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Risk Assessment of Investing in Energy Enterprises of the Khatlon Region

Sharifov Makhmadisuf*[1] Fathullozoda Abdukholiq[2] Muhammed Azizullo[3]

Abstract

In their article, the authors analyzed and studied the issue of assessing investment risk in energy enterprises of the Khatlon region. They noted that in today's conditions, it is expected to attract investments in energy enterprises based on an increase in the level and quality of construction of power plants and a gradual increase in the living standards of the population.

Keywords: energy, investments, region, enterprise, electric power industry, risk, the attraction of investments, investment projects, power plant, assessment.

Introduction

Currently, the use of the program-targeted method of regional development programming is gaining great importance in the Khatlon region. In connection with this issue, all regions of the republic are obliged to develop their long-term socio-economic development program within the framework of the National Development Strategy of the Republic of Tajikistan in the period up to 2030. In particular, this initiative is being implemented in the Khatlon region. The goals planned in the program are realized due to the development and implementation of investment projects. Domestic researcher Saidmurodov Sh.M in his scientific article entitled "Analysis of the effectiveness of the implementation of investment projects in Khatlon region". Important investment projects are those projects whose implementation can have a significant long-term impact on the social, economic, and environmental situation of the region" [5, p.320].

[1] Assistant of the department of finance and credit, Kulob State University named after Abuabdullah Rudaki Tajikistan sharifzoda_yusuf99@yahoo.com

[2] Candidate of Economic Sciences, docent of the department of finance and credit Kulob State University named after Abuabdullah Rudaki Tajikistan

[3] Assistant of the department of finance and credit, Kulob State University named after Abuabdullah Rudaki Tajikistan

The main goal of these investment projects is to create favorable conditions for the development of regional districts and to ensure the standard of living of their population. The implementation of these investment projects covers various areas of the economic system of the region, affects the development of production and transport infrastructure, strengthens the investment activity of the region, radically changes the working environment of the region, and transforms it.

This action indicates that there is a lack of internal investment resources in the Khatlon region. Therefore, institutions of state power in the Khatlon region are trying to raise the level of the investment environment in order to attract foreign capital.

During the last few years, the increase in foreign investments and the implementation of investment projects in energy enterprises is clearly felt. The main donors of the Khatlon region are international financial institutions, the World Bank, Asian Development Bank, and European Bank for Reconstruction and Development. The Islamic Development Bank is the Saudi Development Fund, the European Investment Bank, the Asian Infrastructure Investment Bank, and others. The main donor countries are Germany, Japan, and the People's Republic of China, Switzerland, the Islamic Republic of Iran, and others.

Table 1 Sources of implementation of investment projects in the field of energy from all sources for 2016-2020 in Khatlon region, Somoni [2, p.97]

Index	Years					Year 2020 in relation to 2016, times
	2016	2017	2018	2019	2020	
In particular, the Republican budget	1820	3360	2000	3600	0	0
Own funds	210	588	0	0	0	0
Internal investment,	214515	176826	529386	627046	802700	3,74
Foreign investment						
Total	216545	180774	531386	630646	802700	3,70

Source. The social and economic development program of Khatlon region for the period of 2016-2020. p. 97.

It should be noted that 24 projects with the amount of 2362.006 million were developed within the framework of the Khatlon region's socio-economic development program for 2016-2020. It is planned that 10.7 million 798,000 somoni to the national budget from own funds, and 235.0 million somoni equals domestic and foreign capital.

Achieving energy independence is one of the main tasks and the priority direction of the National Strategy of Economic Development of the Republic of Tajikistan for the period up to 2030, but the implementation of this goal in the Republic of Tajikistan requires a lot of capital resources. The existing financing mechanism of the energy industry does not correspond to investment incentives, which makes it difficult to activate investment activity and risk management in energy enterprises. All of this requires analysis of the energy industry of the Khatlon region, determination of the investment position, and management of its risks in energy enterprises.

In today's conditions, attracting investment in energy enterprises, on the basis of increasing the level and quality of construction of power plants and gradually increasing the standard of living of the population, is expected.

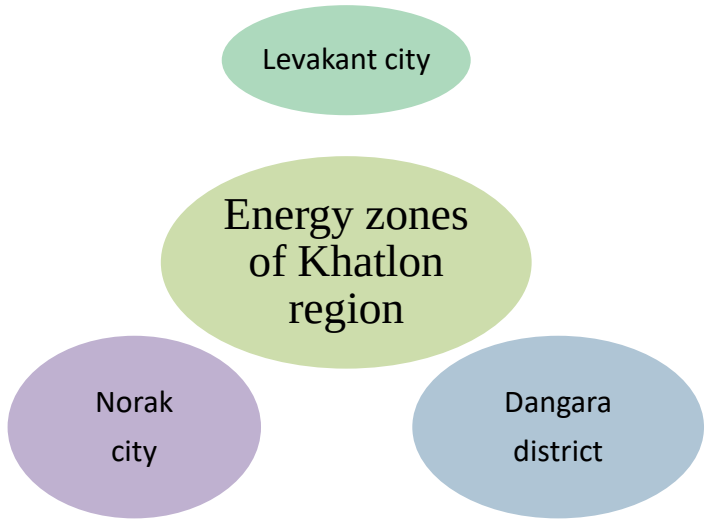
Among the main factors affecting the profitability of investment attraction and incentives for investment attraction in the region's energy enterprises, the following factors should also be taken into account:

- level and quality of state support and protection of domestic and foreign investors;
- increasing domestic and foreign demand for the wholesale purchase of electricity in the region;
- reducing the level of poverty and social protection of the population;
- reduction of corruption factors and improvement of the investment environment in the region;
- the quality of protection of intellectual property rights;
- the level of education and the level and quality of life of the population;
- reducing the documentation system, etc.

It can also be said that the Khatlon region is bordered in the north by the subordinate districts of the republic, in the east by the Badakhshan Mountain Autonomous Region, in the west by the Republic of Uzbekistan, and in the south by the Islamic Republic of Afghanistan. According to the border structure, the territory of the region is divided into 21 districts, 4 cities and 22 urban communities, 133 rural communities. However, among these cities and districts, only 2 cities and 1 district in the region are engaged in the production of electricity, as shown in Figure 1.

Investment in fixed capital is a sum of money spent on the purchase, construction, and reproduction of fixed assets. According to the production structure and the nature of the fixed assets, the investment in the fixed capital is allocated for the costs of construction and assembly and design and restoration work, the purchase of equipment included in the construction budget, as well as the purchase of assembly

equipment, for general expenses in energy production and the construction of energy facilities.



Prepared by the author

In 2018, the Directorate for the construction of state facilities of the Executive Office of the President of the Republic of Tajikistan made a capital investment in the amount of 2,623,017.2 thousand somoni, which is 1.9 times more than in 2014. Although the use of means and the volume of capital investments are increasing, there is an imbalance in the distribution of public investment. For example, 7.5% of the targeted investment in the city of Levakant, 5.0% in the city of Norak, and 18.9% in the Dangara district are allocated in 2019. In addition to these analyses, it shows that in the last 6 years, 740429.8 thousand somoni, Norak city 555579.4 thousand somoni, and Dangara district 3388948 thousand somoni were invested in the city of Levakant. (See table 2.)

Table 2. The volume of investments in the main operating power plants of the Khatlon region in 2014-2019 (in somoni) [4, p.125]

Index	2014	2015	2016	2017	2018	2019
Investment in the region	1391304,4	1503783,7	2375812,5	2179006,3	2802570,8	2623017,2
Levacant city	15042,5	11853,1	199456,7	91741,1	225331,3	197005,1
With %	1,1	0,8	8,4	4,2	8,0	7,5
Norak city	66123,6	1 53729,7	8 9681,4	97799,2	19108,3	129137,2
With %	4,7	10,2	3,7	4,4	0,6	5,0
Dangara district	202548,9	294115,2	695617,6	35 0032,2	1349035,3	497598,8
With %	14,5	19,5	29,2	16,0	48,1	18,9

Source: Within the framework of the annual statistics of the Khatlon region for the years 2014-2019, p. 125, calculated

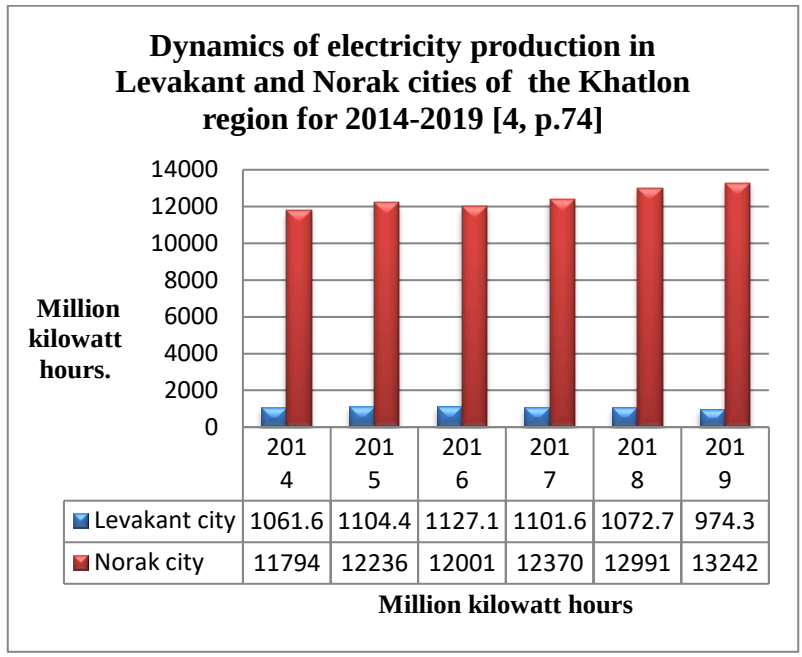
It should be noted that regardless of the fact that the share of state investments in the total amount is small in the city of Norak,its amount has increased in the Dangara district and the participation of the state in increasing the economy of the Khatlon region is active.

In our opinion, investment for energy enterprises can be defined as a set of resources (values) for objects of business activity and other activities with the purpose of collecting in the form of profit (or income), as well as obtaining a positive socio-economic impact, etc. Also, money, movable and immovable property, copyright objects, licenses, patents, products, technologies, and other intellectual values, land use rights, natural resources, as well as other property act as investment resources. All of these listed elements have investment risk factors.

Sh. M. Saidmuradov and G. H. Zubaidulloeva noted in their analysis that "among the set of risks reflected in public life, the most difficult risks are economic risks. All business entities operate under uncertain or dangerous conditions. Therefore, the science of risk as a theory is organized and developed as a part of the economic theory" [6, p. 226].

Investment is one of the important factors in the development of the socio-economic system of the Khatlon region. The executive body of the state power of the Khatlon region, in this case, determines the prospects and competitiveness of the national economy according to its scale, structure, and efficiency. It is these investment dynamics that are important parameters of the reproduction process, both at the level of the national economy and at the level of energy enterprises, which direct this distribution of electricity to solve the current and future needs of the region. It shows the dynamic process of changing investment forms and investment funds to

increase the capital value of resources, as well as the process that ensures the replacement of production factors.



Source: Within the framework of the annual statistics of the Khatlon region for the years 2014-2019, p 74, calculated.

The data of the diagram show that in the city of Levakant, which is considered one of the energy districts of the Khatlon region, in 2015, 2016, and 2017, the amount of electricity production was stable, and in 2019, it was an abnormal power is down. The main source of electricity production in the city of Levakant is the Sarband Hydropower Plant.

It is worth mentioning that the "Sarband" hydroelectric power plant was temporarily commissioned in 1962 as part of the construction of a series of hydroelectric power plants on the Vahsh River, and was fully operational in 1966. The Sarband hydropower plant has three hydro units with a capacity of 45 thousand kW and three hydro units with a capacity of 35 thousand kW. The total capacity of the Sarband hydropower plant is 240 thousand kW. The first two units of the power plant were put into operation in 1962 and the other 4 units in 1963.

During its long operation, this plant has produced 50 billion kilowatt hours of electricity. The design capacity of this important hydropower facility of the Khatlon

region is 240 megawatts. However, as a result of long-term operation, it has lost its existing capacity and operates with a capacity of only 160 megawatts.

It should be noted that as a result of the calm political situation in the country, a favorable environment for investment has been created, and with the direct instructions and instructions of the Founder of Peace and National Unity - Leader of the Nation, President of the Republic of Tajikistan, Honorable Emomali Rahmon, all measures have been taken to further improve the development of the energy sector, and with the involvement of international capital, the implementation of a number of projects in Vakhsh hydropower plants has been completed.

In this context, a Memorandum of Cooperation was signed between the Ministry of Energy and Water Resources, the Ministry of Finance of the Republic of Tajikistan, the Open Stock Holding Company "Barqi Tajik" and the Asian Development Bank on the "Rehabilitation of the Sarband" hydropower plant with a capacity of 240 megawatts this project is worth 136 million US dollars, it consists of two stages, and the implementation of the project is planned for 3 years. According to the first part of the project, completion of reconstruction and reconstruction of hydraulic units number 1, 2, 5, main repair of hydro units number 3, 6, reconstruction and reconstruction of water discharge gates, repair of lifting mechanisms, compressed air system of the plant, fire extinguishing system, replacement of power autotransformers number 2 and 3, the construction of a new building of the control center of the power plant, replacement of equipment in mechanical and electrical workshops, strengthening of the river banks and the connecting channel is planned. In the second part of the project, the reconstruction of the open distribution substations of 220 and 110 kilovolts, and the reconstruction of the open distribution substations of 35 and 6 kilovolts will be implemented.

In particular, in 2004, with the direct support of the top political leadership of Tajikistan, a new three-phase autotransformer with a capacity of 250 megawatts was replaced with the sum of 17 million and 700 thousand somoni. Also, as part of the power plant renovation, a 220-kilovolt power line was built and put into use between the Sarband Hydroelectric Power Plant and the Sangtuda-2 Hydroelectric Power Plant, and 64 Swedish-made electronic meters were replaced. According to the LOT-2 program, with the involvement of foreign capital, the reconstruction of hydro unit number 4 of the Sarband hydropower plants was completed in 2012, and it is currently in good working condition and is controlled by computer. 13 million 951 359 US dollars were spent on the completion of this measure.

In the city of Norak, after the renovation and replacement of power generating devices, the production of electricity has increased by 12.2% compared to 2014. In addition, 65.8% of the country's electricity is produced in the Norak city. The main

source of electricity production in the city of Norak is the Norak Hydroelectric Power Plant and the Boygozi Hydroelectric Power Plant. The Norak hydropower plant named after Tursun Oljabaev was built on the Vakhsh River. The construction of the power plant started in 1961, its first hydro unit was put into operation in 1972, and the last one in 1979. 9 hydro units with a design capacity of 300,000 kW have been installed at the Norak Hydropower Plant. The total capacity of the power plant is 3000 thousand kW.

The construction of the Norak hydropower plant began in 1961, its first unit was commissioned on November 15, 1972, with a capacity of 300 megawatts, and the plant with its full capacity (2700 megawatts) was commissioned in 1979. In 1988, all nine units of the power plant were renovated, the capacity of each of them was increased to 335 megawatts, and the total capacity of the power plant was increased to 3000 megawatts. At the same time, the construction of the Norak hydropower plant proved that the hydropower resources of our country, which are 527 billion kilowatt hours per year and have been studied since the beginning of the thirties of the last century, are really beneficial for the economic and social development of the entire region is Since the 70s of the last century, the production complex of Southern Tajikistan, including the Vakhsh Nitrogen Fertilizer Plant, the Yavon Electrochemical Plant, the Tajik Aluminum Plant, etc were made The height of the dam of the Norak hydropower plant is 300 meters (it was the highest dam in the world until 2013). As of January 1, 2010, the Norak hydropower plant is worth 353.6 billion and produced kilowatt hours of electricity. In addition, on March 20, 2019, the President of the Republic of Tajikistan gave an official start to the implementation of the project "Rehabilitation of the Norak hydropower plant" in the city of Norak. As a result of the implementation of this project, the "Norak" hydropower plant will be renovated and more reliable, and its design capacity will be increased from 3000 to 3300 megawatts.

Another energy district in Khatlon region is Dangara district, which has two hydropower plants. These are Santuda 1 hydroelectric power station and Sangtuda 2 hydroelectric power stations. However, in this article, we use Sangtuda 1 Open Stock Company, which is a joint venture of the Russian Federation and the Republic of Tajikistan, and was established on February 16, 2005, in order to complete the construction and further use of the hydroelectric power plant on the Vakhsh River in the Republic of Tajikistan. has been

The share of the parties, i.e. the Russian Federation, in the charter capital of the Sangtuda 1 hydroelectric power plant, the share of the Republic of Tajikistan is 25% plus 1 share.

The first unit of the Sangtuda hydropower plant was commissioned on January 1, 2008, when the Khatlon region was under power restrictions. The

ceremonial and full commissioning ceremony of the Sangtuda 1 hydropower plant was launched on July 31, 2009, with the participation of the Presidents of Russia Dmitry Medvedev, and Tajikistan Emomali Rahmon.

It should be noted that the Sangtuda-1 hydropower plant with a capacity of 670 MW is the fifth stage of Vakhsh hydropower plants and one of the three largest hydropower plants in Tajikistan along with Norak hydropower plants (3000 MW) and Boygozi hydropower plants (600 MW).

The main direction of the enterprise is the production of electricity.

The main factors that we will show below that affect both the energy industry of Tajikistan and the operation of the power plant are:

- the nature of the energy system of Tajikistan, which consists of two separate components - the central (main) and eastern (Pamir) energy system;
- determined the presence of large hydropower resources, which determine the production structure of the republic, which consists of 89% of power plants. Most of the power plants are located on the Vakhsh River and are included in the series of Vakhsh hydropower plants. Also, this river accounts for 95% of the produced electricity of the republic;
- monopoly position of Open Stock Holding Company "Barqi Tajik", which operates in all sectors of the market (production, transmission, distribution of electricity, function of system operator). Most of the power generating capacities (Norak hydroelectric power plant, Boygozi hydroelectric power plant, Central hydroelectric power plant, Qairokqum hydroelectric power plant, etc.) belong to this state company.

The total capacity of existing hydropower plants in Tajikistan in 2018 was 5582 MW. The total production of electricity by all power plants in the Republic of Tajikistan according to the results of 2018 was 19,743 million kWh, of which 17,288 million kWh went to Khatlon region or 87.3% of the electricity of the republic corresponds to the region [1].

The general trends in the development of the energy industry in 2018 are considered to be stable, taking into account the following factors that had a significant impact on the industry:

- the beginning of the export of electricity to the Republic of Uzbekistan in April 2018;
- commissioning of the first unit of the Rogun hydropower plant in November 2018;

- putting into use the capacity of two Dushanbe Power and Heating Centers;
- Electricity production in the republic as a whole increased by 1.6 billion kWh or 9.0% compared to 2017 (19.743 million kWh in 2018 compared to 18.114 million kWh in 2017);
- the volume of electricity exported from Tajikistan in 2018 amounted to more than 2.4 billion kWh and compared to 2017 it increased by 1.1 billion kWh or 1.8 times.

In 2018, the Sangtuda 1 hydroelectric power plant signed a contract for the transmission of electricity produced in the amount of 1,915 million kWh with Open Stock Holding Company "Barqi Tajik". However, due to the increase in demand, the actual supply of electricity is 2382.5 mln. It was 467.5 million kWh or 24.4% more than planned. The transfer or self-export of Sangtuda-1 electricity from Tajikistan to Uzbekistan.

The following are the main factors that may have a negative impact on the Sangtuda 1 hydropower plant in the coming years:

- increase in debt of Open Stock Holding Company "Barqi Tajik" due to timely and incomplete payment by Open Stock Holding Company "Barqi Tajik" for electricity supplied by Sangtuda 1 hydropower plant;
- the increase of capacity in excess of demand in the Republic of Tajikistan in the spring and summer and probably in the autumn and winter period, due to the commissioning of units of the Roghun hydropower plant;
- failure to fully produce the projected capacity of the Sangtuda hydroelectric power plant - 2.7 billion kWh during the year.

The basis for planning the electric power of the Sangtuda-1 hydropower plant for export is the agreements between the Government of the Russian Federation and the Republic of Tajikistan dated October 16, 2004, and July 30, 2009, which stipulate the obligation of the Tajik side to ensure the export of electricity from the plant through the grid. Includes electricity of the Republic of Tajikistan.

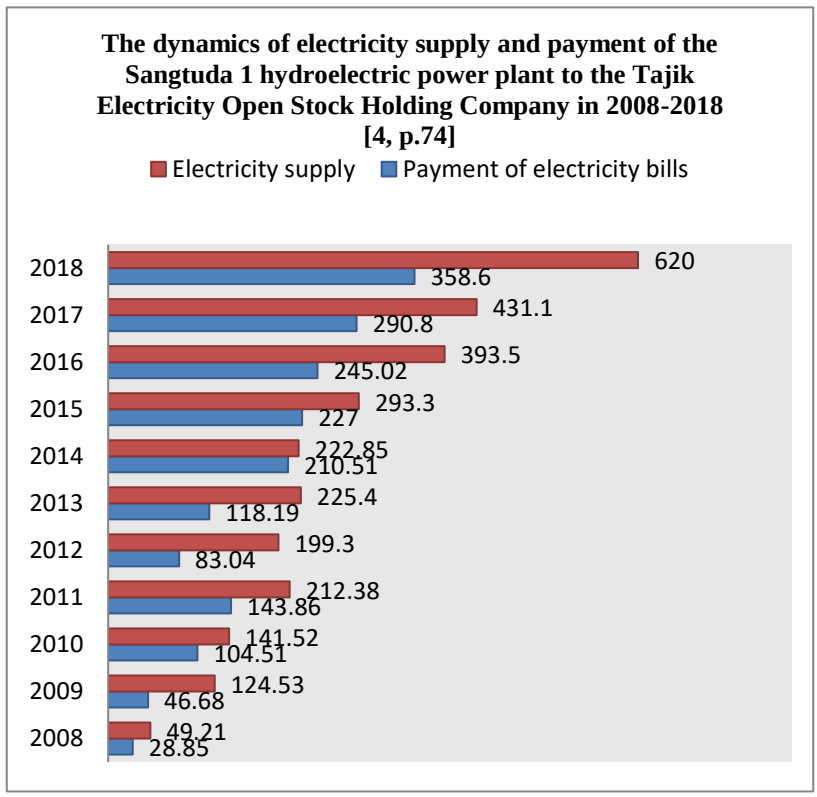
At the same time, it should be noted that, in addition to economic efficiency, the implementation of opportunities for the export of electricity directly depends on the political interests of the countries of the region and supporting countries, as well as on the availability of interstate electricity transmission lines.

On the basis of the Agreement between the Government of the Russian Federation and the Government of the Republic of Tajikistan dated July 30, 2009, on the commissioning of the Sangtuda-1 Hydroelectric Power Plant, as well as between the Tajik Power Open Stock Holding Company and the Sangtuda-1 Hydroelectric

Power Plant, the agreement on the purchase and sale of electricity from 17.09.2009 No. 9/78-2009-E was closed.

According to the terms of this agreement, the tariff for 1 kW/h of electricity delivered to the domestic market of the Republic of Tajikistan was set at the rate of 0.01994 US dollars with annual indexation starting from January 1, 2010, not less than 4% of the price level of the previous year. As of January 1, 2018, electricity is provided under this contract at a price of $0.02841 including VAT.

In 2018, the power plant delivered 2,383 million kWh of electricity worth 620 million somoni (including VAT) to the Tajik Open Stock Holding Company.



Development of the author within the framework of the annual statistics of Khatlon region for the years 2014-2018.

However, the level of payments by Barki Tajik was 58% of the amount of electricity (358.6 million somoni), which is the lowest indicator in the last 5 years, including:

- Payment in cash - 260 million somoni;

- Settlements 98.6 million somoni.

Table 3.The dynamics of electricity payment at the Sangtudai Hydroelectric Power Plant-1 in 2008-2018

Yaers	Power supply (millionk Wh)	Cost of Electricity (million soms)	Payment of Electricity (million som)	Loan amount in %	Borrowing Open Stock Hholding company Barqi Tajik (million som)
2008	1 106,2	49,2	28,9	59	20,3
2009	1 698,4	124,5	46,7	38	77,8
2010	1 616,1	141,5	104,5	74	37,0
2011	2 151,5	212,4	143,9	68	68,5
2012	1 862,9	199,3	83,0	42	116,3
2013	1 994,4	225,4	118,2	52	107,2
2014	1 855,2	222,8	210,5	94	12,3
2015	1 873,8	293,3	227,0	77	66,3
2016	1 903,8	393,5	245,0	62	148,5
2017	1 849,3	431,1	290,9	67	140,3
2018	2 382,4	620,0	358,6	58	261,4
Total	**20 294,0**	**2 913**	**1 857,1**	**63,7**	**1 056,0**

The analysis data of this table shows that the level of supply and production of electricity at the Sangtuda-1 Hydroelectric Power Plant is growing and has increased by 1.1 times compared to 2008. The cost of electricity is from 49.2 mln. Somoni in 2008 up to 620.00 million. somoni in 2018.

However, the payment of electricity fees by the Open Stock Holding Company "Barqi Tajik" in the last 11 years is on average 64%, and its debt is 1,056.0 million somoni. This is the problem that Sangtuda-1 Open Joint-Stock Company is currently studying in order to increase the level of payment for electricity transmission and increase the use of power plants, to find ways to pay off the accumulated debt and electricity supply, as well as to enter foreign markets. . According to the results of 2018, investment in fixed assets is 31.9 million somoni, the plan is 28.9 million somoni, which is 3 million somoni or 10.3% more than the planned cost:

- Technical reconstruction and restoration of plant facilities in the total amount of 16.9 million somoni;
- Costs for the purchase of machinery and production equipment 2.7 mln. somoni;
- New construction and improvement of power plant facilities 1.38 million somoni;

- Security measures 1 million somoni; (organization of an electronic system to limit access to the station through Kashtan radio wave detectors, purchase of metal detectors);
- Purchase of non-production machinery and equipment 792.48 thousand somoni;
- Events of 536.57 thousand somoni;
- other types of investments in assets of 8.4 million somoni.

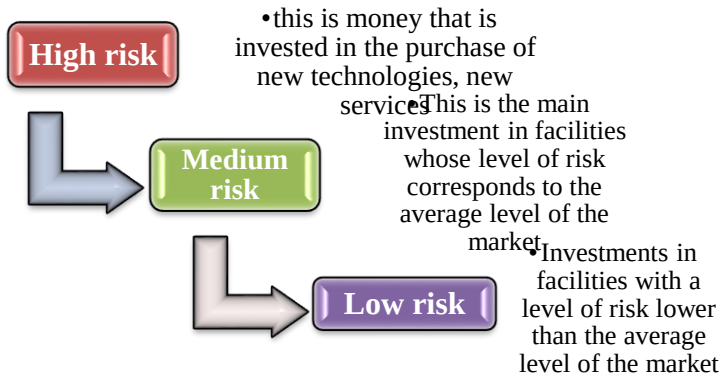
Many sectors of the national economy, including energy enterprises, are also at risk. According to Sh. M. Saidmuradov, B. B. Imomaliev "... the risk management system allows to reduce risks, increase the level of confidence in the market, and create the possibility of long-term success" [7, p. 186].

This is explained, firstly, by a relatively long investment period, and secondly, by the existence of a time gap between the investment and the return of its amount. In addition, in energy enterprises, investments are usually associated with investments in the form of money, the ineffective use of which can have a negative impact on the financial results of the investor.

Another issue that affects the risk of non-return of funds is that investment activities are often carried out with the participation of intermediaries, as a result of which the investor does not have the opportunity to independently monitor the effectiveness of the use of financial funds. The same problem can be observed in the Sangtuda-1 hydropower plant.

For example, the power plant produces electricity and transfers it to Open Stock Holding Company Barqi Tajik for supply to the population, but the company has problems in collecting electricity fees and cannot provide electricity to Sangtuda-1 hydropower plant on time and in full. In this case, there is a problem of the occurrence of risks, which can lead to unexpected losses for the plant. In our opinion, in this case, the investor or the energy companies themselves should make the right decision.

Classification of risks and risks of the energy enterprise During the research, we identified the following risks in energy enterprises of the Khatlon region, which are presented in [3, p. 103].



Absence of market pricing mechanisms

Currently, in the Republic of Tajikistan, the system of setting tariffs has an administrative nature, it is approved by the Government of Tajikistan for the population and other consumers, which is the lowest in comparison with the countries of the Commonwealth of Independent States and the world, but this indicator is related to the minimum wage. it still doesn't fit and it's too high. Regarding this issue, for Tajikistan, the issues of eliminating cross-sectoral financial assistance (subsidy) and raising tariffs for the privileged category of consumers are social issues. Regardless of this existing issue, from November 1, 2018, by the decision of the Government of the Republic of Tajikistan (No. 473 of September 25, 2018), the price of 1 kW/h was increased by 15% for all categories of consumers (except for the state unit enterprise Tajik Aluminum Enterprise).

Insufficient opportunity to sell electricity.

Thanks to the launch of new power generation capacities and the renovation of existing facilities, but due to the lack of significant dynamics of the increase in the demand for electricity in the country and the impossibility of exporting excess electricity to neighboring countries, Tajikistan can quickly become an exporting country in terms of production. become energy advanced. Accordingly, in our opinion, the Sangtuda-1 hydroelectric power plant as an independent producer and supplier of electricity, whose production load is determined by the market structure in the form of a natural monopoly – Open Stock Holding Company Barqi Tajik, should be regulated, otherwise it will be for the company and both shareholders carry risks. According to data, in 2018, the amount of electricity delivered to the energy system of the Republic of Tajikistan from all sources amounted to 19,743 billion kWh, of which 2,398 billion kWh or 12.1% belonged to the Sangtuda-1 hydropower plant.

The low level of solvency of Open Stock Holding Company Barqi Tajik regarding the use of electricity.

In 2018, the payment for electricity by the main buyer of electricity, that is Open Stock Holding Company Barqi Tajik, 358 mln. Somoni made up 58% of the loan amount from the sale of electricity. At the same time, the deposited debt of Barki Tajik in front of the Sangtuda-1 hydropower plant increased by more than 261.4 million somoni (+33%) and amounted to 1.06 billion somoni as of December 31, 2018. In general, since the commissioning of the Sangtuda-1 hydropower plant (2008 - 2018), the rate of payment is no more than 64%.

Separately, it should be noted that due to the devaluation of the somoni and the increase in the value of the US dollar, the loan amount from the sale of electricity in US dollars is gradually decreasing the efficiency of the income from the sale of goods.

Tax problems.

Taxation of hydroelectric power plant is based on the sale of electricity. Thus, the amount of taxes collected is highly dependent on the level of payment for electricity. In the event that the only buyer of electricity is Open Stock Holding CompanyBarqi Tajik and does not pay the fee for the use of electricity on time, in this case the power plant will not be able to pay the calculated taxes in full on time.

Legal risks include the following factors:

Due to the instability of the economy in the Republic of Tajikistan, there are frequent changes in the regulatory system of sectoral legal acts, which to some extent affects relations in the financial sector. For example, after the adoption of the Tax Code in 2013, various changes were made to it, which relate to tax administration, subjects of tax benefits and accounting of tax sources. According to research by international financial institutions, Tajikistan is classified as a country with a high tax burden.

Competitive environment of the company and related risks:

The main factors of the change in the competitive environment in the region are:

In November 2018 and September 2019, two units of the Rogun hydropower plant were put into operation; This increased the available electricity capacity in the Republic to about 200 MW, which could increase the excess capacity of the Republic of Tajikistan in the spring-summer and possibly in the autumn-winter period.With the

increase in the height of the dam of the Rogun hydroelectric power plant, the fixed capacity of hydro units increases;

- putting into use the full capacity of the Dushanbe Electricity and Heating Center-1 and 2. This covered the lack of electricity in the city of Dushanbe, which is the largest consumer of electricity in Tajikistan;

- the interest of a number of countries (China, Afghanistan, Pakistan, Iran, Kazakhstan, Kyrgyzstan, USA, India) in energy projects that integrate the energy systems of Kyrgyzstan, Tajikistan, Afghanistan, Pakistan and Iran.

The CASA-1000 project, the first interregional project of Central Asia and South Asia, provides targeted use and supply of excess electricity in the spring and summer to the Kyrgyz-Tajikistan power system distance of 477 km and the Tajikistan-Afghanistan-Pakistan power system distance of 750 km. In addition, the export of electricity to the south can have a positive effect on the development of Tajikistan's energy industry. In the conditions of the development of the energy market of Tajikistan, the liberalization of regulation and greater transparency in the establishment of tariffs (prices for energy goods), as well as the possibility of the emergence of new entities in the market of electricity sales and the strengthening of intersectoral competition arise. As part of the implementation of the CASA-1000 energy project, it will be possible to provide up to 5 billion kWh of electricity per year, of which 70% is the share of Tajikistan.

The opening of the project in commercial operations is planned until 2022. The competitive advantage of the Closed Joint Stock Company "Sangtuda-1 hydropower plant" in this case is the rich experience of one of the Company's shareholders - the Closed Joint Stock Company "Inter RAO" in the field of electricity production and its sale in domestic and foreign markets.

Subchapter 2.2 of the 2nd chapter of the dissertation is devoted to the analysis of the efficiency of investment projects in energy enterprises. In order to calculate the cost of efficiency and risks of investment and efficient operation of energy enterprises, first of all, it is necessary to determine the influencing factors. Therefore, in the course of the research, the author identified criteria for determining (see Table 4).

Table 4. Dynamics of production and sale of electricity of Sangtuda Hydropower Plant - 1 for the years 2013-2019

Years	Electricity production (million somoni)	Sale of electricity		Amount of debt, with %
		Payment of electricity (million som)	Loan amount electricity (million som)	
2008	49,2	28,9	20,3	41,2
2009	124,5	46,7	77,8	62,5
2010	141,5	104,5	37	26,1
2011	212,4	143,9	68,5	32,2
2012	199,3	83	116,3	58,3
2013	225,4	118,2	107,2	47,5
2014	222,8	210,5	12,3	5,52
2015	293,3	227,0	66,3	22,6
2016	393,5	245,0	148,5	37,7
2017	431,1	290,9	140,3	32,5
2018	620,0	358,6	261,4	42,1
2019	651,0	376,5	274,5	42,1
Total	3564	2233,7	1330,4	37,3

Created by the author

To analyze the effectiveness and risks of investments in energy enterprises, we use the production and sale of electricity as criteria factors. In turn, it is necessary to separate the factor of electricity sales into two sub-miles - the payment of the amount of electricity and the loan amount of the electricity sold. Efficiency and risks of investment in energy enterprises depend on the efficient and safe operation of energy enterprises.

From here, the following algorithm is proposed for determining the risk and efficiency of energy enterprises:

1. Determining the volume of electricity production at the cost of somoni;
2. Determining the volume of sales of produced electricity;
3. Determining the amount paid and the amount owed for the electricity sold;
4. Calculation of the efficiency of the activity of energy enterprises, taking into account the possible cost based on the test using the Monte Carlo method;
5. Determination of the coefficient of risk of profitability in energy enterprises.

Based on the presented algorithm, we calculate the efficiency of energy enterprises for investment attraction.

The following formula is used to calculate the efficiency of energy enterprises:

$$Efficiency\ of\ Energy\ Enterprises, \quad = \frac{payment\ for\ electricity\ sold}{volume\ of\ electricity\ production} * 100 + \omega$$ a possible value that takes a value in the range from 0 to 1. (2.2.1)

The risk coefficient of the energy enterprise is calculated according to the following formula.

$$risk\ coefficient\ of\ energy\ enterprises = \frac{volume\ of\ electricity\ production - payment\ for\ electricity\ sold}{volume\ of\ electricity\ production} \quad (2.2.2)$$

Using the formulas (2.2.1) and (2.2.2), we calculate the efficiency and the risk factor of the activity of the Sangtuda hydropower plant - 1

Table 5. Determination of efficiency and risks in the operation of the Sangtuda hydropower plant -1

Years	Energy efficiency of the enterprise (%)	The risk factor in the activity of the energy enterprise	Random value,
2008	59,10	0,41	0,362
2009	37,88	0,62	0,368
2010	74,50	0,26	0,651
2011	68,57	0,32	0,824
2012	41,72	0,58	0,074
2013	53,02	0,48	0,579
2014	95,27	0,06	0,793
2015	77,95	0,23	0,552
2016	62,88	0,38	0,615
2017	68,25	0,33	0,775
2018	58,55	0,42	0,716
2019	58,56	0,42	0,718

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Conclusion

This studied the location-specific risk assessment of investing in energy enterprises of the Khatlon region, in order to achieve a better understanding of how economic growth may attract investment and acquire capital and technology.

It follows from the data of table 2.3.5 that in the last two years, the efficiency of the activity of energy enterprises is significant, from 33% in 2017 to 42% in 2019. During the years 2008-2019, the minimum value of efficiency includes 23%, which belongs to 2015. The calculated values were obtained by taking into account the Monte Carlo method when conducting the test 45 times.

According to the calculated values of the risk factor in the activity of energy enterprises in 2019, it is an average of 0.42 units, this value indicates a high risk for the activity of the energy enterprise. However, the hazard ratio of 2019 is much better than in 2009 (0.62 units), 2012 (0.58 units) and 2013 (0.48 units).

From the obtained results, it can be concluded that the activity of the power plant of Sangtuda-1 hydropower plant is currently in a good and stable state in terms of efficiency. These indicators indicate that. It is suggested to take the necessary measures to prevent the risks of this enterprise, otherwise, its damage will lead to a reduction in the amount of investment and non-timely execution of the operations indicated in the medium-term plan of the enterprise, and the insolvency of these production and commercial operations in this enterprise. The proposed algorithm is also recommended for calculating investment efficiency and risks in the activity of other energy enterprises**.**

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