# ANALYSIS OF HYDROENERETIC POTENTIAL OF WATER SOURCES IN THE NORTHERN TERRITORY OF ANDIZHAN REGION

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**Annotation.** In this study, the total hydropower potential of existing water sources in the northern districts of Andijan region was calculated by calculating the kinetic energy of water flow, and the energy points where micro-hydropower plants can be built on low-pressure water sources were studied. energy was calculated. Information is provided on the amount that can cover the annual electricity demand of Andijan region.

**Key words:** gross hydropower potential, electricity, micro hydropower, flow, low pressure.

To date, the process of obtaining heat and electricity through the use of fossil fuels in power plants has been developing rapidly for a historically short period of 90-100 years. How many more years will it take for these hydrocarbon fuels to be used up in this way, and when they run out, "From what sources will humanity be able to meet its energy needs?" The question is, of course, one of the global problems.

The world's analytical structures provide groundwater raw materials on the basis of scattered data, taking into account the resources of the total reserves in different ways. Take, for example, the global

energy statistics provided by British Petroleum for 2020. According to them, if current consumption continues, 1.734 trillion barrels of oil in 53 years,

196.8 trillion m3 of gas will last for about 60 years, and coal reserves will last for about 200 years. This suggests that the fossil fuel industry is in crisis. However, humanity has the potential to delay this impending global problem for a long time.

According to the International Energy Agency, global energy production is projected to increase by an average of 2.4% per year during the first quarter of the 21st century.

A detailed analysis of the prospects for the use of hydropower, one of the renewable energy sources in the country, identified 4,250 small and micro-hydropower plants, opportunities for the combined use of solar and wind energy with hydropower potential [3].

Based on the above considerations, we can say that the search for a solution to the problem involves not only the discovery of new fuel deposits and the development of the energy sector, but also the most efficient use of all types of renewable energy sources in nature. and great attention should be paid to the creation of new types of energy devices and technologies.

The study of the main parameters of the combined micro-hydropower plant, technical and economic indicators and methods of their calculation [5] are described in detail in the work. The use of water from hydropower potential and hydro-accumulated micro-power plants in large water pumps in the water industry and their energy parameters were studied in the study [6].

Research in the use of low-pressure water sources in hydropower, one of the renewable energy sources, is of particular importance. This is because there are a lot of hydropower sources in all countries with a water pressure of 1-5 m. Therefore, it is important to determine the amount of electricity that can be obtained from large and small rivers, canals and water sources in the irrigation system, the types, capacity and number of hydraulic turbines and micro-

hydropower plants that can be used in them to save ecosystems and fuel resources. has a weight of z.

One of the priorities of the Republic of Uzbekistan is to generate electricity from existing water sources in the regions with a low pressure of 4-5 meters.

**Table 1**

**The main flowing water sources in Andijan region**

| № | Name of rivers, streams and canals | Average water consumption Qmax m3 sec | Total length km | Name of flowing area |
|---|---|---|---|---|
| 1 | Shaxrixonsoy | 168 | 108,3 | Qurghonteppa, Jalal-Abad, Khojaabad, Bulakbashi, Asaka, Shahrihan, Boston |
| 2 | Savay canal | 32 | 47,3 | Kyrgyz Republic, Qurghonteppa, Jalal-Abad, Khojaabad |
| 3 | Andijonsoy | 34 | 76,7 | Qurghonteppa, Jalal-Abad, Andijan |
| 4 | Oqburasoy | 140 | 21,3 | Kyrgyz Republic, Jalal-Abad, Khojaabad |
| 5 | Blackberry Collector | 18 | 18 | Qurghonteppa, Jalal-Abad |
| 6 | The Great Fergana Canal | 80 | 57,3 | Jalal-Abad, Khojaabad, Bulakbashi, Kyrgyz Republic, Markhamat district, Fergana region |

In order to understand the problem, the hydropower potential of existing water sources in Andijan region was studied [4]. The main water sources flowing through the districts of Andijan region, their water consumption and length are given in Table 1 below.

The construction of small hydropower plants causes a lot of damage to the environment, saves a lot of arable land, and the cost of building small hydropower plants is not justified. However, in some parts of these canals and

rivers, energy points have been identified where micro-hydropower plants can be built on low-pressure water sources. They are also present in Kurgantepa and Bulakbashi districts. Many micro-hydropower plants can be installed in these canals and rivers, which are 48 km away from KFK.

Due to the high gross hydropower potential of Markhamat district, Khojaabad district, Jalal-Abad district, Kurgantepa district of Andijan region, it is effective to install micro-hydropower plants in these districts and connect them to the general network.

So far, all gross hydropower potentials have been calculated relative to water pressure. In this study, calculations were made on the kinetic energy of the water flow. The reason is that locally it is planned to generate electricity from low-pressure wastewater.

**Table 2**

**Gross hydropower potential in the districts of Andijan region (GVt/yil)**

| The name of the district | Gross hydropower potential (GW / year) | The share of Andijan region in the total hydropower potential |
|---|---|---|
| Buloqboshi | $0{,}02\ 10^3$ | 0,02% |
| Marxamat | $70{,}2\ 10^3$ | 67,25% |
| Jalaquduq | $6{,}21\ 10^3$ | 5,95% |
| Xo‘jaobod | $9{,}61\ 10^3$ | 9,20% |
| Qo‘rg‘ontepa | $3{,}64\ 10^3$ | 3,50% |
| Andijan region | $104{,}4\ 10^3$GVt/yil | |

The development of 0.1% of the total hydropower potential of Andijan region will cover 1.2-1.8%. This will help launch new production facilities and reduce the MMS load.

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