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# Renewable Energy Sources in the Function of Sustainable Business in Tourism and Hospitality Industry

Ljerka Cerović\*, Danijel Drpić\*\*, Vedran Miložica\*\*\*

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## Abstract

*Trends on the international tourist market are recording numerous changes almost on a daily basis, regarding the development of ecological tourist offer. Modern tourists are becoming more and more aware of the necessity of applying the principles of sustainable development in everyday life, so the same preferences are being expressed during their stay in their chosen tourist destination. The management of ecologically oriented tourist destination must pay special attention to the use of renewable energy sources, and in its micro-environment encourage an approach to business according to modern ecological standards. The implementation of renewable energy sources in tourism and hospitality industry aims at ensuring the improvement of business, profiling of an ecologically responsible tourist destination, repositioning of the current tourist offer on the international tourist market and achieving competitive advantages and conquest of a specific tourist segment of ecologically-oriented consumers. The aim of the research is to point out the advantages which sustainable development and application of renewable energy sources has on business development in tourism and hospitality industry, with a goal of improving competitive advantages and positive effect on the environment.*

**Key words:** *renewable energy sources, sustainable development, tourism and hospitality industry, ecologically guided consumers, competitive advantages*

## Introduction

The Republic of Croatia possesses a rich resource base which is a foundation for tourism offer development. It must attempt to create new tourist products based on designing of new, innovative events and attractions on the tourist market in order to attract new tourists and achieve an increase in tourist consumption and competitiveness. It must be designed in compliance with the sustainable development principles. Taking into consideration the fact that new tourist destinations keep emerging on the modern tourist market, Croatia must make

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the best of its resources and invest the greatest efforts in development of quality and diverse tourism offer: adjustment to preferences of modern tourists, adoption of best practice of the leading destinations, and creation of its own unique and top tourism offer, all in order to stand out among countless tourist programmes and events offered by the competing destinations, and to achieve competitive advantages on the turbulent and changing tourist market (see more in Cerović, Drpić, Milojica, 2014).

Contemporary trends on the tourist market place an important task before hotel companies and creators of the tourist offer: designing of a unique and innovative tourist offer which will be based on socially responsible approach based on sustainable development, using renewable energy sources, implementation of green technologies, and ecological approach to business development. Hotel companies have recognised the necessity to plan their future business development based on sustainability and use of renewable energy sources and innovative green technologies. Their application in business processes of hotel and tourist enterprises provides a significant possibility of profiling a hotel/tourist enterprise as an ecologically aware “green” facility. This is especially significant at this point in time, taking into consideration that tourists prefer staying in facilities which devote significant attention to preservation of the environment and improvement of the quality of life in their fundamental business postulates. In modern business operations, with special emphasis on tourism and the hospitality industry, sustainable development represents the only possible guideline for future successful development. Recent mass tourism trends have evidently resulted in disruption of natural resources which represent a basis for tourism development (see more in [http://web.efzg.hr/dok/TUR/Web\\_Ekoturizam.pdf](http://web.efzg.hr/dok/TUR/Web_Ekoturizam.pdf)). It is, therefore, necessary to ensure their renaissance and preservation for future generations. Through adequate and rational use of renewable energy sources, it is possible to achieve significant competitive advantages on the tourist market through preservation of natural resources, reduction of costs, and through implementation of more significant marketing and promotional activities attract numerous ecologically aware tourists, which will enable profiling of a hotel and a tourist company, but also a tourist destination in which it operates, as a destination of excellence and specific characteristics (see more in [http://www.aweres.net/Preuzmi/OIE\\_u\\_mojoj\\_zajednici.pdf](http://www.aweres.net/Preuzmi/OIE_u_mojoj_zajednici.pdf)). So, it is considered that encouraging use of Renewable Energy Sources can be economic and energetic flywheel of tourism development, with a particular accent on hotel and camp development, but also for other tourism offer units. (Krstinić Nižić, 2010).

## **Significance of Sustainable Development and Renewable Energy Sources in ensuring Sustainable Business Activities in Tourism and Hospitality Industry**

The sustainable development concept implies the process of achieving balance between economic, social and ecological requirements, provided that “meeting the needs of current generations without jeopardising possibilities of future generations to meet their needs” would be ensured. Since 1987, when this was defined in the Report of the World Commission for Environment and Development, presided by the Gro Harlem Brundtland, until today, sustainable development became one of the key elements in formulating and implementing development policies in the world ([http://www.odraz.hr/media/21831/odr\\_zivi\\_razvoj.pdf](http://www.odraz.hr/media/21831/odr_zivi_razvoj.pdf), IO.OI.2014).

It is evident from the above that sustainable development is necessary in the hospitality industry and tourism. It must enable:

- Equal opportunities for economic and socio-demographic development of all participants in the business process of the hospitality industry and tourism;
- Sustainable relationship between labour and resources, in the way to preserve the resource base;
- Realisation of added value of a hospitality product and tourist product through strengthening of competitive advantages of a hotel and a tourist company;
- Promotion of use and business implementation of international standards and participation in programmes from the field of sustainability and ecology (ISO14000, Green-Globe 21, Natura Programme, the Blue Flag, Agenda 21, etc.);
- Promotion of the use of renewable energy sources (installing energy saving bulbs, solar collectors, etc.) in contemporary business.

Sustainable business processes may be defined as efforts of a hotel management or a tourist company management invested in satisfying the owner's needs for profit, employees' needs for safe earnings and motivation and to act in a timely, proactive, and creative way to fulfill the needs of their customers, but also the entire social community. Furthermore, sustainable business activities enable maximum fulfillment of the needs of employer (entrepreneur), employees, users of services – guests, and the environment. Responsible business activities of a hotel company imply that this company (adaptation according to <http://www.greenhotels.com>):

- Includes principles of sustainability in its business process, especially when making business decisions and development/marketing strategies,
- Establishes co-operation with local agriculturalists, cattle breeders, olive growers, winemakers, etc. engaged in ecological farming,
- Uses organic-grown food in the production (meals, beverages, sweets, etc.),
- Sells hand-made souvenirs, uses bedlinen and towels made of natural materials, etc. and uses the services/products which are “suitable“ for the environment,
- Can describe its business operations by the syntagm “the greenest“ in comparison with competition,
- Includes permanent orientation towards promotion of sustainability and application of renewable energy sources and green technologies in its business strategies, missions, visions and objectives,
- Constantly improves the level of products and services through implementation of international standards of quality in the segment of environment and sustainability,
- Co-operates with all the interested stakeholders (ministries, tourist boards, tourist agencies, restaurants, hotels, carriers, etc.) in promotion and implementation of guidelines for sustainable business activities and sustainable development in general,
- Necessary to monitor financial viability of use of renewable energy sources through comparison of level of energy costs before and after introducing the same,
- Builds the green image and increases energy efficiency.

All of the above leads to reduction of business risk in the segment of reduction of business costs (energy, manufacturing, waste, etc.), strengthening of recognisability and competitive position of the company, etc. Use of renewable energy sources plays an important part in ensuring sustainable development and sustainable business activities, as well as profiling an eco-tourist offer on the contemporary tourist market.

Over the past few decades, renewable energy sources (RES) have acquired a growing role in the world's energy product. This is all the more true today, at the beginning of the new

millennium. There is no dispute about the ever-greater importance of RES in fields of global climate protection, resource conservation and generally perennial sustainable development. Many studies on the future consumption of energy worldwide focus not only on the need for saving energy, but above all on the necessity to increase RES involvement. Air pollution, water pollution and other environmental issues have long since been recognised. Humans and human activities are a decisive factor in changes to the environment. The conservation of nature and the environment are among the highest values of any country. This has led to constitutional decrees determining the right to a healthy life and a healthy environment and committing all stakeholders to pay special concern to environmental conservation and to ensure improved quality of life to the benefit of present and future generations. At an international level, an agreement has been adopted by which economic growth must be sustainable in terms of the environment (Blažević, 2008). The increase in personal standard of population, accompanied by the tourist growth standard, particularly in construction and equipment of tourist objects, by space heating and cooling of all premises, leads to the growing need in energy. Such a trend is clearly going to continue in the future. The impact possibilities on energy consumption level in tourism are great, and can comprehensively be divided into two main groups. The first group consists of material and technology consumption in construction which reduces the energy consumption, while the second group consists of the restorable energy sources and their use (Alkier Radnić, Gračan, 2008).

Renewable energy sources include: water force (hydroenergy, energy of sea currents and waves, high and low tide), biomass (and biogas, including timber and waste), solar energy, and wind energy. The basic advantage of renewable energy sources in comparison with traditional (non-renewable) energy sources is the fact that renewable energy sources cannot be exhausted in time, but it is possible to fully exhaust their potentials, so that great attention should be devoted to careful selection of the location and realisation of projects related to renewable energy sources (for example, building of hydro-electric power plants). One of the disadvantages of renewable energy sources is that some of them cannot be stored and transported in their natural form (wind, solar radiation), while only a certain share can be stored (water in watercourses and accumulations, biomass and biogas). Therefore, energy sources which cannot be stored should be used at the moment they appear or turned into some other form of energy (adapted according to: <http://oie.mingorp.hr/UserDocsImages/OIE%20Tekst.pdf>, 10.01.2014). Considerable initial investment costs are also considered a disadvantage of renewable energy sources; however, it is expected that renewable energy sources will become economically competitive in relation to conventional energy sources in the middle- to long-term period (adapted according to: [http://www.izvorienergije.com/obnovljivi\\_izvori\\_energije.html](http://www.izvorienergije.com/obnovljivi_izvori_energije.html), 10.01.2014).

Awareness of the necessity to preserve and protect natural resources and human environment from destruction is increasing, and, therefore, use of renewable energy sources in business operations of a hotel and tourist companies represents a reasonable option for protection of human environment, and helps in increasing awareness of general public on the necessity to implement them in business processes. For example, renewable energy sources have a significant role in the reduction of emission of carbon dioxide (CO<sub>2</sub>) to the atmosphere, and this is also the proclaimed policy of the European Union (see more in [http://ec.europa.eu/clima/sites/campaign/pdf/post\\_2012\\_en.pdf](http://ec.europa.eu/clima/sites/campaign/pdf/post_2012_en.pdf), [http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n\\_proj\\_id=4694&docType=pdf](http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4694&docType=pdf), <http://ec.europa.eu/ourcoast/download.cfm?fileID=1007>).



Use of renewable energy sources in the hospitality industry and tourism provides numerous possibilities, which are primarily visible in the increase in energy efficiency and reduction of costs and need for energy. The above can be achieved by hydroelectric power, wind power, solar collectors, solar panels, use of biofuel, responsible waste disposal and waste processing (turning it into thermal energy), etc. Also, energy sustainability of the system increases by a higher share of renewable energy sources in supplying businesses and households, and safety of energy delivery increases while reducing dependence on import of energy materials and electric energy from other countries.

In short, it can be concluded that sustainable development must reduce exploitation of resources, which are usually limited, to the extent in which they can be renewed. It is therefore necessary to promote the described development plan in all business plans. Responsible and sustainable business activities in the hospitality industry and tourism are also derived therefrom. The objective of such business is to achieve maximum profit in all segments of a business process of a hotel or a tourist enterprise with minimum costs, taking into consideration the resource base, the landscape, needs of the local community and visitors, entrepreneurs, and employees. The above will be achieved through the use of renewable energy sources in business activities of hotels and tourist facilities, and through implementation of green technologies.

### **Presentation of advantages of introducing Renewable Energy Sources in the function of realisation of Sustainable Business of Hotel Companies**

Renewable energy sources represent the key link in ensuring sustainable business operations in tourism and the hospitality industry. Their implementation will ensure significant improvement of business operations in comparison with the competition on the market, and enable a tourist offer of better quality with minimum costs. SWOT analysis presented below (cf. table 1) shows strengths and opportunities, i.e. weaknesses and potential threats of the use of renewable energy sources in business processes in the hospitality industry and tourism.

It is evident from the SWOT analysis (Table 1) that using renewable energy sources in ensuring of sustainable business activities has, among other things, the following positive features:

- It ensures long-term stability of energy supply of hotels and other tourist facilities,
- It ensures long-term reduction of costs in the segment of energy consumption (water heating, saving of energy in rooms, reduced heating and cooling costs, etc.),
- It creates a positive opinion of users on values of sustainable business activities, which promotes the hotel,
- It creates positive goodwill for a hotel company,
- It strengthens ecological awareness of all participants in a hotel company's business process (entrepreneurs, employees, service users, local community),
- It ensures continuous investments in new, innovative and environmentally friendly technologies,
- It ensures permanent and sustainable development of a hotel company, but also local community,
- It ensures preservation of natural resources as a base for tourism development.

Renewable energy sources and their use in the hospitality industry and tourism represent the basic guideline for successful sustainable development of business processes, which guarantee business excellence and recognisability of a hotel company on the tourist market.

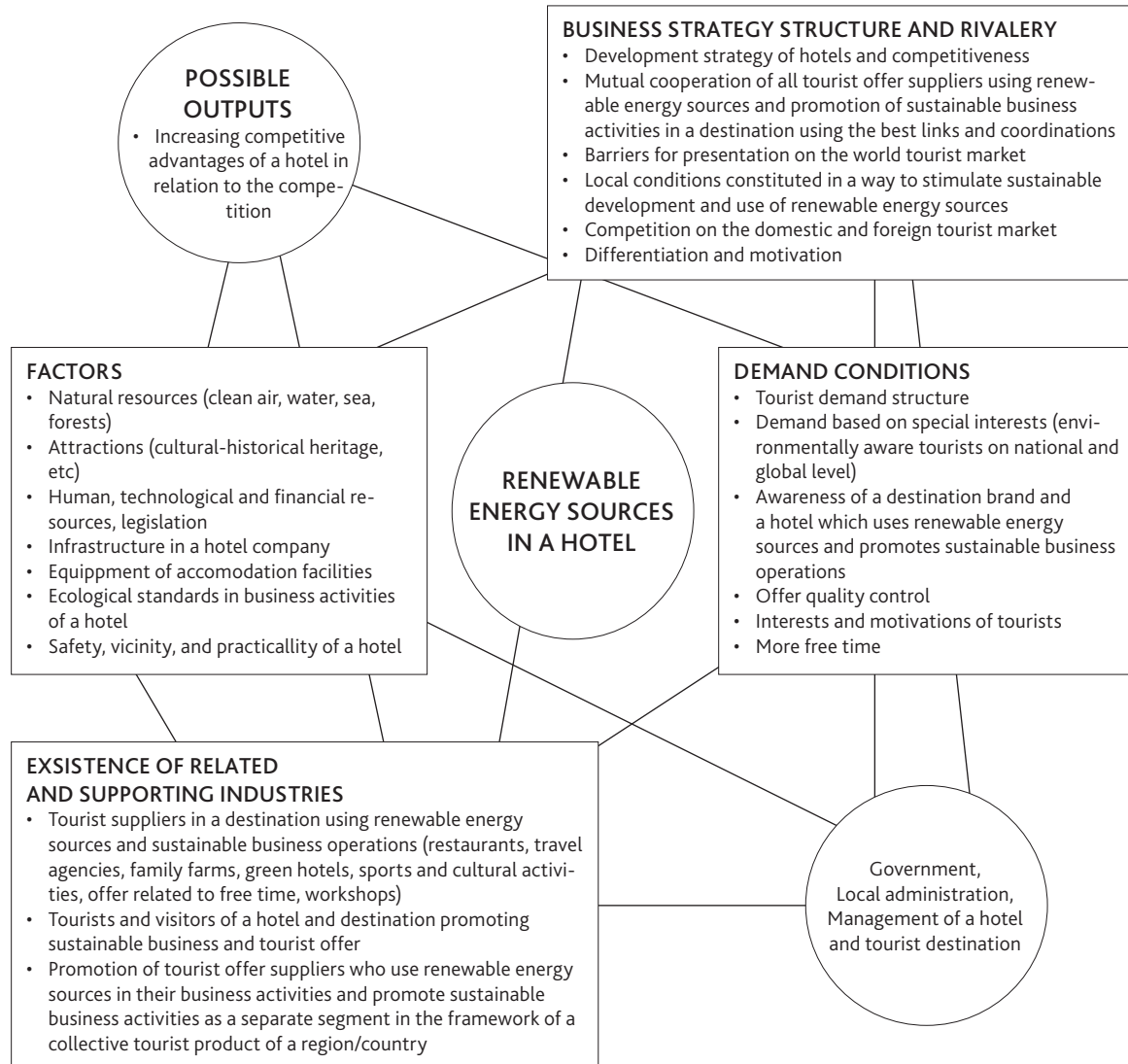
**Table 1.** SWOT Analysis of the Use of Renewable Energy Sources and Sustainable Business in the Hospitality Industry and Tourism

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Preservation of landscapes, plants and animals, water, sea and air-the basic resource base for tourism development;</li> <li>• Reduction of energy costs, waste disposal, reduction of waste waters, increase in revenues, etc.;</li> <li>• Strengthening of ecological awareness of employees and hotel visitors, users and suppliers of a tourist service and destination;</li> <li>• Creation of a common brand of all tourist offer suppliers in a specific destination, as a socially and environmentally friendly destination;</li> <li>• Strengthening of competitive advantages of a tourist destination which uses renewable energy sources ;</li> <li>• Improvement of quality of life –standard of the local population;</li> <li>• Securing preconditions for a better business environment;</li> <li>• Strengthening of economic and social-demographic potentials of a destination.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of understanding and insufficient co-operation between suppliers in a destination;</li> <li>• Non-educated hotel and destination management in the segment of introducing renewable energy sources in business operations of a hotel;</li> <li>• Insufficient funding for education of employees and hotel management in the segment of use and significance of renewable energy sources and sustainable development;</li> <li>• Non-existence of sustainable development strategy and energy efficiency in a tourist destination;</li> <li>• Lack of co-ordination of development and marketing plans of development of a hotel and a destination;</li> <li>• Non-existence of awareness of the necessity to use renewable energy sources and apply sustainable business principles in economic development (tourism and hospitality industry);</li> <li>• Lack of professional and motivated experts and employees in a hotel and a destination.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Funding of projects which enable development and implementation of renewable energy sources in business processes of the hospitality industry and tourism through cohesion funds of European Union, commercial banks and private entrepreneurs;</li> <li>• Designing of a marketing and development strategy for a hotel which will include promotion of sustainability, use of renewable energy sources, and innovations;</li> <li>• Stimulation of investments in development and use of renewable energy sources in the hospitality industry and tourism through formation of a working group and a cluster for promotion of a sustainable development and use of renewable energy sources;</li> <li>• Increasing awareness of citizens and business entities on the necessity to strengthen mutual co-operation, trust, preservation of landscape particularities, traditional architecture, the entire resource base;</li> <li>• Branding of a hotel offer by renewable energy sources users and sustainable development principles in business processes;</li> <li>• Creation of competitive and and innovative tourist products and services which promote the use of renewable energy sources and sustainable business activities, which carries a significant social responsibility for the whole community.</li> </ul>	<ul style="list-style-type: none"> <li>• Pollution and permanent disruption of balance in the environment caused by industry;</li> <li>• Light pollution, pollution by waste waters, pollution of rivers by chemicals and waste materials (oils, detergents, etc.);</li> <li>• Lack of understanding by local and business community of the necessity to implement renewable energy sources ;</li> <li>• Expensive initial investments, significant time span before the investments is returned through profit of a hotel company;</li> <li>• Lack of interest by tourist suppliers for implementation and upholding international ecological standards;</li> <li>• Insufficient level of environmental awareness of users of hotel services;</li> <li>• Non-existence of co-ordination of between project leaders in a tourist destination, region, country, on the European Union level;</li> <li>• Desire for fast profit "at any cost"</li> <li>• Insufficient education of hotel employees on the importance of using renewable energy sources, sustainable business operations, and sustainable development;</li> <li>• Low financial support;</li> <li>• Non-use of financial funds (EU funds, national and global programs).</li> </ul>

Source: Authors' analysis

## Possible benefits of implementation of Sustainable Development, Renewable Energy Sources and Green Technologies in Tourism and Hospitality Industry

Except for its ecological and financial advantages, use of renewable energy sources in the hospitality industry and tourism directly contributes to increasing competitive advantages of tourist suppliers in the hospitality industry and tourism. Possible competitive advantages of using renewable energy sources for the hotel is presented in the Porter's diamond of competitive advantages below.



**Figure 1.** Porter's Diamond of Competitive Advantages of the Hotel which uses Renewable Energy Sources in Ensuring Sustainable Business Operations of the Hotel

Source: Authors' analysis, adapted according to Porter, 1997.

Designing the competitiveness diamond of hotel as a user of renewable energy sources and applier of sustainable development postulates in business operations, all relevant factors for achieving competitive advantages of the hotel come into the foreground. The same applies for the destination in which it runs its business, and it is perceived as one of the potentially leading "green" destinations in the world. It is visible from the Porter's diamond of competitive advantages that use of renewable energy sources in the hospitality industry and tourism has positive effects on business results of a hotel company, maximising usefulness for all the participants in the business process. Use of renewable energy sources has a positive effect on protection of landscape (see more in [http://web.efzg.hr/dok/TUR/Web\\_Ekoturizam.pdf](http://web.efzg.hr/dok/TUR/Web_Ekoturizam.pdf)) particularities, flora and fauna, protection of waters, the coastline, and the sea. Also, a hotel company which

uses renewable energy sources in its business processes becomes recognisable to tourists who want to spend their vacation in harmony with nature. They want to contribute daily to environmental protection during their stay in the hotel, and such hotel facility provides just that possibility. For example, energy saving bulbs are installed in the rooms, bikes in the hotel gym serve to fill batteries and save energy, there are solar panels on the roof of the hotel which supply hot water for the entire hotel, etc. On the other hand, government and government institutions can significantly contribute to business results of such hotel facilities as well as promotion of sustainable development and the necessity to use renewable energy sources in business operations through legislation and regulations, and through a number of financial incentives (Croatian Bank for Reconstruction and Development, European Bank for Reconstruction and Development, EU cohesion funds). The objectives of introducing renewable energy sources presented in the competitiveness diamond also include strengthening of mutual co-operation of all tourist suppliers in a tourist destination who implement renewable energy sources in their business operations, and promote sustainable development and sustainable business activities.

Basic implementation and socially responsible activities of the hotel (in table 2) as a user of renewable energy sources and promotor of sustainable business may be derived from the

**Table 2.** Socially Responsible Activities of Hotel with the objective to improve general level of Knowledge of Destination Stakeholders on basic values of using Renewable Energy Sources and Promotion of Sustainable Development

Implementation activities	Implementation methods	Target group	Duration	Priority
Promotion and green marketing	Design of promotional materials (brochures, leaflets, posters, websites) of the hotel in which promotion of using renewable energy sources and sustainable development will be conducted as a competitive advantage of a hotel.	Visitors, social community	Continuously	High
Workshops	Workshops organized for visitors of the hotel on advantages of using renewable energy sources in business activities	Visitors	Continuously	High
Programs of incentives and awards	Designing a program of "Incentives" and awards for hotel guests who will actively implement the basic postulates of sustainable development during their stay	Visitors	Continuously	High
Playrooms	Playroom for the children in the "green room" of the hotel, where they learn while playing about basic values of sustainable development and use of renewable energy sources	Visitors	Continuously	High
Symposiums, lectures, round tables	Organization of symposiums, lectures, round tables on the topic of renewable energy sources	Visitors, experts in practice, social community	Continuously	High
Excursions	Organization of excursions for the hotel guests and the interested public to facilities and destinations which may serve as examples for using renewable energy sources and implementation of sustainable development	Visitors, social community	Continuously	High
Social responsibility	Workshops and playrooms for all-through organization of workshops and playrooms on sustainable development and use of renewable energy sources for the general public, the hotel achieves an increase in non-room and non-board consumption, creates the foundation of prolongation of its activities (seasonality) and increasing efficiency of business	Social community	Continuously	High

Source: Authors' analysis

above, with the goal to promote their use to all the employees, visitors, but also the general public.

The above table shows that the basic precondition for successful implementation of sustainable business activities and using renewable energy sources is a higher level of knowledge of all the stakeholders in business processes of a hotel/tourist company, but also community as a whole. Positive benefits are multiplied through the mentioned activities, providing new development guidelines for the company, the entire community, but also an individual who will, through implementation of renewable energy sources and sustainable development principles in his daily activities recognise the potential which will contribute to improvement of the general level of quality of life of the entire social community. By implementation of this programme, a hotel/tourist company will achieve significant benefits in the segment of increasing utilisation of capacities, prolongation of the tourist season (in companies which operate during a certain season), and increase in recognisability of the company as ecologically aware, and a company of high social responsibility.

## Conclusion

Sustainable business activities and implementation of renewable energy sources in business operations of a hotel and a tourist company represent a necessary factor of success, especially taking into account fast growing world competition on the sensitive and always turbulent tourist market. In times of crisis and general economic insecurity, sustainable business operations and renewable energy sources represent a reasonable factor for ensuring long-term successful business results and creating competitive advantages of a hotel/tourist company. It is important to point out that it is necessary to develop control mechanisms of business and marketing plans of all tourist suppliers, so that they would contain basic sustainability postulates and ensure future course of tourism development. Also, it is necessary to allocate significant funds which will help during implementation of projects related to sustainable development, renewable energy sources and green technologies, so that entrepreneurs would be encouraged to base their development on long-term business success, and not on long-term profit. Governments, ministries, banks for reconstruction and development, commercial banks, and civil associations should help achieve this objective, and general public should be included in the whole process of creating a so-called “green tourist destination”.

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