THE NEED TO CREATE THE CURRENT ENERGY RESOURCES AND ALTERNATIVE ENERGY SYSTEM OF THE REPUBLIC OF UZBEKISTAN

Yuldashev Jurabek Gafurjonovich*; Mansurova Nodiraxon Shokirjonovna**

*Senior Lecturer,
Namangan Engineering Construction Institute,
Namangan, UZBEKISTAN
Email id: jurabek_yuldashev79@gmail.com

**Teacher,
Namangan Engineering Construction Institute
Namangan, Uzbekistan
Email id: mansurovanodira63@gmail.com

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ABSTRACT

The article discusses the prospects of using renewable alternative energy sources in our country today, the broad practical work carried out in this regard, including the issues of further improvement of the system, such as the development, distribution, sale, use of renewable energy sources.

KEYWORDS: *Alternative Energy, Traditional Energy Sources, Gelio Complex, Wind Energy, Biomass Energy, Gyro Stance.*

INTRODUCTION

The Republic of Uzbekistan has sufficient energy resources for the production of electricity and heat energy, as well as for use in all spheres of industry, agriculture and economy, as well as in social life. Currently, the volume of production of energy resources exceeds the domestic demand by 15-20 per cent. **[1]**

The rapid development of the energy sector has become a priority direction of the state policy.

In recent years, Uzbekistan has become one of the ten largest oil and gas producing countries in the world. Since 1997 year, 50 billion dollars are invested in the country every year m^3 gas and 8 million tons of oil are produced and occupy the second and fourth places among the countries of the Commonwealth of Independent States. Uzbekistan ranks eighth in the world in terms of gas production. **[2]**

Energy of Uzbekistan has the highest potential in the Central Asian region. In the last 30 years, the Republic has raised 55-60 billion kWh electricity was produced, the production capacity of which grew more than 3 times.

On average, in international scale, the conditional reserves of Uzbekistan have a unique potential of about 14 billion. it has tons of conditional fuel. The volume of hydrocarbon reserves, based on

which, on average, is estimated at the world scale in the Uzbek mineral deposits, amounted to 594 million tons barrel oil and 1,9 trillion m^3 is equal to gas. **[3]**

It can be noted that the balance of total consumption of energy resources in Uzbekistan in the last decade is 84-87 per cent of natural gas, 11 per cent of diesel fuel and 3.5 – 4.4 per cent of coal. It can be seen that the Switch does not meet the energy security requirements optimally in the form of an energy balance. It is known that oil and gas reserves are decreasing in Uzbekistan, as in other countries, it can reach several decades, at the same time coal reserves can reach more than 250 years. In conclusion, taking into account the low role of today's coal in the energy sector of Uzbekistan, it is necessary to be active in order to increase it. Uzbekistan is a country with sufficient energy resources. At the same time, the consumption of natural gas and oil reserves indicates that they can provide for the needs of the country for several decades. But by this period, the volume of electricity consumed can double in the country, that is, 50 billion US dollars. kW, and for its production, conventional hydrocarbon non-renewable energy resources are not enough. Taking into account the necessary changes in the future, it is necessary to think about the development of the so-called renewable sources of energy in the steppe itself. These include solar, wind, atomic and biomass energy. **[4]**

Given the changes in energy suppliers in the future, the problem of Environmental Protection in the Central Asian region and Uzbekistan, as well as the estimated increase in energy consumption, especially in rural areas, there is no doubt the need to develop renewable energy. **[5]**

The renewable energy source is becoming more and more popular all over the world in a situation where the energy crisis Reigns. About this, in the book “The World Financial and economic crisis, Ways and measures to eliminate it in the conditions of Uzbekistan” by First President Islam Karimov, it is necessary to implement measures to eliminate the crisis for Uzbekistan and modernize the electro-energy system as one of the reliable ways to reach new heights in the world market, reduce energy consumption and introduce, it was separately noted that the cost of electricity and energy resources depends on how efficiently we can use them. Currently, fossil fuels – coal, oil, natural gas and uranium reserves-are the basis of the world's energy balance. In the current consumption of energy resources, the world's oil reserves can reach 45-50 years, natural gas – 70-75 years, coal – 165-170 years, brown coal – 450-500 years. Given the future development of the economy, the growth of the population and the existing traditional energy supply, the energy supply will increase accordingly. In addition, the use of extracted fuels has a negative impact on the environment. The amount of toxic substances that can be thrown out due to the activity of the energy sector in the Republic is more than 80 percent. **[6,7]**

Uzbekistan has accumulated considerable experience in conducting scientific and exponential research in the field of alternative energy sources, primarily in the use of solar energy, and has been working on them for several decades. The Republican scientific and Production Association of the Academy of Sciences – Physics – Sun, which has no analogues in Central Asia, has been established and the results of its research have been recognized on a global scale. **[8]**

Scientific research and experimental design work on the use of solar energy in the creation of low – potential devices for hot water and Heat Supply, photoelectric and thermodynamic

indicators for obtaining electricity, technologies for the synthesis of special materials, thermal processing of materials and structures is carried out, especially actively and efficiently. **[9]**

The results of the conducted research are used in a wide range of sectors and sectors of the country's economy in practice. For more than ten years, the Republic has been developing hot water supply systems for residential and social objects on the basis of solar water heating devices and using them as an experiment. In the city of Tashkent, Samarkand region and other regions for obtaining hot water are installed gelio devices. The production of photoelectric devices of different capacities is mastered. Many universities and professional colleges are preparing qualified personnel for this field. **[10]**

The conditions and existing opportunities created in Uzbekistan for the practical use of solar energy serve as the basis for the use of advanced technologies in one area of this region not only in our republic, but also as an area of experience in the whole of Central Asia. **[11]**

First President of the Republic of Uzbekistan Islam Karimov at the solemn ceremony dedicated to the 18th anniversary of the Constitution of the Republic of Uzbekistan "in his report on the theme" consistent continuation of the way of modernization of our country is an important factor of our progress "...development of small business and private entrepreneurship based on the achievements of Science in the field of the use of alternative energy development we must open a wide way", it is also not surprising that everyone has paid special attention to this issue. **[12]**

It should be noted that in International Energy practice, as an alternative source in the practice of alternative energy, hydro, solar, wind, geothermal, Earth heat, biomass energies were recognized separately. One of the most promising areas among them is the use of solar energy, without a doubt. According to the well-founded conclusions of influential organizations in developed countries, by the end of 2100 years, solar energy will become the dominant source of energy for our planet. **[13]**

In this context, the President's decree on measures for the further development of alternative energy sources in 2013 became an important document aimed at bringing the development of our society to a new level, as well as a reasonable step. **[14]**

The decree clearly defined the legal and material and technical basis for the use of alternative energy sources. In particular, the establishment of the International Institute of solar energy on the basis of the Academy of Sciences of the Republic of Uzbekistan – physics – solar scientific – Production Association, - Navoi free industrial – the restoration of the joint venture producing 100 MW power photoelectric panels based on the most modern technologies in the economic zone, the construction of a solar photoelectric station with a capacity of 100 MW in the Samarkand region, the promotion of solar and biogas energy producers and users, tax and Customs privileges and advantages, of course, will serve the sustainable development. **[15]**

As noted in this document, our country has great opportunities to use non-traditional energy sources such as sun, wind, biogas in climatic conditions. Let's say that in the territory of our republic most days of the year are sunny. Such natural conditions are very conducive to the effective use of renewable energy sources. **[16]**

The professors and teachers of physics and its teaching methods, Thermal Physics and Energy Sciences of our university have been conducting research on the use of non-traditional energy

sources, including solar energy for many years. Department experimental variants and models of various solar devices have been created by experts, research scientists, and have been experimentally – tested successfully. As a result of our long years of research, several options and designs of solar greenhouse fruit – drying devices of different sizes have been developed that are designed to dry fruit products using the hot air flow generated under the influence of solar energy. Once they were experimented, they were recommended to farm farmers for construction and use. In particular, construction works on the basis of estimates of these technologies have been started in a number of farmer farms in Karshi, Yakkabag, Chirokchi and other districts of our region. Considering the final results and the effectiveness of the research work carried out, it should be said that over the past ten years we have been able to carry out scientific research on the basis of grants and economic contracts for coordination of development of Science and technology in cooperation with gelio technical scientists, masters and senior students. In addition, in the field of practical application of scientific research, Karshi, Kasbi, Yakkabag, automated heat accumulators in its districts, solar greenhouse-fruit dryers and gelio limonaries were built and put into operation. **[16]**

For two years, to develop and research the improved variants of the combined fuel-solar cotton drying device at the Karshi SU's renewable energy sources training scientific center , the autonomous underground heat accumulator solar greenhouse – research on the heat-physical and energy characteristics of the fruit drying device, - research on the physical, energy processes of heating the solar house with an autonomous system and heat accumulator and moderate the temperature regime‖, - research on the basis of modern technologies of gelio complex (gelio house, gelio shower and cotton drying, gelio nape drying device) for Farmer Farms is carried out on such topics as scientific research. **[17]**

In conclusion, the decree of the president on measures for the further development of alternative energy sources encourages everyone to take initiative in order to contribute to the creation and development of alternative energy sources in our country and to bear more responsibility for scientific research and pedagogical work. **[18]**

The whole world is very interested in the use of non-traditional types of energy. Non-traditional and renewable energy sources, based on technology(NREST), are considered environmentally friendly because they do not emit pollutants into the atmosphere. In the conditions of Uzbekistan, the use of small-scale resources, solar, wind, biomass and geothermal energy is topical. In addition, renewable energy sources can be the only economic, easy-to-reach source of energy for remote, inaccessible districts with suburbs, mountains and existing sources of energy. **[19]**

In an environment where independence has been achieved, in order to ensure energy, environmental and economic security, as well as in a situation where changes in the activities of the nuclear power industry and the water system are taking place, extensive use of the Energy sources based on non-traditional and renewable technology NREST for the development of the energy sector of the Republic should be a solid factor in the development. **[20]**

In Uzbekistan, certain steps are being taken to promote the development, political and economic support of the Energy sources based on non-traditional and renewable technology NREST. In practice, NREST there are a number of documents for the use of Energy sources based on non-traditional and renewable technology. In particular, in Article 20 of the law “on the rational use of energy” adopted on 25 April 1997, the legal limit for the general use of NREST Energy

sources based on non-traditional and renewable technology was established. In addition, the complex of the Cabinet of Ministers of the Republic of Uzbekistan on February 13, 2009 defined the main role of the use of non-traditional and renewable energy in the program of modernization of electro energetics in ensuring the energy security of the country for 2009-2013 years. A large number of large-scale projects have been implemented in our country by international sponsor organizations and financial institutions, as well as a potential scientific and technological base for the production and service of Energy sources based on non-traditional and renewable technology. In the state policy in the field of renewable energy in Uzbekistan, the industry is developed, at the same time, the experience of a number of developing countries in the use of renewable energy and their scale are taken into account. This shows that the definition of a specific goal and task in the field of renewable energy, as well as state support, contributes to the fact that renewable energy is more competitive than traditional energy production technology. **[21-22]**

The importance of the use of renewable energy resources in Uzbekistan in this situation is that in addition to hydropower, its resources are now widely used (on an industrial scale). It is also at the stage of the introduction of research, development and experiments on NREST Energy sources based on non-traditional and renewable technology, like all new technologies, and the economic one must be supported legally. **[23]**

In recent years, monitoring of laws, government decisions and instructions have shown that the current legal and regulatory framework used in the field of NREST in the Republic of Uzbekistan, the introduction of processing and additions, supporting the development of economic and financial policies and the use of renewable energy sources, should be expressed in the form of a management mechanism. **[24]**

The analysis of the use of NREST Energy sources based on non-traditional and renewable technology on a global scale shows that the countries of the European Union, the United States, Japan, China and India have achieved high results in the use of non-traditional types of renewable energy today. More than 2 million solar thermal systems are being developed in the world. In the country of Israel, there are more than 800 thousand solar installations that provide 70 percent of the hot water supply.

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