
STRATEGIES OF REGIONAL POWER COMPANIES IN THE TRANSFORMATION TOWARDS GREEN MEGAWATTS AND OVERCOMING THE ENERGY CRISIS IN MODERN CONDITIONS

Anita Cucović

University "Haxhi Zeka" Peja, Kosovo, anita.cucovic@unhz.eu

Armand Krasniqi

University "Haxhi Zeka" Peja, Kosovo, armand.krasniqi@unh.eu

Abstract: High gas and electricity prices due to the all this crisis in energy, which has arisen globally, has created a more attractive effect for renewable energy sources. Although they were quite different in the previous planning period, currently the utilization of renewable energy sources is more pronounced through different strategies both in planning and on the market. This is especially pronounced in the case of the strongest industrial countries, which dictate that trend. Global energy crisis this year has made renewable energy technologies (RES) more attractive. For this reason, as well as the increasing need for new energy sources, new strategies for managing both energy and renewable energy sources are necessary. Greater investment in new sources of energy will significantly affect the world economy, which will have a major impact on the economies of developing countries. New ways of managing energy resources, which are more favorable for the human environment, contribute to maximizing their utilization. Their contribution will be all the greater and more profitable if they are an indicator of development and new technologies. Kosovo with its strategic position at the moment has a great advantage, as well as good relations between neighbors and the support of international factors give significantly more diverse in a positive sense and the application of modern and more cost-effective methods for energy management. The conceptual framework of this work can provide and enable modern functionalization of all resources and lead to the operationalization of management, i.e. management of transition and crisis, which are the accompanying effect of modern indicators on the energy market. Therefore, all this can be the basis for further research and comparisons. Everything points to the fact that the concept "how to ensure a sustainable future" one of the most important tasks of the new constellation of leaders in energy, because every new opportunity is actually a challenge. Energy transitions and their successful implementation through strategies towards green and sustainable energy solutions surely lead to energy security.

Keywords: Strategy, Management, Energy, Transition.

1. THE CRISIS CAUSED FASTER GROWTH

The use of renewable energy has numerous potential benefits ecological environment. Greater use of these sources stimulates a greater number of employees and, therefore, the development of green - healthier Technologies "Renewable energy sources have expanded rapidly so far, but the global energy crisis has pushed them into an extraordinary new phase of even faster growth as countries strive to maximize their energy security," says Fatih Birol, executive director of the IEA. Global renewable energy capacities, because of energy concerns security after the conflicts between the two neighboring countries of Russia and Ukraine, should double in the next five years, the International Energy Agency (IEA) announced. Certainly, this situation creates new opportunities for the creation of new resources and new opportunities in this field. I believe that further qualitative research will lead to new data that will prove the above.

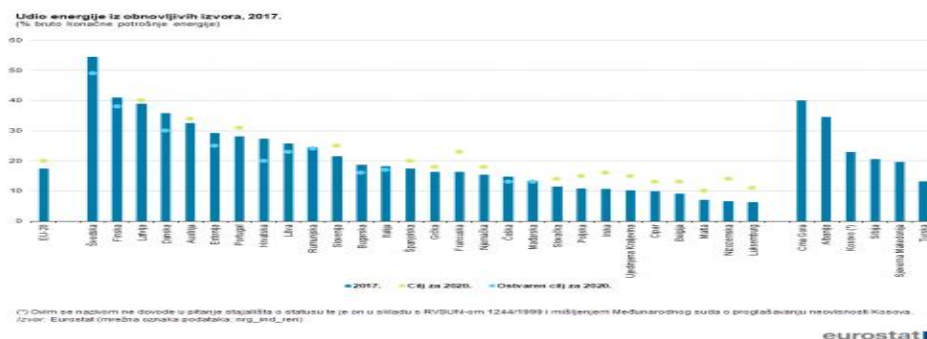
As stated by Džogović and Bajrami, qualitative research enables the understanding of other people's points of view, mutual behavior, reactions of individual moments during social events in life courses. All this contributes to social workers and researchers to appropriate and shape the meaning of everyday life for the greater part of society, as well as its essence in any type. This effect leads to more elastic events in the field of work itself, as well as in the applicability of the same, with as little monetary expenditure as possible. However, the range of these methods is quite limited, since the results are not always sufficient. Researchers must be exceedingly wary of these methods to ensure that they do not influence the data in a way that significantly alters them by introducing, for example, personal biases into the interpretation of the results. (Džogovic & Bajrami, 2023: 160)

It is obvious that energy development is associated with both positive and negative trends. On the one hand, it is generally known that an adequate and reliable supply of energy services (heat, light and driving energy) is a prerequisite for sustainable economic development in the context of the global economy. In addition, improved access to energy services is closely related to increased well-being and standards of people. (Škuletić dr S. & Braletić M. 2020)

The emphasis on renewable sources is also in the Document for the Energy Strategy until 2031, which was issued by the Ministry of Economy of Kosovo. 84% of 1.54 gigawatts are lignite thermal power plants.

All planning and assumptions indicate a significantly higher production of green energy in the five-year plan, in contrast to the twenty-year past period. All indicators represent an even 90% increase in renewable energy, unlike other sources. These sources will surpass coal sources, and for that reason will be the first and largest source in the next five-year plan. The world's solar resources will be three times larger, which at the same time leads to the first place in the world's resources. In that aspect, the wind sources will be twice as large. All this leads to the fact that the demand will be higher by 22% by 2027. <https://balkans.aljazeera.net/news/economy/2022/12/6/kapaciteti-obnovljive-energije-dvostruko-veci-za-pet-godina>

Picture Nr. 1: Share of energy from renewable sources, 2017 (in % of gross final energy consumption)



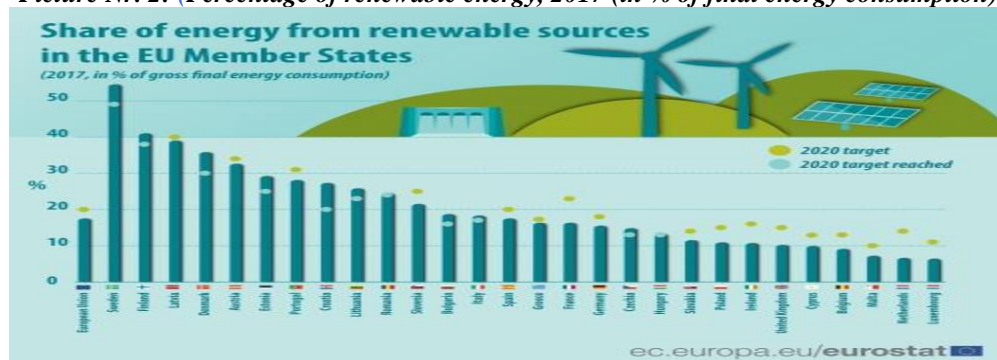
This article provides the latest statistical data on renewable energy sources in the European Union (EU). As basic sources of renewable energy, in modern consideration, I include: wind, solar energy sources in which we count: thermal, photovoltaic and concentrator. Then hydropower, energy sources from tides and tides, geothermal sources, sources collected by heat pumps from the environment, biofuels, as well as part of the waste that can be used as renewables. It is quite safe to say that the production of renewable energy increased by two thirds in the period 2007-2017 in the territory of the European Union. So we come to the conclusion that production increased by 64.0%, which would mean 5.1% in a year.

Among renewable energy sources, therefore, wood as well as other solid resources were important resources in the EU-28 biofuels, which accounted for 42.0% of primary production from renewable sources in 2017. The second most represented source in the combination of renewable energy sources for the first time was wind energy (13.8% of total production), followed by hydro power (11.4%). https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Archive:Statisti%C4%8Dki_podatci_o_obnovljivoj_energiji&oldid=446291

2. THE CONSUMPTION OF RENEWABLE ENERGY MORE THAN DOUBLED IN THE PERIOD FROM 2004 TO 2017 IN EU COUNTRIES

The EU aims to achieve 20% of gross energy consumption from renewable sources by 2020. All of this is foreseen in the planning of the EU countries, as they have made individual plans for the development of renewable energy. On graph 3, we can see the figures for the use of renewable energy in the total number, as well as the plan for 2020. The percentage of renewable energy, from the total consumption, in the EU-28 in 2017 is 17.5%, which is significantly more than 8.5% in 2004.

Picture Nr. 2: (Percentage of renewable energy, 2017 (in % of final energy consumption))

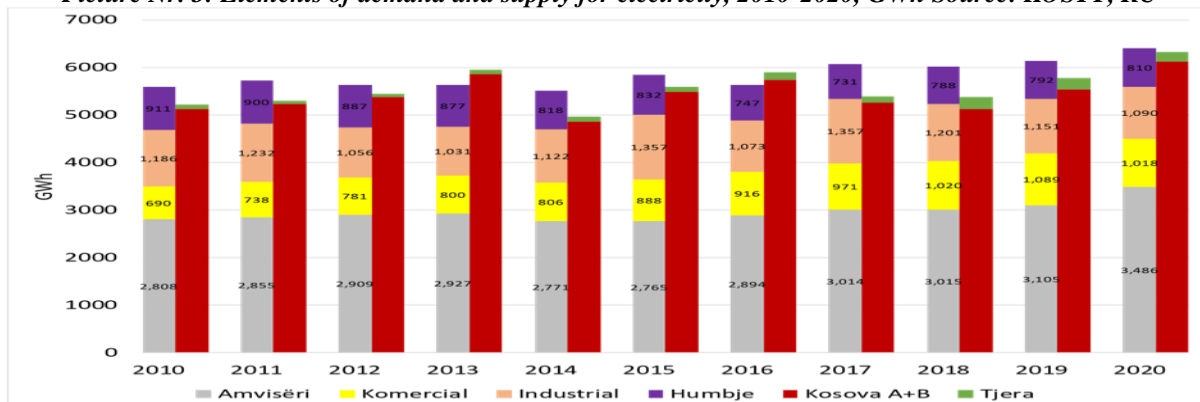


3. THE STRATEGY OF KOSOVO'S ELECTRICITY INDUSTRY IN THE TRANSFORMATION TOWARDS GREEN MEGAWATTS

Kosovo intends to raise percentage of renewable energy in electricity consumption to at least 35 % by 2031. at the latest, according to the draft of the government's energy strategy. It envisages a total of 1.4 gigawatts of such capacity, including one hundred megawatts of projumery. <https://balkangreenenergynews.com/rs/obnovljivi-izvori-energije-su-okosnica-energetske-strategije-kosova-do-2031-godine>

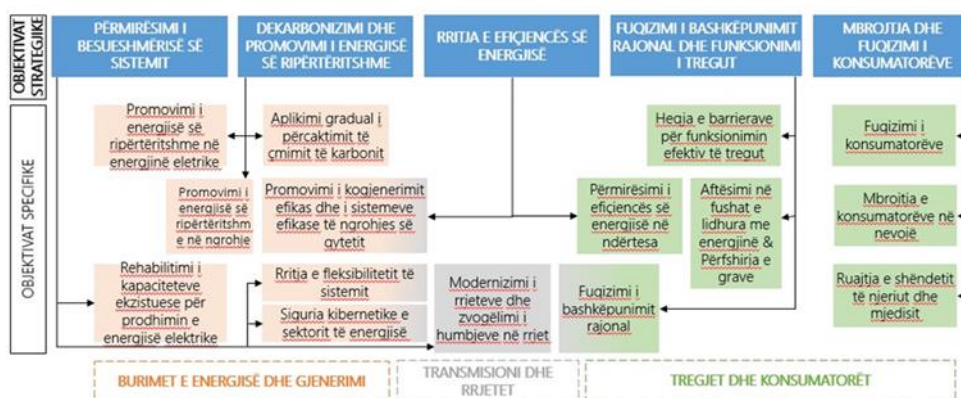
Market integration with Albania is one of the highest priorities for Kosovo. That system, complement each other - the thermal energy system of Kosovo and the hydropower sector in Albania. Kosovo does not have system for the capacity of flexible and quick response as a reserve capacity, while Albania can <https://balkangreenenergynews.com/rs/obnovljivi-izvori-energije-su-okosnica-energetske-strategije-kosova-do-2031-godine>

Picture Nr. 3: Elements of demand and supply for electricity, 2010-2020, GWh Source: KOSTT, RU



In Kosovo, the consumption of electricity is increasing in the previous period of 10 years, which is an indicator of development. Although losses in the distribution network significantly reduced, but still higher (technical losses ~12.5%) compared to the EU (6%-8%). <https://www.ceer.eu/documents/104400/-/-/fd4178b4-ed00-6d06-5f4b-8b87d630b060>

Picture Nr.4: Strategic and specific goals of the energy strategy of Kosovo



https://me.rksgov.net/repository/docs/Strategjia_e_Energjise_e_Republikes_se_Kosoves2022_2031.pdf

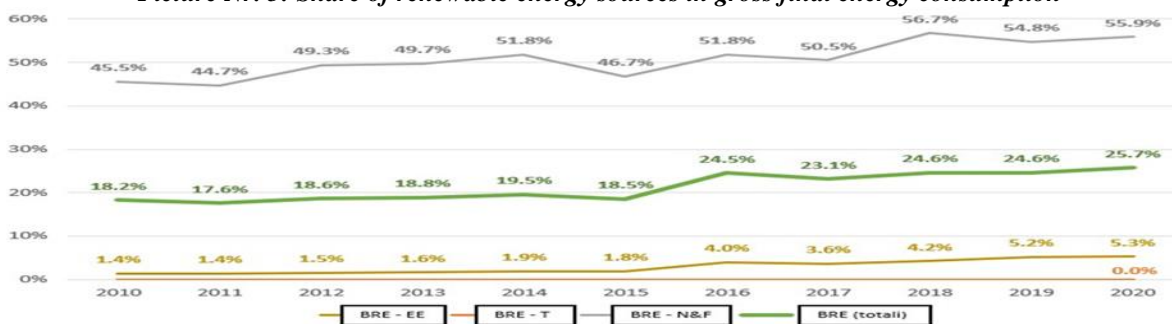
- Improving system reliability
- Insist on the lowest carbon percentage and reorientation towards green sources
- To be as efficient as possible in the field of energy
- Strengthen cooperation in the region and develop the market
- To do everything in favor of end consumers

4. RENEWABLE ENERGY SOURCES

The presence of RES in Kosovo is greater than in the previous period. The strategic goal of RES - Kosovo was determined in 2012 by the Council of Ministers of the Energy Community, and in accordance with this, there were changes in the legal regulations. During 2020, 25% of RES was used in Kosovo. Due to the inconsistency of the application of different RES technologies and the effect of their use is different in the sectors. Therefore, 50% of RES-biomass is in the heating sector. Only 6.3% of the RES electric energy sector participates, namely water, wind and a smaller part of solar sources. The transport sector is a far smaller part of RES participation due to the inconsistency of legal regulations. This is a direct consequence of the non-use of biofuels due to not reaching certain standards. The percentage of use of electric vehicles is very low (0.05%), which can be seen because only 157 electric and hybrid vehicles were imported, while 333,000 cars are diesel or gasoline. A railway that uses electric energy does not exist. All of this is shown in the graph that depicts the participation of RES in various sectors.

https://me.rksgov.net/repository/docs/Strategjia_e_Energjise_e_Republikes_se_Kosoves_2022_2031.pdf

Picture Nr. 5: Share of renewable energy sources in gross final energy consumption



Source: SHARES database

Natural gas

Currently, Kosovo does not have a gas transmission network. Options for building a system based on natural gas is in the master plan for gas foresees this. There is also a solution for using the gas system - Albania (connection to TAP or access to the LNG terminal in Valona). Such systems - Albania, Greece - are very interesting for investments in production.

Solar sources

Over the past ten years, solar energy has crystallized as a respectable segment in the global energy mix. (Zeljkočić, Č. 2018). KfW Bank will finance the installation of a solar thermal plant of 70 megawatts for Termokos, the operator of the district heating system in Pristina, and a solar power plant with a capacity of up to one hundred megawatts for the Energy Corporation of Kosovo. Effect gives, that those companies are managed by the government.

Hydro electric power station

The small hydropower plants, which the Austrian energy group Kelkos built in Kosovo seven years ago, have been temporarily closed. The Supreme Court of Kosovo, after numerous expressions of disagreement and protest notes from environmental activists, will review whether the power plants were built in accordance with the regulations.

A wind park

Once upon a time, Mitrovica "was one of the cities" that contributed the most to the economy, thanks to the industrial giant "Trepča". The ruins of the former battery factory darken the view of the city as soon as you arrive from Pristina at the first intersection at the entrance to the city. 20 kilometers away, in Shala and Bajgora, 27 turbines work and produce electricity using the wind, and everything seems to overcome the economic gloom of the city.

Picture Nr. 6: Wind farm



<https://www.saurenergy.com/solar-energy-news/ebd-loans-e58-mn-build-kosovo-largest-wind-farm>

The road to those 27 turbines in the "Selac" Wind Farm passes through Stan Tërg, where minerals have been extracted from the underground for centuries. The roads leading to Shala e Bajgora do not prepare you for any beautiful views until you see that the wind farm is open. The tops of the hills are occupied by turbines with long arms, which the wind pushes and turns to generate electricity. To the right of the road to the park, a large sign calls for caution, not to approach the turbines, and some other rules that must be followed. They are often disregarded by photography enthusiasts. In fact, many young couples in Mitrovica choose to have their wedding photos taken there. Once a roadless hill, today it is home to 27 wind turbines, manufactured by General Electrics, that generate electricity at a full capacity of 105 MW. This project, completed in December 2021, was carried out by "SOWI", a Kosovo-German-Israeli cooperation and is the largest renewable energy (RE) project in Kosovo, accounting for almost half of all projects of these resources. Strategic investments amount to EUR 170 million, of which EUR 58 million is a loan from the EBRD.. The capacity installed in "Selac" makes up 10% of the energy production capacity and saves the air of Kosovo by 247,000 tons of CO₂. Reducing CO₂ emissions is particularly important for Kosovo because local production is based around 78% on coal, which releases CO₂ during combustion. Apart from the "Kosova A" thermal power plant, which is scheduled to be closed in 2017, it is considered the biggest polluter of the environment in Europe. <https://kosovotwopointzero.com/energji-nga-ererat-e-bajgores/>

It should be emphasized that great help will be provided by the Energy Community during the development processes for the development of the regional market and for the further process towards the integration of the electric energy market into the common-Europeanone. <https://www.energy-community.org/news/Energy-Community-News/2023/04/12.html>

5. REGULATORY FRAMEWORK

In order to ensure a genuine and functional energy market, Kosovo adopted laws to increase competition in the wholesale and retail markets, integrate its market with regional and EU markets, strengthen the role and participation of consumers and protect needy consumers from free market development.

International organization - Energy Community, brings together the European Union and its neighbors. all in order to create a pan-European integrated energy market. It was established in Athens in October 2005. by the Agreement on the Establishment of the Energy Community, which has been in force since July 2006. Certainly, the main point

towards which the Energy Community strives is to give more opportunities to the countries of South-Eastern Europe as well as the Black Sea region and beyond, and all this on the basis of legal regulations.

Under the auspices of the Grant Agreement "Technical Assistance to Connection in the Western Balkans - Component 2: Regional Energy Market" between the European Commission and the Secretariat of the Energy Community, the Secretariat is defined as one of the implementing organizations of the "WB6" initiative. The overall objective of the 24-month technical assistance project, CONNECTA, was to help the governments of the Western Balkans achieve their goal of a regional energy market. Their obligation is to help with the implementation and preparation of new legal acts, which will lead to greater cooperation and better organization, all with the goal of a stronger market in accordance with the Energy Community Treaty and relevant EU acquis.

6. CONCLUSION

Deepening Kosovo's In order for everything to function in the best order, cooperation with Albania is very important. Therefore, inclusion on the AlpeX energy exchange is considered a special move, all with the goal of a better and stronger open market, day-ahead and intraday markets a very important step towards better conditions on the energy market as well as a bigger and clearer sign depicting the prices for investments in RES. After the regulation of the legal bases by the Energy Community, the operator was authorized to work in the right direction towards integration. The rules for the appointment of NEMO representatives are in accordance with the recommendation of the ECRB. After the appointment of representatives who perform everything regarding the market merger process with all legal regulations, Albania-OST and Kosovo (KOSTT); ALPEX is now one step closer to achieving NEMO status and the continuation of market integration projects, which is essential to increase liquidity. On April 11, 2023, ALPEX held the first day-ahead auction for the delivery of electricity from April 12. Such an action and the launch of the Albanian Electricity Exchange (ALPEX) and the successful inauguration of the day-ahead market in Albania welcome by the Secretariat of the Energy Community.

Some new renewable capacities have been put into operation in recent years, especially wind generators and small hydroelectric plants, Lignite is currently the main source for the production of the necessary electrical energy, which means that 85% to 95% are the source of these electrons. It is important to emphasize good neighborly relations, which directly affects the satisfaction of interconnection needs, the ratio of which is more than 78%. In the four countries bordering Kosovo (Albania, Montenegro, North Macedonia and Serbia), the total net import transmission capacity (NTC) is 1,316 MW; the total export of NTC is 1,175 MW. Based on the required EU standards, Kosovo has reached the goal, because the main indicator of 10% for 2020 and 15% by 2030 has been met. In the report of ZRR, the Energy Regulatory Office, states that during 2022, 275,121 Mwh were produced in the "Selac" Wind Park. This number corresponds to 58.61% of the total energy produced from Renewable Energy Sources. During 2022, this wind farm produced 4.35% of all energy produced in Kosovo, which is 6,315 GWh.

Considering coal as an energy source and the climate crisis, many efforts are being made in the world to switch to Renewable Energy Sources: such as wind, water and sun.

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