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# Problems in the Development and Management Of Projects Related To The Creation Of Renewable Energy Resources

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**Annotation:** The article examines the opinions of the world's leading scientists on the problems in the development and management of projects related to the creation of renewable energy resources, summarizes the forecasts of global renewable energy consumption until 2040, the economic impact of the increase in the use of renewable energy sources in some countries of the world(forecasts for 2020-2030) were studied, justified conclusions and proposals were developed on the problems in the development and management of projects related to the creation of renewable energy resources, and recommendations were given for their application in our country.

**Keywords:** Renewable energy, solar energy, wind energy, biomass resource, energy, biogas.

## Introduction.

Increasing energy efficiency, expanding the use of environmentally friendly, non-traditional and renewable energy sources is becoming more and more important today. Because the effective use of renewable energy sources allows to reduce the amount of harmful gases released into the environment while saving reserves of underground resources. Therefore, great attention is being paid to the use of alternative energy sources in various sectors of the economy all over the world. According to experts, in the near future, it is possible that the sustainable development of a country will depend on the use of renewable energy sources in the energy sector. Taking this into account, in recent years, large-scale works have been carried out on the implementation of the "Green Economy" system in the industrial sectors of our republic, the improvement of energy efficiency in the social sphere, the expansion of the use of renewable energy sources, the acceleration of innovative development, and the rational use of natural resources is increasing. 125 mln. aimed at improving energy efficiency in industry at the expense of loans from the World Bank Group in our country investment projects equal USD are being implemented. 63% of the investments directed to this sector are used to renew energy systems, modernize production facilities, and develop renewable energy sources. According to estimates, the system of measures aimed at increasing energy efficiency in the traditional electric power sector of Uzbekistan by 2030 will cost 6.85 million allows to save natural resources equal to a ton of oil equivalent.

Currently, oil, natural gas, coal and uranium are the main sources of energy in the world. Due to the continuous mining of these resources, their reserves are decreasing year by year. As the world's demand for electricity is increasing day by day, as a result of the depletion of natural resources, the need for renewable energy sources is increasing.

Energy sources available on Earth are mainly divided into two types: non-renewable and renewable. Non-renewable hydrocarbon fuels include: oil, gas, coal, and peat. Renewable energy sources include types of energy that are constantly present in the biosphere: solar, wind, biomass, ocean and sea waves, and hydropower of rivers.

## Literature review.

In the process of analyzing the literature on the topic, we witnessed that several leading economists and specialists conducted scientific research on the problems of developing and managing projects related to the creation of renewable energy resources, which are as follows. For example, in the study conducted by V.Y. Ushakov, three main problems related to meeting the need for electric energy were considered: energy resources and energy shortage, damage to the environment, geopolitical and social threats. Based on the analysis of the "energy map" of the modern world, it is highlighted that the main way to solve these

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problems is to implement the concepts of energy conservation and energy replacement[1].

Adel Saleh Rawea, Shabana Urooj Researches on electricity problems in the Republic of Yemen and the widespread use of renewable energy sources in their elimination, as well as the problems of investment projects in the implementation of these renewable energy sources are revealed[2].

According to researcher D.H. Meadows, a stable society is not characterized by material and quantitative growth, but by qualitative aspects of development. In his work, the author mentioned that the use of non-renewable resources should be stopped and instead, in a sustainable society, it is necessary to use the natural gifts of the planet earth wisely and preserve more types of resources for future generations[3].

The Swedish scientist T.Jackson in his study entitled "Renewable energy: prospects for implementation" highlighted the economic, institutional and environmental aspects of the use of renewable energy sources[2]. He considered the issues of reducing technological costs in the field using the method of logical analysis. However, the study did not analyze the economic and environmental benefits of renewable energy with precise calculations.

English economist M.Grubb studied alternative energy development strategies in EU member states in his research entitled "European renewable energy strategies". In his research, the economist evaluated the economic processes in the field of renewable energy in the European Union member states and combined the general features of the national strategies of the countries based on the systematic approach[4].

**Research methodology.**

Economic research methods such as studying the research conducted by world scientists and economists on the problems of development and management of projects related to the creation of renewable energy resources, data collection, analysis of collected data, synthesis, and logical thinking were widely used.

**Analysis and discussion of results.**

Today, 19.2% of the world's energy consumption is met by the use of renewable energy sources. In world practice, the following sources of renewable energy are mainly used: solar, wind, water, wave, biomass, geothermal, rising and falling energy of the water level. In the global final energy consumption, renewable energy sources are mainly used from traditional biomass (9.0%), biomass, geothermal and solar energy (4.1%) and hydroelectric energy (3.9%).

The increase in global energy consumption and the limitation of natural energy resources make humanity face the need to use renewable energy sources to the maximum extent. If the share of the use of renewable energy sources in the global energy consumption was 13.6% in 2001, today this figure will average 19.2%, and in the near future, in particular, 23.6% in 2020 , and it is predicted to make 47.7% by 2040. In 2001, biomass (79.1%), geothermal (3.2%) and water (2.4%) accounted for the main share of renewable energy sources, and by 2020, biomass (60.4%) water (12.1%), wind (9.0%), geothermal (6.3%) and solar (2.2%) energies make up (Table 1).

**Table 1**

**Forecasts of global renewable energy consumption until 2040[5]**

| Indicators | 2001 year | 2010 year | 2020 year | 2030 year | 2040 year |
|---|---|---|---|---|---|
| **Total consumption, mln. t.n.e.** | 10038 | 10459 | 11425 | 12352 | 13310 |
| **Biomass** | 1080 | 1313 | 1791 | 2483 | 3271 |
| **Water energy** | 32,2 | 285 | 358 | 447 | 547 |
| **Geothermal energy** | 43.2 | 86 | 186 | 333 | 493 |

[1] В.Я. Ушаков “Основные проблемы энергетики и возможные способы их решения” Энергетика. Известия Томского политехнического университета. 2011. Т. 319. № 4

[2] Adel Saleh Rawea, Shabana Urooj “Strategies, current status, problems of energy and perspectives of Yemen's renewable energy solutions” Renewable and Sustainable Energy Reviews. Volume 82, Part 1, February 2018, Pages 1655-1663

[3] Медоуз Д. Х., Медоуз Д. Л., Рэндерс Й.За пределами роста. М.: Прогресс, Пангея, 1994.304 с

[4] Grubb M. (1995) Renewable Energy Strategies for Europe. RIIA/Earthscan. London. – P. 12.

[5] https://elib.buxdupi.uz/books/Qayta%20tiklanuvchi%20energiya%20manbalari.pdf

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|---|---|---|---|---|---|
| **Solar energy** | 4.1 | 15 | 66 | 244 | 480 |
| **Wind energy** | 4.7 | 44 | 226 | 542 | 688 |
| **Photoelectric energy** | 0.1 | 2 | 24 | 221 | 784 |
| **Wave energy** | 0,05 | 0,1 | 0,4 | 3 | 20 |
| **Total renewable energy sources, mln. t.n.e.** | 1365,5 | 1745,5 | 2964,4 | 4289,0 | 6351 |
| **Share of renewable energy sources in total energy consumption, in %** | 13,6 | 166 | 23,6 | 34,7 | 47,7 |

According to the information of the State Inspection of Electricity Control of the Cabinet of Ministers of the Republic of Uzbekistan, by 2030 the demand for energy resources in Uzbekistan will increase by 25.5% compared to 2013, and it will increase by 8-8.5% of the country's gross domestic product. 43.5 mln. in oil equivalent under conditions of preserved growth. is a ton. This creates the need to save energy and increase the share of renewable energy sources in the economy. According to the concept of sustainable development, reducing the energy capacity of the economy and using alternative sources of energy will increase in importance in the near future. In order to reduce the energy capacity of the economy in our country and reduce the negative impact on the environment and climate change within the existing energy capacity, we can offer the following: First, increase the share of renewable energy sources in the country's energy balance.

The share of renewable energy sources in the energy balance of our country, which was less than 1% in 2016, is projected to increase from 7% to 1% by 2030. Increasing the share of renewable energy sources in the country's energy balance to 19-23% will save fuel and energy reserves in the amount of 3.3 million tons of oil equivalent by 2030 and 5.9 million tons of oil equivalent by 2050. Based on the characteristics of the natural climate and geographical location of our country, expanding the use of renewable energy sources, mainly solar, water, and partly wind energy, in particular, wide use in industrial sectors, agriculture, communal and household facilities, and residential areas.

In particular, based on the target parameters of further development of renewable energy, by 2025, it is planned to increase the share of renewable energy sources from 12.7% to 19.7%. It is planned to increase the share of hydropower plants from 12.7% to 15.8%, solar energy to 2.3% and wind energy to 1.6%. At the same time, according to the decision, it is planned to implement 810 projects for the development of renewable energy with a total cost of 5.3 billion dollars in 2017-2025. In addition, more than 56.5 million cubic meters of natural gas and more than 807.3 million kWh of electricity will be saved due to the introduction of modern energy-saving technologies in social sphere and agricultural sector facilities.

In recent decades, large amounts of investment have been directed to the widespread use of hydrocarbons. Currently, the total volume of organic fuel used worldwide is 12 billion. it is the equivalent of a ton of oil. That is, the amount of organic fuel production during the last forty years is more than the amount of hydrocarbon reserves that have been mined in the entire history of mankind. However, traditional energy reserves are limited.

If such rates continue, according to calculations, black gold reserves on our planet will reach only 55-60 years. This period is estimated at 70-75 years for natural gas, 150-160 years for coal. Moreover, due to the chronic use of hydrocarbon sources, the environment and public health are being damaged, climate change is observed, and the ozone layer is being destroyed. According to experts, oil and gas reserves may run out after 55-75 years. Taking this into account, the development of non-traditional sources of energy and its wider introduction into our lives is required by the times. Alternative sources of energy, such as the sun and wind, are not only unlimited, but also environmentally friendly.

According to the analysis of the report "Renewable energy benefits: measuring the economics" published in 2016 by the International Renewable Energy Agency (IRENA), by 2030 doubling of the share of renewable energy sources in the total energy consumption of the world to 1.1% of the world GDP, i.e. 1.3 trillion. led to an increase in dollars. Such an increase in the use of renewable energy sources will lead to an increase in the standard of living of the world population by 2.7% by 2030, and even by 3.7% due to the high level of electrification of the heating and transport sectors.

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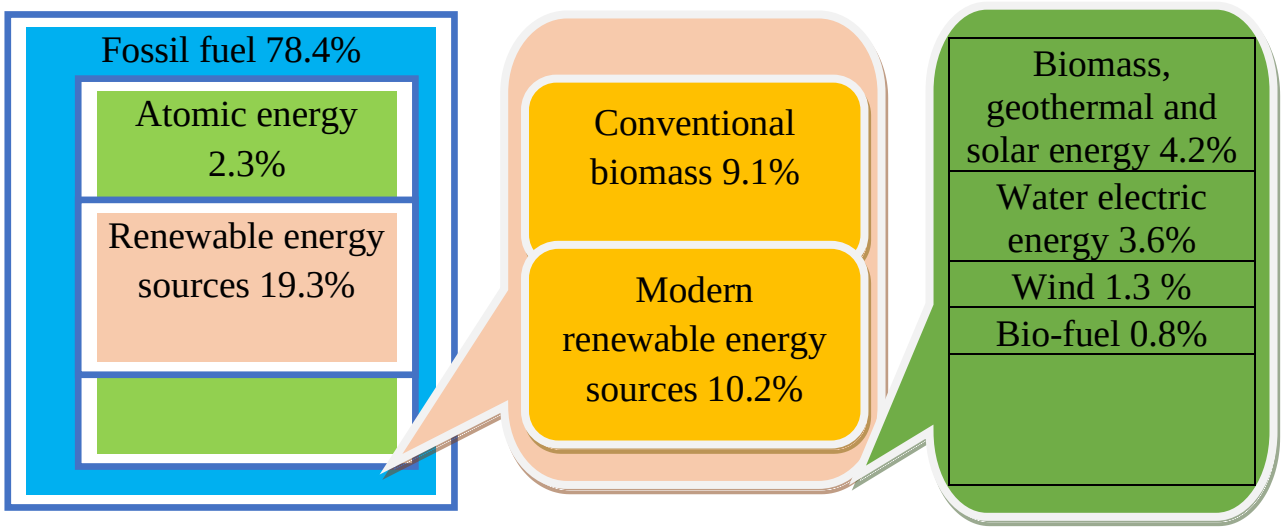


**Figure 1. Share of renewable energy sources in global final energy consumption[6]**

Research conducted by "IRENA" shows that the use of renewable energy sources has a positive effect on the macro-economic indicators of the country, in particular, on the growth of GDP, employment, foreign trade and other economic indicators, as well as on the prevention of environmental pollution. shows. For example, it is predicted that by 2030, due to the increase in the use of water energy, greenhouse gases will be reduced by 40%, and as a result, GDP will increase by 0.46% and employment by 0.5%. By 2030, Germany's GDP will increase by 3% and the number of jobs will increase by 1% due to various measures to increase the consumption of renewable energy. to increase the number of jobs to 7,450, to 4% of GDP by 2032 due to the increase of renewable energy capacity in Saudi Arabia by 54 GW, to increase the number of jobs by 137 thousand, to 0.6% of GDP in the USA by 2030 through the policy against SO2 emissions, causing an increase in the number of jobs by one million (Table 2).

**Table 2**

**The impact of the increase in the use of renewable energy sources in some countries of the world on the economy (forecasts for 2020-2030)[7]**

| State/Territory | Prognosis year in progress | Policy on renewable energy | Impact on GDP | Impact on employment |
|---|---|---|---|---|
| European Commission, 2014 | 2030 | Reduction of greenhouse gases by 40% due to water energy | +0,46% | +1,25 million workplace (+0,5%) |
| Germany (Lehr et al.,2012; Blazejczak et al.2014; Bohringer et al. 2013) | 2030 | Various measures to increase the consumption of renewable energy | +3% | +1% workplace |
| Ireland (Pöyry Manage-ment Consulting 2014) | 2020 | Mainly increasing the share of wind energy | From +0.2% Up to +1.3% | From +1,150 +7450 jobs |
| Japan (IRENA and CEM, 2014) | 2030 | 23.3 GW capacity addition of solar energy | +0.9% (47.5 billion USD.) | - |
| CHili (NRDC and ACERA, 2013) | 2028 | 20% of renewable energy production increase | +0,63% (2,24 billion USD.) | +7800 (+0.09) work place |
| Mexican (PwC, 2015) | 2030 | Regenerative increase of power | +0,2% | +134000 work |

[6] Renewables 2017 Global status Report. REN21 Steering Committee. –P. 30.
[7] Renewables 2017 Global status Report. REN21 Steering Committee. –P. 30.

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|---|---|---|---|---|
| | | capacity by 21 GW | | place |
| Saudi Arabia (K.A.CARE, 2012) | 2 | 54 GW increase in renewable energy capacity | +4% (51 billion USD.) | +137000 work place |
| Great Britain | 2030 | Natural gas is almost replaced by wind energy | +0,8% | +70000 ish work place |
| USA | 2030 | to emit SO2 anti policy | +0,6% | +1 million work place |

It is known that the national energy balance depends on many factors, including the available natural resources, the structure of the economy, and others. World experience, countries specializing in gas production, oil and coal production.

Meanwhile, if we consider renewable energy resources in Uzbekistan: Solar energy: 525 to 760 billion. up to kW.s;

Wind energy: up to 1 trillion kWh;

Hydropower: 21 billion. more than kW.s;

Biomass: 6 billion cubic meters.

Renewable energy still requires a lot of time and money to show its effectiveness. Let's look at our current main problems in statistical observations. Of course, the question arises why this indicator is high. There are various reasons for the high consumption of energy GDP in our republic, and one of the main reasons can be said to be that physically obsolete technologies are still used in industrial enterprises. This causes 60 percent of the energy coming from the primary source to be lost in transmission and distribution systems. In addition, burning gas in torch devices also means throwing a large amount of money into the sky (Fig. 2).

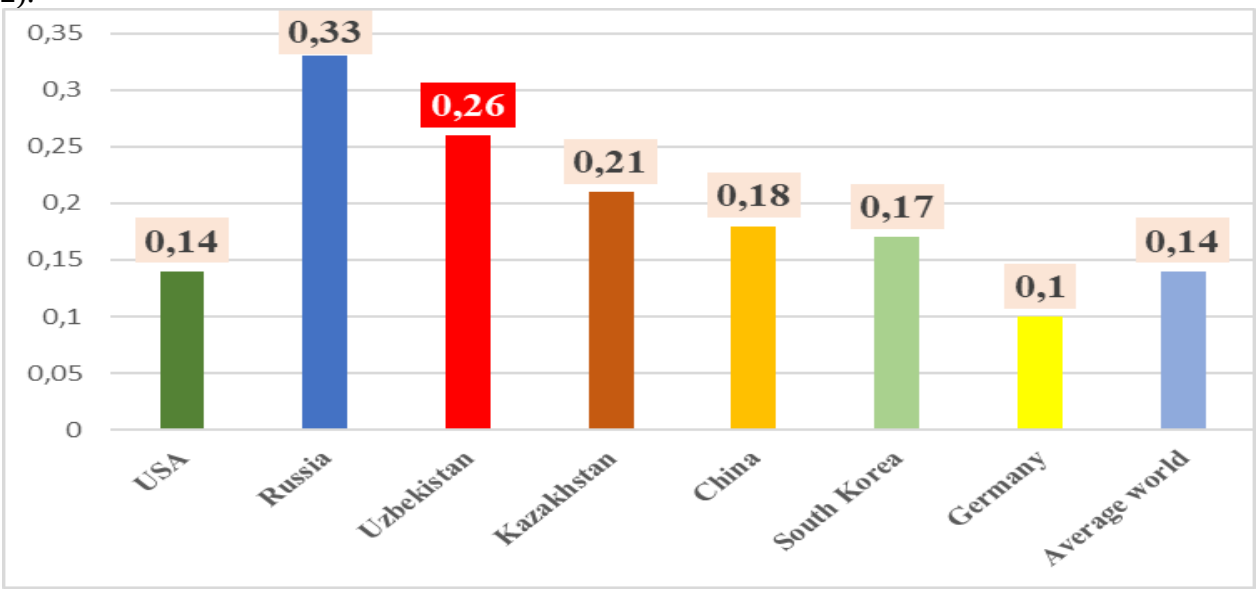


**Figure 2. Uzbekistan's GDP energy consumption, kg. oil equivalent/US dollar**

In order to develop renewable energy, first of all, investment projects of modernization and reconstruction of Tashkent, Qadiriya, Lower Bozsuv and Shahrikhan cascades are being implemented with the involvement of international financial institutions on the use of hydropower potential. The coal industry also occupies an important place in the economy of our country.

According to experts, by 2025, the share of alternative energy sources in Uzbekistan should increase from 12.7% to 19.7%. In the composition of alternative energy, the share of solar energy reaches 2.3%, and the share of wind energy reaches 1.6%. Also, it is expected to save energy in the amount of 9.79 million tons of conventional fuel annually due to the energy used for production. Measures aimed at ensuring the

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availability of guaranteed energy resources for the population will serve to improve the quality of life of the population in remote rural areas and increase their well-being.

**Conclusions and suggestions.**

In order to meet the demand for electricity in the country, it is necessary to expand the use of alternative energy sources without reducing the share of electricity currently produced. s a result of the production of natural and clean electricity, the saving of underground mineral resources for the next generation, socio-economic development, electricity reaching remote villages, periodic power outages, avoiding damage to equipment and technologies, improving the lifestyle of the population , prevention of various disasters due to environmental pollution and climate.

In addition, we can include the following economic mechanisms for encouraging the use of renewable energy sources:

- it is necessary to classify the definitions of traditional energy sources, that is, to significantly increase the definitions for electricity exceeding certain standards. In this case, the consumer pays 2-3 times more for electricity used in excess of the established standards;

- introduction of a credit system for the connection of producers of renewable energy sources (households and legal entities) to the grid and the transfer of excess energy from consumption to the grid, and in the necessary cases, acceptance from the grid. In this case, it is possible for each consumer to enter the surplus of the electricity produced by him on the basis of renewable energy sources into the general network and to receive electricity from the network in case of a seasonal decrease in the production of electricity during the days without sunshine.

- ensuring free access to the electricity market, including allowing the production of renewable electricity in the private sector and the sale of surplus electricity;

- introduction of mandatory quotas for the consumption and production of renewable energy sources in some industries;

- introduction of fines and taxes for the release of harmful substances into the environment through the use of renewable energy sources;

The use of a number of economic mechanisms for encouraging the use of renewable energy sources discussed above will lead to an increase in the share of renewable energy in the total energy consumption of our country, in turn, to achieving high economic efficiency, reducing the negative impact on the environment and in the end, it allows to achieve sustainable development.

**Reference:**

1. В.Я.Ушаков “Основные проблемы энергетики и возможные способы их решения” Энергетика. Известия Томского политехнического университета. 2011. Т. 319. № 4
2. Adel Saleh Rawea, Shabana Urooj “Strategies, current status, problems of energy and perspectives of Yemen's renewable energy solutions” Renewable and Sustainable Energy Reviews. Volume 82, Part 1, February 2018, Pages 1655-1663
3. Д.Х.Медоуз, Д.Л.Медоуз, Рэндерс Й.За пределами роста. М.: Прогресс, Пангея, 1994.304 с
4. M.Grubb “Renewable Energy Strategies for Europe”, RIIA/Earthscan. London. – P. 12.
5. https://elib.buxdupi.uz/books/Qayta%20tiklanuvchi%20energiya%20manbalari.pdf
6. Renewables 2017 Global status Report. REN21 Steering Committee. –P. 30.