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GREEN ENERGY IS THE BASIS OF WELFARE

Abstract. In the article, the effective use of renewable energy sources, that is, the achievements of green energy, is discussed in detail in the case of Uzbekistan.

Key words. Green energy, solar panels, wind power plants (SHES), green economy, resource saving.

Introduction. The increase in human population on earth is increasing the demand for energy. Since the 2nd half of the 20th century, the need for electricity has been greatly increased. It affects management activities in order to reduce the consumption of fuel energy resources while maintaining the production volume in the method of energy saving management. The increase in energy consumption, the decrease and increase in the cost of energy resources, the increase in dependence on imports, and the pollution of the environment create the need to solve the problems of developing renewable energy sources while achieving energy efficiency and increasing the efficiency of using traditional energy resources. These factors have motivated the rapid development of energy [1-3].

Methodology. It is no secret that in the coming years, the transition to "green" energy and the widespread use of alternative energy sources will be on the agenda of life itself. Everyone knows: natural gas, oil, and coal reserves are limited. Their extraction is becoming more and more difficult every year, so their prices are getting more and more expensive. Moreover, the use of these fuels causes a lot of damage to nature. In the conditions where the population and the quality of life are growing, various enterprises are increasing, the most optimal way is the efficient use of renewable energy sources. What is the

economic efficiency of using solar energy in the land of Uzbekistan, which has an average of 320 sunny days a year? it is not difficult to imagine what it can bring. We also have a lot of windy areas, streams and creeks. According to the calculations of international financial institutions, the annual reserve of alternative energy (especially solar energy) in the republic is equivalent to 270 million tons of conventional fuel. This is three times more than our real needs. So, if we can effectively use the opportunities, we will achieve unprecedented achievements.

It should also be noted that not only the state or business will benefit from the "green economy", but also ordinary people, significant positive changes will occur in their lives. That is its social importance.

The population of Uzbekistan is increasing year by year. This in itself increases the need for energy sources. In recent years, Uzbekistan has been attracting a lot of money and investment to create alternative energy sources. How many alternative energy plants have been launched in Uzbekistan to date? What is their capacity? How many stations should be built to supply Uzbekistan with electricity[4] ?

Result and discussion. Today, 2 large solar photoelectric power plants have been commissioned in the Republic of Uzbekistan. These stations were built by companies with international experience and put into full use.

The first station was built by the United Arab Emirates "Masdar" company in the Karmana district of the Navoi region. This station was put into operation in August 2021 and started supplying electricity to the unified network. The station was fully operational in December of that year. Its total capacity is 100 MW. The station produces approximately 260 million kilowatts of electricity per year. That is, the station can supply 80,000 households with electricity during the day.

The second station was built by the French company TOTAL Eren. This solar photoelectric power plant of ours came into operation in May 2022 and

started supplying electricity to the unified grid. The station has a capacity of 100 MW and produces 60,000 kilowatts of electricity per year. Each station has 300,000 solar panels[2].

If we judge from the analysis of experts engaged by international financial institutions, both the solar plant and the wind power plant in Uzbekistan are showing good results. It is more effective to build wind power plants mainly in the Republic of Karakalpakstan, Navoi and Bukhara regions, which means that these regions have high wind potential. A solar power plant can be built in almost all regions. Because solar radiation is much better in Uzbekistan. In terms of technical potential, it is possible to build a solar power plant with a capacity of 5 thousand kilowatts and a wind power plant with a capacity of 190 gigawatts in Uzbekistan.

By December 2024, 3 solar photoelectric power plants and 1 wind power plant are planned to be put into operation. The wind power plant is located in Tomdi district of Navoi region. The total capacity of the station is 500 MW, and it will start transmitting electricity to the grid in December. Three solar stations are located in Jizzakh, Samarkand and Surkhandarya regions. Their total capacity is 900 MW. These 4 stations are being built by "Mazdar" company.

If the wind power station is fully operational, it will be able to provide electricity to 500,000 inhabitants in a year. After the total capacity of the power stations reaches a certain amount, there will be no shortage of electricity in the villages or the shortage will decrease.

At this point, everyone is interested in one question. How many wind and solar plants should be built to provide the population of Uzbekistan with full electricity?

According to estimates, by 2026, the total capacity of wind power plants should increase to 8 gigawatts, and by 2030, this indicator should reach 15 gigawatts. Solar and wind power stations can provide the population with electricity only during the day. But in the evening, taking into account the

variability of the weather, about 40 gigawatts of solar and wind power will be needed, not including thermal power plants. Then it is possible to supply the population with electricity only during the day. A battery system should be implemented for full coverage.

At this point, "Are there any harmful aspects or consequences of wind power plants?" Let's answer the question.

There are the following problematic situations that wind power plants can cause[3,5].

- their operation directly depends on the wind speed.
- there is enough noise during operation.

However, it is also possible to positively solve these and the following problems during the WPS (Wind power station) design period:

- Low frequency sound from wind vanes.

By building a wind power plant far from residential and ecologically protected areas, the sound of the turbines can be reduced to an unnoticeable level.

- Collision of turbine blades with birds.

Before the implementation of the project in the area where birds live and in the direction of their migration, it is studied.

International financial organizations that finance projects also do not finance projects that are planned to be implemented in areas where there is a risk of harming creatures.

- Processing of broken wind power plant blades.

The turbine blades and other parts of the power plant, which has been operating for 25 years, are slowly starting to fail. Due to the fact that the feathers are made of very strong materials, it is difficult to process them.

The output of these waste parts from large-scale power plants increases. However, new technological solutions are being sought by scientists and engineers from all over the world.

Conclusion. By developing a variety of green energy solutions, we can all create a completely sustainable future for energy supply without harming the world we live in.

Green energy appears to be part of the world's future, and clean energy alternatives to many of today's energy sources are being explored and implemented. These easily replenished energy sources are not only beneficial for the environment, but also create jobs, improve the living conditions of the population, and increase their sources of income. As long as the development continues, it will be beneficial for the economic development of the country.

The working system of recycled electricity is not harmful to the environment, and it is not without benefits for the economy. Although it requires a large amount of money to start, with their correct installation, it is possible to have the opportunity to use free electricity for many years.

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