The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 29, 2020 | **Pages:** 118-121
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-19

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

The Prospects Of The Construction Of Hydroelectric Power Plants In Uzbekistan And The Issues Of Increasing Their Number And Widespread Use

Azamov Saidikrom Saidmurodovich
Assistant Of The Department Of Alternative Energy Sources, Andijan Institute Of Mechanical Engineering, Uzbekistan

ABSTRACT

The article discusses the use of hydroelectric power plants in Uzbekistan, ways to improve them and the requirements for modern hydroelectric power plants, the construction of small power plants and their widespread use.

KEYWORDS

Renewable energy sources, energy, pressure, small hydropower, diesel, generator, turbine, exhaust manifold, watercourse, dam.

INTRODUCTION

Today, electricity manufacturing is one of the main factors of industry and the national economy in our country along with many other countries. The demand for energy is growing and various methods of generating electricity are widely used to meet this demand. We know that a hydroelectric power station (HPP) is a set of hydraulic structures and power equipment that converts the energy of water flow into electricity using hydraulic turbines. These hydropower plants (HPPs) are the main hydropower facilities. In terms of energy conversion, hydropower is a technology with a very high FIC, in many cases the FIC is twice that of conventional thermal power plants. As the flow of water falling

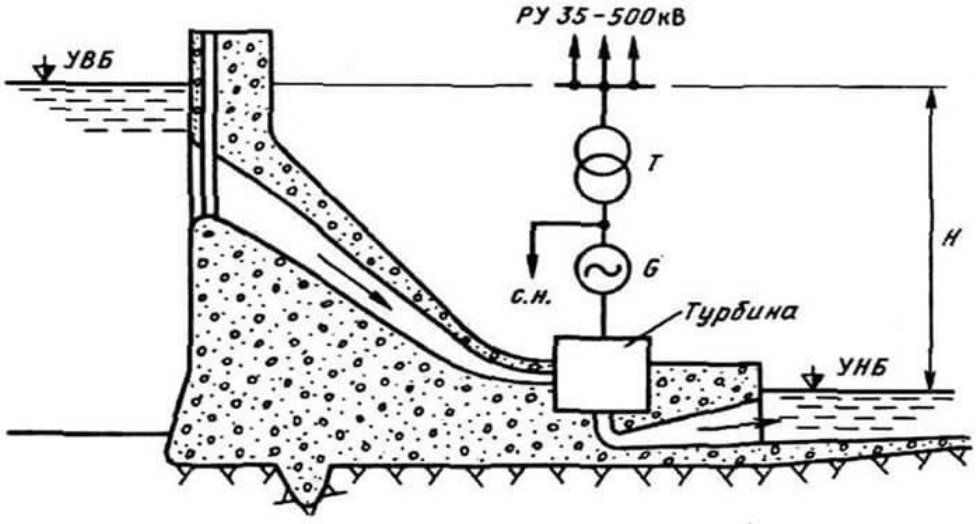
The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 29, 2020 | **Pages:** 118-121
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-19

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

vertically has a large kinetic energy, which is converted into mechanical (rotational) energy to produce electricity.

MATERIALS AND METHODS

The main advantages of hydropower include: the ability to quickly restore its resources; no emissions of pollutants into the atmosphere; ability to quickly adjust the load on the power grid; is the low cost of power generation processes. Hydraulic structures are divided into dam-type, derivative and mixed types. In hydroelectric power plants near the dam, the water level is raised by the dam and the required pressure is created. The HPP building will be located in 3 types: 1) near the dam; 2) outside the dam; 3) below the dam, in the riverbed. The hydropower plants are built near the dam and in the riverbed, the water pressure creates a dam. Such hydropower plants are built on mountain rivers with high water content, where canals are narrow. These include Kayrakkum, Tuyamoyin and Chordara HPPs. Derivation (brought to the station node of the HPP by water pipes, channel or tunnel) HPPs are medium and high pressure, the pressure is generated using the derivation channel. Such hydropower plants include the Charvak, Farhod and Bozsuv canals. In mixed HPPs, the pressure is generated mainly by river hydraulic structures and partly by a derivation channel. The main structure (dam) that damages the riverbed, the canal that supplies water to the HPP building, the station pressure node (SBU) or the pressure water pipeline, regulates the water level and flow, removes excess water, etc., from automatic devices consisting of structures; There is a machine room with a hydraulic unit (turbine generator) that converts water energy directly into electricity, and wastewater disposal facilities. At present, a number of hydropower plants in our country, including hydropower plants, are controlled by modern methods and equipment.



Picture 1: The basic scheme of existing HPPs

In the picture we can see the basic scheme of existing HPPs in our country. The water supplied to the HPP turbines by special hydraulic structures generates electricity as a result of the rotation of the impeller of the turbine, the shaft mounted on it and the

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 29, 2020 | **Pages:** 118-121
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-19

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

generator attached to the shaft. Electricity is supplied to consumers through special devices. Now the work of all HPPs is automated. Several automated HPPs are controlled remotely (from an adjacent HPP or from the control panel of the power system). HPPs are divided into low (up to 5 MW), medium (5-25 MW) and large (over 25 MW) types depending on the specified capacity.

RESULTS AND DISCUSSIONS

Initially, the development of a plan for the electrification of Uzbekistan was of great importance. Development of energy in the republic, in 1923 the construction of a hydroelectric power station (HPP) on the Bozsuv canal in Tashkent began. In May 1926, the Bozsuv HPP with a capacity of 2,000 kW, the largest in Central Asia at that time, was launched in the energy sector of Uzbekistan. Gradually, Chirchik, Tovaksay and others were built in our country. Admittedly, the focus on hydropower has diminished, albeit slightly, because in most cases, more research is now focused on nuclear power plants and thermal power plants, and we see that such plants are widely used in many countries, and more attention is being paid to energy. we need to build mini hydropower plants and improve the existing ones because I think hydropower has enough experience to do a lot of work in our country and most importantly we have a number of canals and rivers to build a number of new mini hydropower plants, especially mini hydropower plants. We will not be mistaken if today we take mini-manufacturing small enterprises located in the homes of the population, which will be self-sufficient mini-hydropower plants. Even if we are, we will have some success.

Small hydropower plants are also divided into types in terms of pressure:

a) Low pressure N = 20 meters;

b) Medium pressure N = 20 - 100 m;

c) High pressure N> 100 m.

Currently, turbines installed in small hydropower plants have the following characteristics: Pressure - 2 - 400 m capacity - 10 - 8000 kW

The diameter of the impeller is 0.2 to 2.0 m

It is more convenient to install small hydropower plants on existing irrigation facilities. Because small HPP buildings are not complicated, they do not require large construction work. In the picture below we can see a small view of the micro hydroelectric powerstation.

The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: November 29, 2020 | **Pages:** 118-121
Doi: https://doi.org/10.37547/tajet/Volume02Issue11-19

IMPACT FACTOR
2020: 5. 32
OCLC - 1121105677

Picture 2: Autonomous small hydroelectric power station.

CONCLUSION

In particular, the selection of mini-hydraulic units suitable for the conditions of the Fergana Valley, and the opening of a sewing factory in a small handicraft house with a small production in the future on the example of the Shahrihan river of the Fergana canal.

REFERENCES

1. Allaev.Q.P. (2000), Electricity of Uzbekistan and the world
2. Majidov T.Sh. (1998), Non-traditional and renewable energy sources
3. Jabborov N.Yakuvov M. (2007),Electrotenics and electronics
4. Saydaliev IN, The essence of the content of synergetic integration of higher education and production // International scientific-practical conference: Andijan Machine-Building Institute.- 2020. P.278-287
5. Yusupovich, K. S. (2020). The Emergence Of Religious Views Is Exemplified By The Southern Regions. The American Journal of Social Science and Education Innovations, 2(10), 143-145.
6. www.het.uz