webpage

and on Booking without any additional payments. The company should also focus on paid promotion channels which would include Google, Seznam.cz, and all major social media platforms. The hotel would be presented as a green and ecological accommodation and as a combination of traditional design with new technologies. It is expected that this step forward to green entrepreneurship would attract new customers who care more about the future of our environment. It could also potentially open the door to providing team buildings for companies that are already green and seek these standards among their partners.

To estimate the price of the whole marketing campaign, we will use data from the hotel's previous marketing campaigns for Google.com and Seznam.cz. The price was more or less CZK 150,000 for both platforms. We mentioned that Booking is free and webpage updates are free as well, so one last thing to consider is the price for the social media platforms advertisements. The hotel would use Facebook and Instagram for further promotion of its services and projects. The advertisement would consist of the documented project and some information about its effects. This would be followed up by a direct link to the company's webpage.

To be more specific, Facebook would promote the heat pump for five days, and the average cost would be CZK 100 per day. At the same time, Instagram would promote the solar power plant for five days also for more or less CZK 100 per day. This process would repeat any time new improvements are introduced that need to be promoted. The marketing campaign on the social platforms should last for at least two months which would cost between CZK 12,000 – 20,000. The whole marketing plan would cost approximately CZK 200,000 because some additional costs need to be considered.

6 FINANCIAL RESOURCES

This chapter will discuss the financial resources that are necessary for the hotel's project realization. There are three main options of primary resources from which the hotel can obtain the required funds. The first option is to use money from the company's own funds. Another possibility is to acquire an interest-free loan, and the last option would be to obtain a subsidy from government projects. According to Sayigh (2012, 4), government support is "*a key tool for encouraging the deployment of renewable energy*. "

6.1 Own Financial Resources

As previously mentioned, the company could finance some of its projects by using its own financial resources. These would be funds, which were, for example, accumulated on the bank account as a reserve in recent years. In spite of the fact that this option would be the least complicated, it would also make the company entirely unprepared and vulnerable to the following year. And it is a fact that year 2020 was critical for many businesses, especially for those in the hotel industry. The impact was so devastating that many of these businesses went bankrupt.

This could also happen to the hotel, had these projects been realized in 2019, eventually leading to depletion of all its financial resources. Currently, the hotel is closed, and it has already used more than half of its accumulated finances for salaries, installments, and small reconstructions. It is also able to participate in some of the government programs like COVID – Ubytování I and II. Currently and in the near future is the hotel unable to fund these projects with its own financial resources. The estimated price of these projects is between CZK 1,500,000 – 2,000,000.

6.2 Interest-Free Loan

ČMZRB (Českomoravská záruční a rozvojová banka) offers loans without any interest specifically to support the program "Úspory energie." This program helps entrepreneurs fund projects that focus on energy saving. These projects can be realized anywhere in the Czech Republic except Prague. Not only is the loan interest-free, but also free of charge. The bank can provide a loan in the amount of CZK 500,000 up to CZK 60,000,000. To reduce the financial burden of the company, the loan can be repaid within a ten-year period. In this case, the hotel could apply for the interest-free loan and save its own financial resources for the necessities and other projects. The loan would be CZK 2,000,000 or any other amount

based on the project complexity and would be repaid within ten years based on the agreement with the bank. This solution would be suitable for the hotel, which would repay CZK 200,000 every year for the next ten years.

6.3 Subsidy

Out of all the three options, the subsidy would be the most beneficial solution for the whole project. However, many conditions need to be met by the company in order to obtain such funding. The fact that small companies with up to 49 employees can receive a 50% subsidy for a whole project is very motivating for those small businesses. Moreover, a number of smaller projects can be combined to reach the required sum. For example, the hotel could combine the photovoltaic project with the heat pump project and additional building insulation improvements.

In that case, the costs of these projects would exceed CZK 1,000,000, which is the first condition that needs to be met. The negative aspect of such funding is that many documents need to be submitted, such as an energetic assessment or a financial analysis. According to the senior manager of OPPIK, an information portal on entrepreneurs' subsidies, the current subsidy program is overdrawn by CZK 200,000,000. The company that manages the portal is *"a leading provider of advisory and consulting services focusing on EU structural funds, investment incentives, and public procurement."* The manager also stated that there would be a new program next year called OPTAK if the company does not want to apply this year. Another aspect of the subsidy that could cause some complications is that the company first needs to pay for the whole project from its own funds before actually receiving the money. This could be an obstacle in case the company needed the money from its funds to finance some more strategic projects. (OPPIK, n.d.)

6.4 Plan Summary

From the options previously mentioned, the state subsidy is the most beneficial and suitable one. The hotel would apply for the subsidy equal to the project's price or maybe even a larger sum if possible. The price of the project is between CZK 1,500,000 – 2,000,000, depending on the complexity of different solutions. There is still a question of whether the subsidy would be approved because of the multiple criteria that have to be met. If it was approved, the hotel would still have to pay the full price first and then it would receive the subsidy, so the best option would be to wait and prepare everything precisely and realize the project in the year 2022 or 2023. If the subsidy was not approved, the second-best option is the interest-

free loan because the option with the hotel's own fund is unrealizable and risky. As previously mentioned, the interest-free loan would be CZK 2,000,000 or any other amount based on the project complexity and would be repaid within ten years.

6.5 Plan Benefits

All these ecological and sustainable improvements have more than one benefit. For a higher price, there is a higher reward. The hotel would become energetically sustainable in winter when there is no-tourist season, and the hotel is closed, and it would be partially sustainable in summer. Also, with increasing concern about our environment, the hotel would be ahead of the competition and on the right track regarding its negative impact on nature. With the right marketing plan, an increase in the number of visitors is expected, especially from people and companies seeking greener and more sustainable accommodation. Furthermore, the overall perception of the hotel should change. Nowadays, local people are convinced that the only goal of the entrepreneurs in Lednice is to get rich while not caring about the local community or the environment. In many cases, it might be true, but lots of money goes to the local municipality because of these businesses and later back to the infrastructure and to the community. The change should also force other businesses to think greener.

CONCLUSION

The purpose of this bachelor's thesis was to create a successful and logical plan to transform a hotel to be more ecological and sustainable. First of all, the theoretical part started generally about the hotel industry and its benefits for the economy. This part was followed by the classifications of hotels and the classification criteria. The theoretical part also includes all the important information about hotel management and its organization. The last chapter of the theoretical part is focused on sustainable business.

The practical part started with a general background of the hotel and its surroundings to contribute to a better understanding of the situation. Then, it was followed by a thorough financial analysis which mapped the current financial situation of the hotel. After these necessary steps, I proposed the plan of improvements, which was the key part of this thesis. The plan itself is very detailed and provides convincing evidence and data about many improvements. These improvements were thoroughly studied and, in many cases, consulted with professionals in their field. The consultations primarily focused on photovoltaic systems and heat pumps because these were among the most expensive and complicated improvements for the hotel. Other improvements focused on responsible resources, water retention but also on energy management.

The last chapter of the practical part included financial resources, their description, and evaluation of the best option and its alternatives for the hotel. After the creation of the plan of improvements and considering financial resources for the plan, it can be assumed that the hotel would be greener and more sustainable, resulting in full energetic sustainability during winter and partial sustainability during summer. The results vary with different combinations of improvements. However, all these improvements would cost a significant amount of money. The best financial resources would be either a state subsidy or an interest-free loan.

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LIST OF ABBREVIATIONS

kWp Kilowatt-peak

CZK Czech crown,

e.g. For example

n.d. No date

MWh Megawatt hour

km Kilometers

LIST OF TABLES