



Opinion

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Importance of Integration of Green Technologies for Georgian Economy

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Abstract

Energy shortage is one of the main challenges of modern times. Global climate change has put the modern world in front of new challenges. This fact has especially affected the energy sector.

The global COVID-19 pandemic has significantly changed the situation. The change in this situation affected Georgia as well. Massive lockdowns have put businesses in front of new challenges. The sharp increase in consumption and the increased tariffs for energy have prompted the business sector to start thinking about alternative means of energy. In this paper, the qualitative method of research is used and the experience of Georgia in renewable energies is described. Business readiness regarding opportunities for green technology integrations in the digital economy is reviewed.

The aim of the paper is to analyze the benefits of using renewable energy for business, as well as what positive effects the development of renewable energy can have in the country's economy. As a result of the study, it was determined that the integration of green technologies will bring great benefits to the country's economy. Increased domestic energy supply and price stabilization.

Keywords: Renewable energy, Green energy, Economic growth

Introduction

Renewable energy is a type of energy that is obtained from natural and renewable resources. It is often called clean energy. It is actively used in the world's leading economies, and this sector is one of the trendiest. Developed countries are increasing their investments for the development of the mentioned sector from year to year.

As the population grows, so does the demand for electricity. Nowadays, in the developed countries of the world, both the private and public sectors are trying to get energy from renewable resources. In the 21st century, environmental problems arose, which led to climate change. Due to the increased consumption, there is a problem of both climate and energy shortage, which is naturally solved by the integration of green energy. A large part of our country's consumption comes from imports. It is necessary to diversify

the market, which will regulate the increased tariff and also the attitude of the country towards the importing countries.

The EU's 2030 target includes the installation of 550MW of power plants and 1300MW of wind power plants in Georgia by 2030. This is insignificant when we have an annual consumption of 14 billion kilowatts, and with all logical forecasts and assumptions, this figure will increase to 23 billion kilowatts by 2030. However, solar and wind energy is an ideal way to diversify the energy market.

Results and Analysis

Back in 2017, the volume of electricity obtained from wind and solar was 5.5% of the world energy. Today, hydropower is a much more important source of renewable energy, but its costs are increasing and investments in this direction are decreasing. All energy



transformations take several decades. For example, the transition from coal to hydrocarbons in the 20th century took several decades. The same will happen with renewable resources. Photovoltaic (PV) and wind energy technologies have been actively deployed over the past decade. According to the International Energy Agency, the amount of renewable energy production commissioned in 2016 almost matched with that of other sources of energy production, such as coal and natural gas. Countries like Denmark and Scotland have periods when the equivalent of all their power comes from wind power. Germany's goal is to become 80% renewable by 2050. But whether it is possible to maintain the country's energy sustainability with only wind, solar or hydropower - this is a matter of discussion.

In 2015, Mark Jacobson (Stanford University) argued that electricity, transportation, heating/cooling, and industry in America would be entirely wind, hydro, and solar by 2050-55. Disregarding the use of natural gas, biofuels, nuclear power and stationary batteries, he said weather modeling, hydrogen storage and flexible demand would ensure a stable supply at a relatively low cost (The Economist- Can the world thrive on 100% renewable energy?) [1-8].

Georgia

Georgia imports energy from neighboring countries, although the main part (more than 90%) comes from the Russian Federation. If we look at the last few years, energy imports from Russia have increased significantly. Import dependence on the northern neighbor reduces energy security. This is shown by the economic and political experience with Russia. Therefore, we can assume that at will it is possible to find ourselves without enough energy at any time. Added to all this is the devalued lari, which is an additional pressure for the economy.

Only 22% of hydro resources in Georgia are utilized. This figure is up to 95% in some European countries. Georgia has the potential to become energy independent, however, the construction of hydropower plants in Georgia is associated with protests from the population and other stakeholders.

In 2016, the Kartli wind power plant with a capacity of 20.7 megawatts was put into operation. This power plant is the only one in Georgia and plays an important role in achieving the goal of Georgia's energy independence. Although the majority of power plants in Georgia are privately owned, Georgia still owns Vardni HPP Cascade and Enguri HPP, the country's largest hydropower plants.

It is worth noting the fact that HPPs depend on seasonality, the production of electricity is relatively limited during the winter period, because the water in the rivers decreases relatively, while it reaches its peak in the spring and summer, when the water in the rivers flows in excess. During winter time, when energy supply decreases, an imbalance between supply and demand is created, which is compensated by thermal power plants and energy import. In spring and summer, excess energy is exported. (Tsursumia and Janelidze 2020, 17-22)

Research Methodology and Interpretation

As part of the research, industry experts, business and public sector representatives were interviewed. Economists, energy experts, business representatives and construction sector representatives agree on the issue that more generation is needed for the country's energy security.

Through the research, it was established that the government is not taking proper steps in this direction. Moreover, this direction is not being paid proper attention. During the preparation of the research, it appeared that the only organization that is actively trying to promote the field is Georgian National Energy and Water Supply Regulatory Commission (GNERC). The above is confirmed by the net metering program adopted in 2016, which was further improved in 2018.

The respondents agree that the energy exchange will have a special role in the development of the energy sector. It has been 3 years since the implementation of the energy exchange for an indefinite period. Research shows that this is also due to these unimplemented projects. The environment is not yet ready for the launch of the energy market. However, we have high hopes that everything will be ready by September and the energy market will be functioning.

By verifying the information provided by the respondents within the scope of the research, it was determined that the 100% owner of the rivers is the state, accordingly, in case of project implementation, not private, but the state interest comes first. A survey of solar and wind locations found that 70 to 80% of agricultural and non-agricultural land is owned by the state. In the territory of Davit Gareji, where there are 280 sunny days a year (2200 hours), it is possible to use the third category of non-agricultural land for solar panels. It is literally impossible to use this category of land for other activities. The situation is similar in other regions.

According to the research, GNERC decision in 2018 to increase the limit of connection to the network from 100 kilowatts to 500 kilowatts gave great motivation to both individuals and companies. This initiative has increased the number of stations connected to the network by about 500% in the last 3 years.

Conclusion

Based on the conducted research, we can conclude that Georgia has the greatest resources for the development of renewable energies. The ways of their utilization and the importance of use were emphasized.

The action of business to engage in green and eco-friendly campaigns is perceived by both the state and the population as a high social responsibility. Businesses that use green technologies have great authority among the population. Also, international companies that use green technologies develop much faster than usual, if they have the right vision and ideas.

The integration of green technologies will bring great benefits to the country's economy. In addition to increased energy supplies

and stabilization of prices, the budget of Georgia will have more income and, most importantly, people will be employed in the relevant fields.

Acknowledgement

None.

Conflict of Interest

None.

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