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STARTING A BUSINESS IN CONNECTION WITH THE USE OF RENEWABLE ENERGY SOURCES

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Abstract: Developed countries as well as countries in transition and developing countries, defining short-term and long-term development strategy in the area of renewable energy sources and sustainable development, both at the state and at local and regional communities. United Nations (UN), European Parliament and other relevant international institutions and organizations in its acts and directives define a very clear and precise directions and frameworks for these the activities. A most marked political will to implement the rapid introduction of renewable energy sources demonstrate countries of the European Union and countries that follow the policy of the EU. Without delay need to be addressed problems of climate change, reduce high energy consumption and stop the disappearance of biodiversity and natural resources. The transition to a safe and sustainable economy with fewer negative effects on the environment will require in the near future, new economic policy at the global and local levels, as well as better strategic overview and management. It is necessary to urgently respond to the large number of unsustainable trends in production and consumption energy, social relations and habits of the people, and should strive and provide conditions for starting a business in that direction.

Key words: business, sustainable development, renewable energy sources

1. INTRODUCTION

Production, distribution and consumption energy are activities that directly or indirectly affect all areas of human activity, but also on commercial and economic development of each country. At the end of the last century, the world has adopted the concept of sustainable development of communities, which in the area of energy, in addition to energy efficiency, raises the demand for increasing the use of renewable energy sources (RES) in order to meet the increasing total energy needs. In the world today there is a broad consensus that the concept of sustainable development brings hope for the rebirth of our planet, but also that the coming decade is critical for the implementation of this concept. The current crisis has caused a new sense of the need to respond promptly to a number of unsustainable trends in production, consumption, social relations, and habits of the people, and therefore should strive and provide conditions for the establishment of small businesses in this direction.

In an effort to increase part of total energy consumption, which comes from renewable energy sources, extensively around the world are taking many actions in the policy and legislative activities to promote and regulate the use of these energy sources. Within the framework of international and local financial institutions and organizations are established stable system of financing the construction and use of renewable energy, as well as research and education.

The European Union, our strategic objective of this decade, is deeply committed to the goals of sustainable development, which was confirmed by the European Strategy to 2020. The European Union will base its development on smart, sustainable and inclusive growth, knowledge-based, innovations economy that makes efficient use of resources, "green jobs" and the territorial and social cohesion. In this kind of Europe will not be a place for the state to ignore the principles of economic and social sustainability and environmental sustainability. The EU is generally attributed to buildings occupying 40% of the energy consumption and one-third of greenhouse gas emissions [4].

In line with B&H's efforts to join the EU, B&H legislation will must in a very short time to align with European legislation. To make this possible, it is necessary to establish an organized system of measures that will enable rapid implementation of EU directives in B&H legislation and achieving goals.

Local communities (municipalities/cities) are units in which they directly exercise rights and responsibilities of citizens and the framework in which implemented these requirements, in practically daily and direct contact local governments with citizens [5].

In a word, the immediate implementation of all policies, regardless of whether the policies adopted at the level of B&H or the Entities and Cantons are executed immediately at the local level.

Legal status, competences, duties and responsibilities of local communities are regulated entity regulations. Laws on local government in both entities have been prepared in accordance with the European Charter of Local Government, so as to contain a lot of similar solutions on specific issues relevant to the position of local communities. A both laws contain provisions about what is the local government. In both laws, the definition of local government is enshrined in Article 2 of the law as follows: "Local government includes the right and capacity of local governments, within limits of the law, to regulate and manage certain public affairs under their own responsibility and in the interest of the local population". Activities performed by the local government are also defined Laws. In the Republic of Srpska has adopted the Law on Local Government (Official Gazette No. 101/04 42/05, 118/05), which regulates the legal status of local communities. The scope of activities of local government regulates in Articles 12 and 22, and about competences and responsibilities of municipalities to provide better living conditions of citizens.

2. POTENTIAL OF RENEWABLE ENERGY SOURCES IN THE REPUBLIC OF SRPSKA

The potential of renewable energy sources in the Republic of Srpska are hydro energy, biomass, wind energy, the potential of the sun and geothermal energy. Due to its natural characteristics, developed landscapes, quite developed hydrographic network, the Republic of Srpska ranks in regions the rich hydro energy potential. Catchment areas in the Republic of Srpska are: the Drina, Vrbas, Bosna, Sana, Neretva and Trebišnjica. The total technically exploitable potential watercourse in the Republic of Srpska, including border rivers is 13.505,0 GWh/year. Technically exploitable potential, which belongs to Republic of Srpska amounts to 10.027,5 GWh/year. Hydro energy potential is exploited Republic of Srpska 2.985,8 GWh/year, which means that the remaining unused 7.041,7 GWh/year hydropower potential [9].

In the Republic of Srpska planned about 130 small hydro power ($0.5 < P < 10$ MW), with a total capacity of 360 MW and the potential production of 1,500 GWh. Installed capacity and average annual production of micro and mini hydro power plants up to 500 kW is not currently known[9].

Forests of Bosnia and Herzegovina cover 2,371,062 hectares, which is about 40% of the total area. Of that 1,250,391 hectares or 53% are located in the territory of the Republic of Srpska. The forest is nearly half the territory of the Republic of Srpska. Forests are one of the most important natural resources of the Republic of Srpska. Development of the forestry sector and wood industry is very important for the development of the Republic of Srpska [9].

Agricultural biomass resources come mainly from agricultural residues, including corn, wheat, vegetables, oil seeds (sunflower, soybean and beet), and remnants of orchards and vineyards.

To date, in the Republic of Srpska wind energy is not used for energy purposes as it is not built a single commercial wind farms. Regional atlas wind REGIONAL RE-ANALYSIS uses global meteorological data and results obtained by using this model are not verified measurements on the ground. Assimilation of measurements of the characteristic points on the ground to give accurate results, however, and this wind atlas can be considered sufficiently representative for selection and macro location areas for construction of wind farms.

Potential locations for building wind power in the Republic of Srpska are given in Figure 1.

There is significant potential of solar energy in the Republic of Srpska. The number of hours of sunshine (insolation) in the northern part of the Republic of Srpska is about 2.000 hours per year, while the southern part is around 2.500 hours per year [9].

Figure 2 gives a cartographic representation possible to produce electricity from a photovoltaic system power of 1 kW [9].



Figure 1. The cartographic representation of the location for production energy from wind power [9]

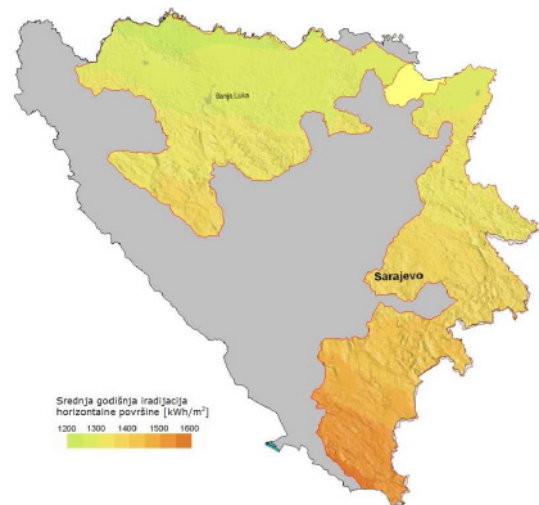


Figure 2. The cartographic representation of possible produce electricity from a photovoltaic system power of 1 kW [9]

Larger, especially the northern part of the territory in the Republic of Srpska is very promising in terms of the presence of geothermal energy resources and geothermal water. In that stands out Posavina, Semberija and Lijevče fields. The main geothermal sites are located in the Triassic and Cretaceous limestones and making them reservoirs of geothermal water temperature of 35 - 1500°C. Figure 3 shows the map of geothermal sites in the Republic of Srpska.

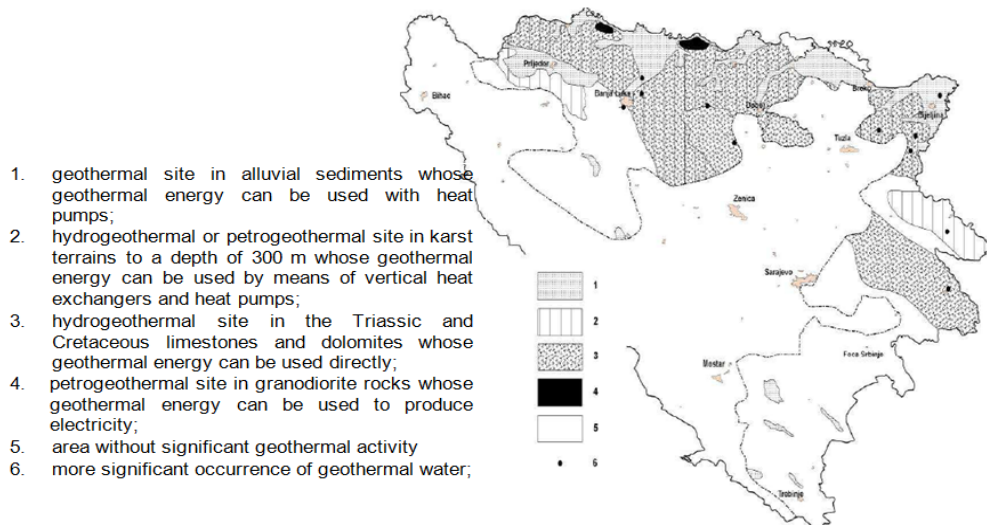


Figure 3. Map of geothermal locations in the Republic of Srpska [9]

3. EMPIRICAL RESEARCH WITH ASPECT STARTING A BUSINESS IN CONNECTION USE OF RENEWABLE ENERGY SOURCES

The process of research is conducted on the territory of the Republic of Srpska, regions: Bijeljina, East Sarajevo and Trebinje. Municipalities or local communities in which the interviewing was conducted are: Bratunac, Srebrenica, Milići, Vlasenica, Sokolac, East New Sarajevo, East Ilidza, Gacko, Nevesinje and Trebinje. Interviewed are holders of local/municipal authorities in the area, or by the competent departments municipal services, and associates have spent the survey on the project TEMPUS SD TRAIN. From the aspect of the survey can conclude that the level of local communities that were the subject of research, knowledge about the subject and the organization are not very high. There are some indications that in the future plans to devote more attention to the segment of renewable energy sources and the development of sustainable energy infrastructure by the relevant departments.

3.1. Results and discussion

Results of the research are presented graphically of the Figure 4 to Figure 18. The lack which was discovered is that there is no resort or department in to the municipal service which is competent that engages in with this issue. From the local community till the local community those problems try to solved individuals from different departments as follows: Department of Economics and Department for Urbanism.

The most common problem that is encountered during the interview is to find appropriate interviewees that is relevant in terms this the survey and who can give answers to questions.

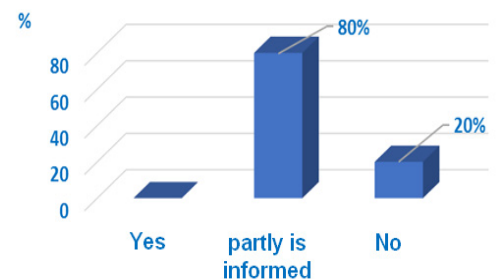


Figure 4. Does business public in the Republic of Srpska acquainted with the basic aspects of the implementation of RES

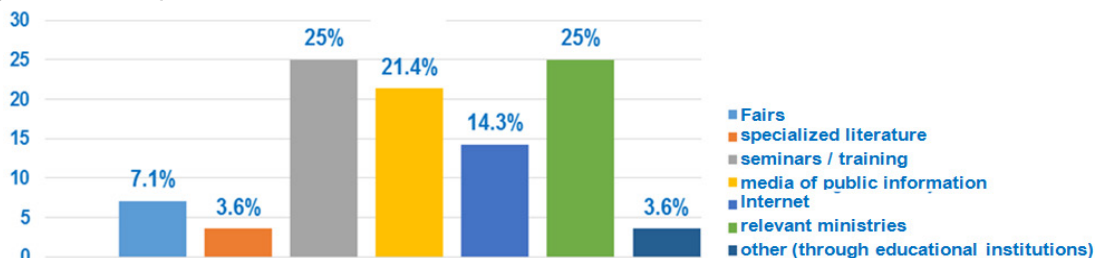


Figure 5. The most appropriate way of introducing business public about basic aspects of the application of RES in the Republic of Srpska Based on the results and ABC analysis reveals that the most appropriate forms introduce business public about basic aspects of the application of renewable energy sources in the Republic of Srpska and through the organization of seminars and training, through relevant ministries, as well as the media of public information.

Educational institutions and professional literature are underrepresented, and in the future should work to improve cooperation between local communities and educational institutions.

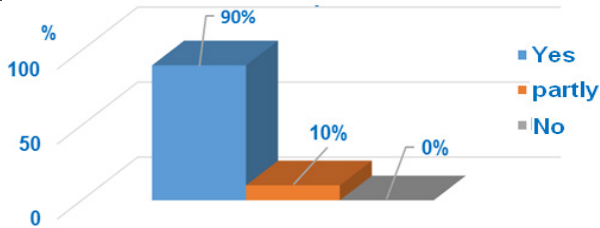


Figure 6. Does the Republic of Srpska have enough potential for economic use of renewable energy sources?

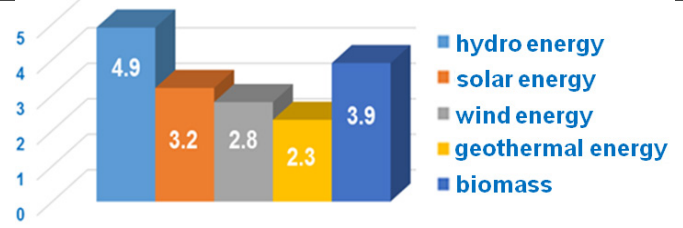


Figure 7. Assessment of potential renewable energy sources in the Republic of Srpska

From Figure 7 it perceives that the hydro-energy and biomass as a potential renewable energy sources have the highest ratings, averaging 4, 9 and 3, 9.

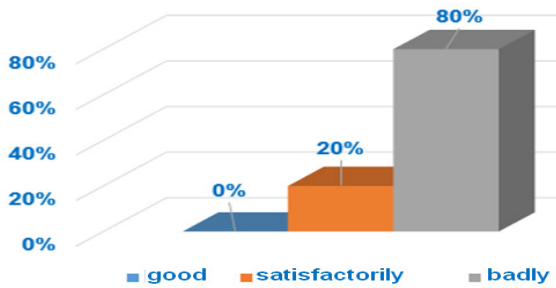


Figure 8. Assessment of current business situation and business activity production from renewable energy sources in the Republic of Srpska

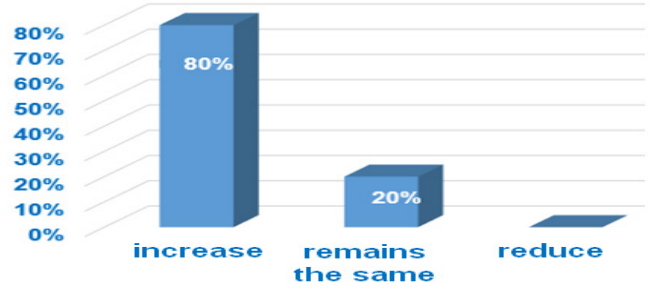


Figure 9. Number of new companies in the sector of energy production from renewable energy sources in the Republic of Srpska in the next 5 years

From Figure 9 it perceives that the number of new SMEs in the sector of energy production from renewable energy sources in the Republic of Srpska in the next five years will be increased, the assumption of 80% of respondents.

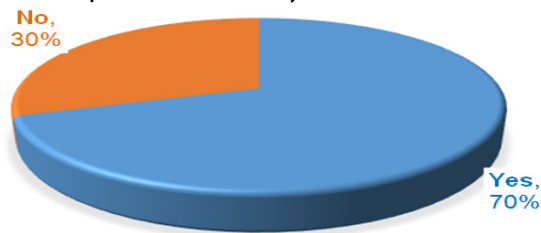


Figure 10. Do the high price of technologies RES for business conditions in the Republic of Srpska

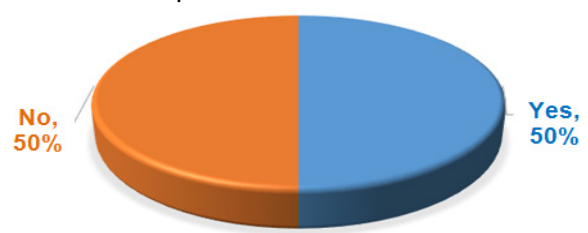


Figure 11. Does the Republic of Srpska has all the necessary laws, regulations and directives governing the area of RES

- legal barriers
- administrative barriers
- Lack of professional knowledge
- Lack of qualified workforce
- lack of understanding
- Difficult access to finance

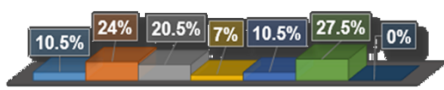


Figure 12. The most common problems encountered by companies engaged in the production of energy from renewable energy sources in the Republic of Srpska

Analyzing the results obtained, as well as written comments, we conclude that the existing legislation is insufficient and should be upgraded in accordance with the needs. Also too many documents and unfinished legal legislation directed toward RES. Concessions Act is also not adequate in terms of supporting businesses that are in the sector of energy production from renewable energy sources, and incomplete law on accession to the EES B&H.

Based on results and analysis of ABC perceives problems encountered by firms involved in the production of energy from RES in the Republic of Srpska, such as difficult access to finance, administrative barriers and lack of knowledge in a given area.

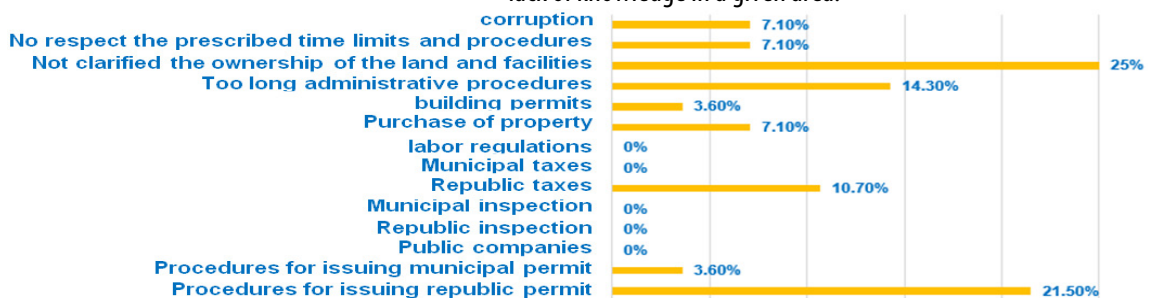


Figure 13. Administrative and regulatory measures which restrict business development firms dealing with production of energy from renewable energy sources

Based on results obtained and ABC analysis can be noted: administrative and regulatory measures which restrict business development firms dealing with production of energy from renewable energy sources, such as unclear ownership of buildings and land, as well as the procedure for the issuance of state licenses, following too long administrative procedures and the Republican taxes.

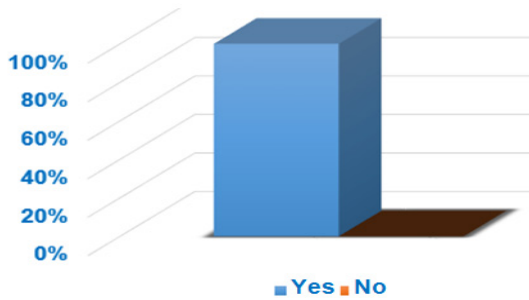


Figure 14. Do you often meet with unexplained ownership structure of objects and land?

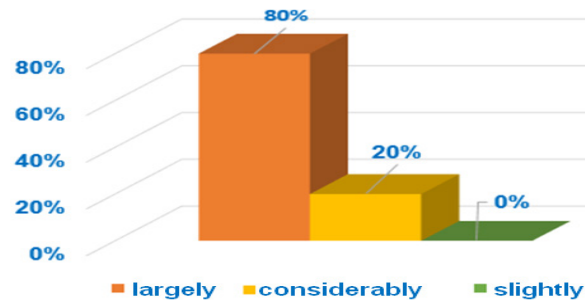


Figure 15. The extent to which unresolved ownership structure of objects and land affects on business

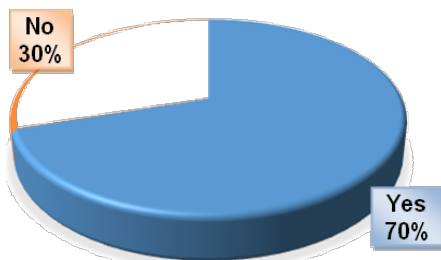


Figure 16. Is there a possibility that producers of RES-apply for some kind of credit for small and medium-sized enterprises in the Republic of Srpska

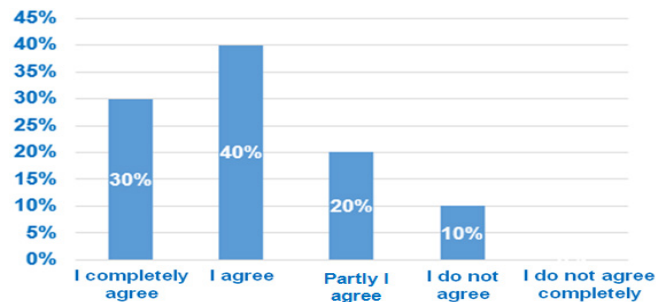


Figure 17. Use of renewable energy sources can provide the improvement of competitiveness of domestic companies in conditions of market globalization

When asked whether in the Republic of Srpska is possible to producers of energy from renewable energy sources apply for some kind of credit for small and medium-sized enterprises in the area of renewable energy sources, we have received written responses stating institutions that offer some type of loan to IRB RS; Line ministries; International funds; UNDP; Commercial banks and other financial institutions; IPA; Fund for Environmental Protection and Energy Efficiency. In most local communities, the development of a sustainable energy action plan or being drafted.

Suggestions for improvement subject areas given by the relevant officers in local communities are as follows: further clarification of legislation, improve legislation, to legally regulate the availability of the total available forest biomass; Edit property relations; Education and promotion; Creating conditions for the development of small and medium-sized enterprises in this area; More detailed explanation for starting a business in relation to the OIE by the relevant ministry; Access to finance; Provide credit to SMEs in the area of renewable energy; Providing a favorable environment for investors in renewable energy; Adoption of the Action Plan; Creating sustainable action plans for each municipality and the inclusion of the potential of each local community regarding the use of renewable energy on a common website (Ministry of ...) to offer to potential investors; Connecting local communities with the national levels and involvement of all institutions, public institutions and enterprises; Stimulation large companies (contaminants) that may enter the area of renewable energy; Improve (define) testing, monitoring and measurement of potential renewable energy;

4. CONCLUSIONS

In B&H needs to work on the development of products and services related to renewable energy, or small businesses to design, manufacturing equipment, education, certification, and more. The Republic of Srpska and Bosnia and Herzegovina as a whole should accept the views of the European Union in terms of energy efficiency, not only because of his membership in the EU, but especially because it is the model that gave the best results. In this way the state should implement EU directives in a manner that responds to the social, economic and environmental conditions of B&H, ie on principles of sustainable development of B&H.

Energy efficiency is generally poorly promoted. It needs greater involvement of government and non-government sectors, educational institutions and the media to spread awareness and knowledge in the area of energy efficiency, as well as available

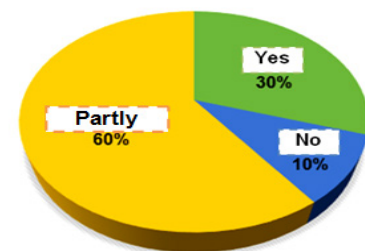


Figure 18. Is there cooperation between local communities and Universities in the Republic of Srpska, Institutes, consultant companies or other scientific knowledge environment from which to seek services in terms of initiating projects based on renewable energy sources and energy efficiency

sources of funding for projects in the area of energy efficiency and renewable energy sources. Activities to increasing the efficiency of energy use in buildings, industry, transport and others. As well as the use of renewable energy sources are just activities that promote employment. The impression gets that in many areas, especially when it comes to energy efficiency in buildings, the use of biomass is not recognized. Increasing energy efficiency (on energy use) is a measure that increases the cost of business, reducing the cost of the family budget, but at the same time encouraging the development of domestic production, and reduce the demand for imported energy. Using renewable energy sources (mainly biomass and small hydropower) to encourage domestic employment, and also reduce the demand for imported energy. Public-private partnerships are a good way to integrate the public interest and the ability of private management. It is necessary to establish the logistic of biomass (the chain of supply and use) to connect producers of energy (different stages) and equipment. It was pointed out that biomass is the most important renewable energy sources in B&H with the greatest potential and the effect on employment of local labour in the whole chain of exploitation and the technological and economic development of the local economy.

The main reasons for the use of renewable energy sources are: protection of the environment and reducing greenhouse gas emissions; eliminating the risks of nuclear energy; improving energy of security; reducing dependence of energy imports and reduce the consequences of the gradual disappearance of fossil fuel origin, increasing economic competitiveness; create new jobs and a new way of technological progress.

There are many barriers or obstacles that need to be overcome to enable the wider use of renewable energy the executive, such as a very low cost of traditional energy sources, lack of funds and lack of investors interested in investing in renewable energy, lack of skills, lack of full legislative basis necessary for promoting the use of renewable energy sources, incomplete information to the public which is not adequately informed with possibilities of using renewable energy sources.

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