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Energy Problem and Its Solutions in Uzbekistan Under Globalization

Kadirjon Odilov - Andijan Machine-Building Institute, Associate Professor of the Department "Automation of Mechanical Engineering Production", Candidate of Philosophy
qodirjonodilov@mail.ru

Annotation (Abstract): the article highlights the rapid development of the Uzbek energy sector in the context of globalization, revolutionary changes in the technologies of its creation, storage and distribution, the use of alternative energy sources – wind and solar power plants, the problems of renewable energy sources and changes in energy consumption, despite all their advantages.

Keywords: globalization, energy, fuel and energy complex, solar energy, wind and solar power plants, nuclear power plant, energy source.

In today's fast-paced and fast-changing times, the positive and negative features of globalization leave their impact on Uzbekistan as well as on all nations and states. In fact, the global processes, which are a complex historical process, are closely interrelated, even if at first glance they look chaotic and uncontrolled, taking into account the economic, social-political, cultural-educational, technical and informational, energetic factors in it.

Just as there are standards that reflect the spirit of each era, as well as specific laws that determine the next changes, globalization processes also create a number of tasks, opportunities and problems for the new Uzbekistan, which is on the path of independent development along with most countries. Of course, as a result of the processes of globalization, it includes positive aspects such as the development of science, the processes of economic integration, culture, sports, information exchange, and the effective and ethical use of the Internet, which serve the development of humanity, but globalization creates problems that must be solved by humanity together. Global problems are contemporary problems related to universal life and development. They include war and peace, demographic problem, food problem, raw material problem, land salinization, water problem, climate change and environmental protection, ensuring ecological stability, human resources necessary - food, industrial raw materials, such as provision of energy sources, prevention of negative consequences of scientific and technical progress. Global problems have arisen primarily as a result of the economic, socio-political, military, scientific-technological, socio-cultural processes taking place in the world. Because of this, today's global problems of humanity call states and peoples to unite.

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It should be noted that the energy problem is one of the biggest problems facing humanity. Consequently, climate change, population growth, and industrial development all over the world are causing an increase in the demand for fuel and energy. Therefore, in many countries, including Uzbekistan, the demand for fuel and energy resources is increasing year by year. On the global scale, the energy problem will remain one of the main problems of mankind now and in the near future.

If we talk about a specific historical stage of the emergence of globalization, it appeared a long time ago, it was just called differently. Thus, if in the broad sense of globalization we mean the process of natural and economic convergence of nations, integration, and the formation of a single world economic space, globalization took place much earlier in the history of mankind, and in this sense, the formation and problems of the energy system have also changed.

The main cause of the global energy problem is the rapid growth of fossil fuel consumption since the 20th century, and it continues to grow even more rapidly today. It is known that in the present period, the energy in the whole world is obtained mainly from minerals, and its sources are: oil, natural gas, coal, nuclear fuel. At the same time, it is no secret that the demand for energy cannot be met only through the use of fossil resources, and that reserves of traditional sources of energy are gradually running out.Most experts believe that due to the global increase in energy demand, the supply of conventional sources may be exhausted by about the middle of this century. However, the opening of new mines as a result of technical progress can only slightly delay the process of resource depletion.

One of the most attractive and promising renewable energy sources is always photovoltaics, that is, the direct conversion of solar energy into electricity. The sun can meet the growing energy demands of humans for many centuries, and this is now well known to the world community. The amount of solar energy reaching the earth in an hour is more than the amount of energy consumed by mankind in a year, because of this and in addition, the limited natural energy reserves and environmental problems increase the need to use solar energy. If large organizations and enterprises switch to mass use of renewable energy sources, reserves of natural resources will be preserved and the amount of damage to nature will be significantly reduced.

In recent years, due to the rapid development of industrial enterprises and population growth in Uzbekistan, the demand for electricity has increased, but the production capacity has not increased sufficiently. According to experts, if more than 70 billion kilowatt-hours of electricity are produced and used in Uzbekistan, after 15 years the demand will increase to at least 110 billion, and they must be produced somewhere. In addition, about 85 percent of electricity in Uzbekistan is produced by natural gas-fired thermal power plants. But here too there are problems - gas reserves are not unlimited and have already begun to decrease. Therefore, it is emphasized that the only way for Uzbekistan is the development of alternative and "green" energy, and nuclear energy can officially be included in this type of energy.

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However, alternative energy sources - wind and solar power plants - can be used, but despite all their advantages, renewable energy sources are very dependent on nature, climatic conditions and even the time of day. They are not called "distributed generation" for nothing - solar power plants work only when there is sunshine. It's the same with wind farms: no wind - no energy.

It is known that energy consumption is growing rapidly all over the world. Some countries face insufficient energy resources to meet their urgent needs, while others are on the path to reducing energy consumption.

Energy-saving technologies are becoming more popular, and the funds that make it up are being completely rebuilt. According to 2021 data, the volume of energy production in the world will be 16.5 billion tons of oil equivalent, consumption - 16.4 billion. was equivalent to tons of oil. The annual growth of energy production is 2.4%, the growth of energy consumption is 2.1%. At the same time, in the last 5 years, the volume of energy consumption in the world has increased 50 times.

Until 2050, oil, gas and coal will retain a dominant role in the main fuel-energy balance of our planet. However, these resources are being redistributed. If today oil leads behind coal and gas, in the future the advantage will pass to gas, their comparative advantages lie in a large amount of reserves and environmental cleanliness. "It is a fact that for many years no investments were made in new gas fields, electricity and gas networks were not modernized. As a result, the system lacked clear accounting, and large losses became commonplace. At the same time, in the last six years, our population has increased by 13%, and industrial enterprises have increased by 2 times, from 45,000 to 100,000. As a result, the demand for electricity has increased by at least 35 percent and is increasing year by year".

If we pay attention to the impact of energy on the environment and its negative consequences, toxic wastes released into the atmosphere, gas methane, other hydrogen sulfide, nitrogen oxides, carbon oxides, residues of various oil products cause great damage. Nevertheless, the use of oil fuel, natural gas, coal, shale, hydropower and nuclear energy and other alternative energy sources remain the main energy resources of mankind. "Unfortunately, the pace of development of energy infrastructures in Central Asia lags behind the processes of industrialization and urbanization, as well as population growth. This is a serious threat to the long-term sustainable development of our countries".

The use of hydroelectric power plants has both positive and negative aspects. Reservoirs, which are necessary to ensure the smooth operation of hydroelectric power plants, cause climate change in neighboring areas at distances of up to hundreds of kilometers, and are natural accumulators of pollution. Blue-green algae develop in water bodies, eutrophication processes accelerate, which leads to the deterioration of water quality, destroys the functioning of ecosystems. During the construction of reservoirs, natural accumulation areas are destroyed, fertile lands are flooded and the level of underground water changes.

For a long time, nuclear power plants have been presented as the most environmentally friendly type of power plants and as a promising system of thermal power plants that have an impact on global warming. However, the process of safe operation of nuclear power plants has not yet been resolved. The use of alternative energy sources and renewable energy sources is considered a real way to stop climate change without creating new threats to life and future generations. In this regard, mankind has been using wind energy for a long time. Sailing ships—a major mode of transportation that has connected people on different continents for centuries—was the most striking example of the use of wind power. Another well-known example of efficient use of wind energy is windmills. The main disadvantages of wind energy are low energy density, strong variability depending on weather conditions, the need to recycle spent wind generators, and a clear geographical unevenness of wind energy distribution. Finally, wind power requires large areas to be installed. Therefore, wind turbine systems, in turn, increase the cost of energy transmission.

Thus, it would not be wrong to say that alternative energy resources are the main source of energy driving the economy and industry today. We do not see a single country in the world that has been able to develop its industry and economy without having a reliable source of energy. the energy problem does not threaten human development, it can be solved by modernizing production. Highly developed countries are following this path, and Uzbekistan is among those countries.

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