

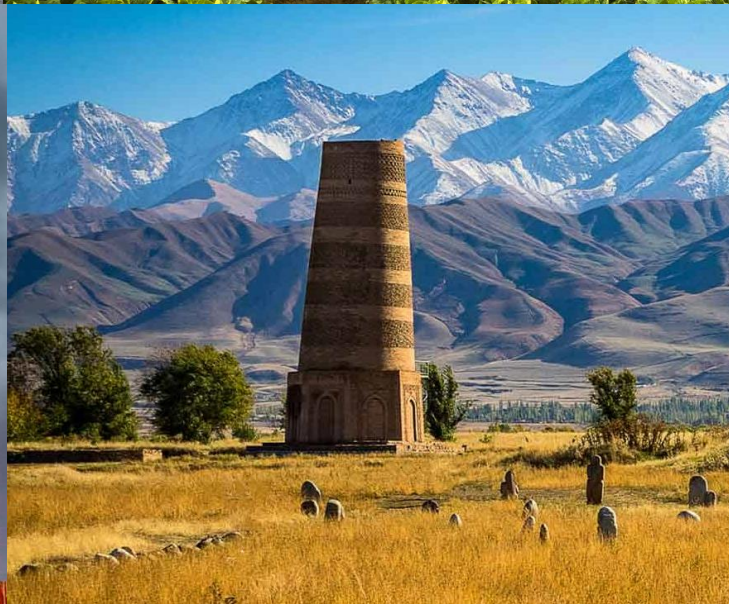
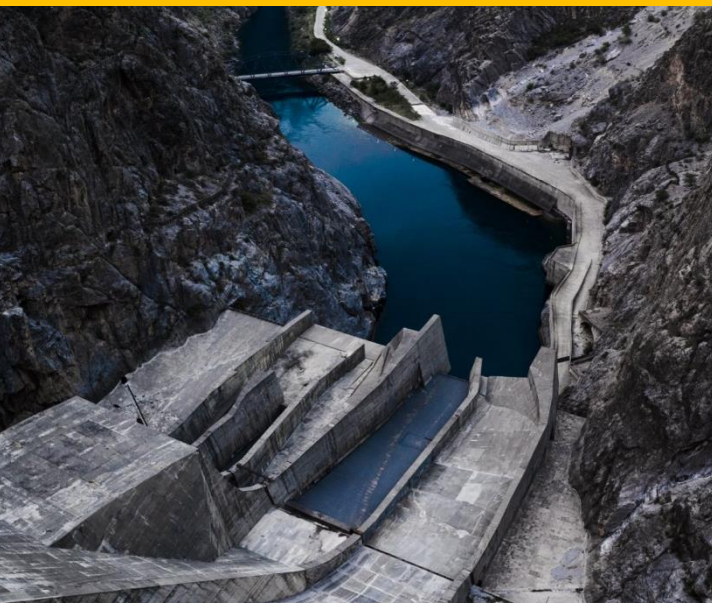


АГЕНТСТВО ИНВЕСТИЦИЙ И РАЗВИТИЯ КЫРГЫЗСТАНА

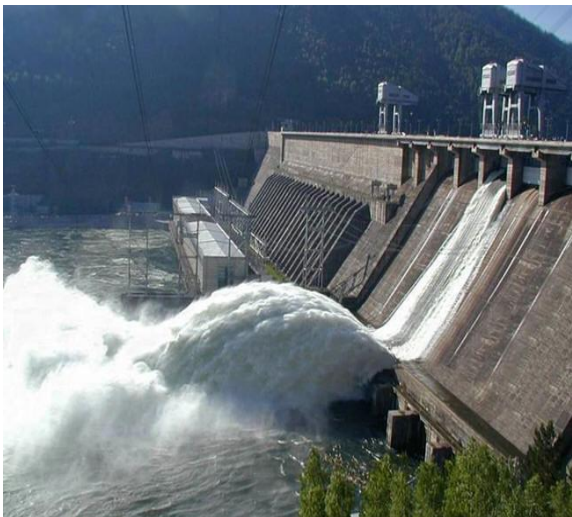
**KADI**

KYRGYZ AGENCY OF DEVELOPMENT AND INVESTMENT

# INVESTMENT PROJECTS IN HYDROENERGY SECTOR







## **Name of the enterprise:**

Construction and operation of **the Upper Naryn cascade of HPPs**

## **Brief description of the project :**

According to the feasibility study of the project developed by JSC "Lengidroproekt" (Russian Federation), the project cost is 727.65 million US dollars

The project provides the construction of 4 hydro power plants with a total installed capacity of 237.7 MW with an average annual generation of 942 million kWh, including:

- Ak-Bulun - 87.4 MW;
- Naryn-1 - 47.7 MW;
- Naryn-2 - 47.6 MW;
- Naryn-3 - 55 MW

**Location:** Naryn region, on the Naryn river, near the confluence of the Chon-Naryn and the Kichi-Naryn rivers

## **Description of the project initiator :**

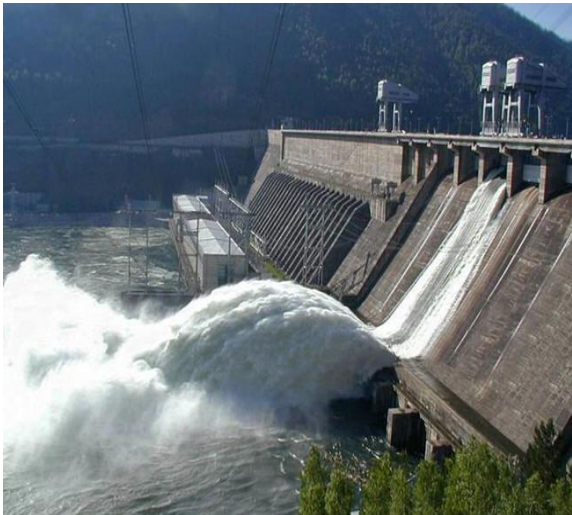
Ministry of energetics of the Kyrgyz Republic

## **Degree of the project preparedness:**

- Ground areas are allocated;
- The first stage of the Residential camp for 450 people (15 buildings, including: the administrative building, dormitories for workers and engineers, a canteen for 170 people, a first-aid post, a store, a fire department) with all communications, etc., 100% readiness;
- The facility "Pioneer base": 80% readiness;
- The facility "Residential camp": 95% readiness;
- The facility of the main structure of the "Surface Spillway of NHPP-1" of the 1st stage of the foundation pit: 100% readiness;
- The facility of the main structure "Derivation channel of NHPP-1": 10% readiness;
- A concrete plant for 35 m3 per hour is installed;
- The facility "Temporary bridge at the Naryn river": 30% readiness;
- The facility "In-site roads", the length is 8 km;
- Temporary power supply - 35/10 kV substation, more than 10 km of 35 kV and 10 kV overhead lines, 8 transformers of various capacities are put into operation;

**Amount of investment - \$727 000 000**





## Name of the enterprise:

Construction and operation of **Kambarata HPP-1**

## Brief description of the project :

The project provides the construction of a hydroelectric power plant with an installed capacity of 1860 MW (4 units). Kambarata HPP-1 is one of hydropower plants of the Kambarata HPP cascade

Average flow of the Naryn River 14,5 km upstream from the existing Kambarata-2 dam into the gorge, where the river makes a large loop around the Karabash mountain

**The final results of the project:** The amount of energy produced by four units during the average annual period is 5640 million kWh

**Project objectives:** Additional power generation in the Kyrgyz Republic after introduction of the HPP will reduce the severity of winter deficit in the country, improve the reliability and stability of energy supply to consumers

## Description of the project initiator :

Ministry of energetics of the Kyrgyz Republic

## Degree of the project preparedness:

- Feasibility study of the project developed by a consortium between the corporation "SNC - Lavalin International Inc." (Canada) and OJSC "Southern Electric energy Center" (Russia);
- The feasibility study of the project passed the state and ecological examination.

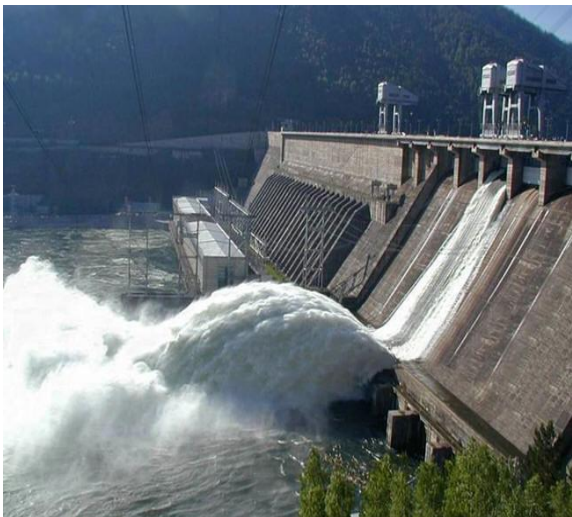
**Sources of debt repayment:** Funds from the sale of electricity

**Forecast financial and economic indicators of the project:** Forecast data will be determined after clarifying the terms of the project financing

**Plans for the sale of the finished products:** Electricity generation and sales on the domestic and foreign markets

**Amount of investment - \$2 870 000 000**





## Name of the enterprise:

Construction of **Chatkal cascade of HPPs**

## Brief description of the project :

**Project aim:** Financing of the project for the purpose of construction of 2 HPPs with a total installed capacity of 1800 MW with an average annual generation of 2,650 million kWh, including:

- Barkrau-700 MW;
- Lower Chatkal - 1100 MW

**Location:** Jalal-Abad region, Chatkal district. On the Chatkal River, near the Besh-Aral River

**The final results of the project:** The volume of the generated power will make up an average annual generation of 2650 million kWh

**Project objectives:** The implementation will increase the capacity and power generation to cover the growth of loads in the energy system

## Description of the project initiator :

Ministry of energetics of the Kyrgyz Republic

**Sources of debt repayment:** Funds from the sale of electricity

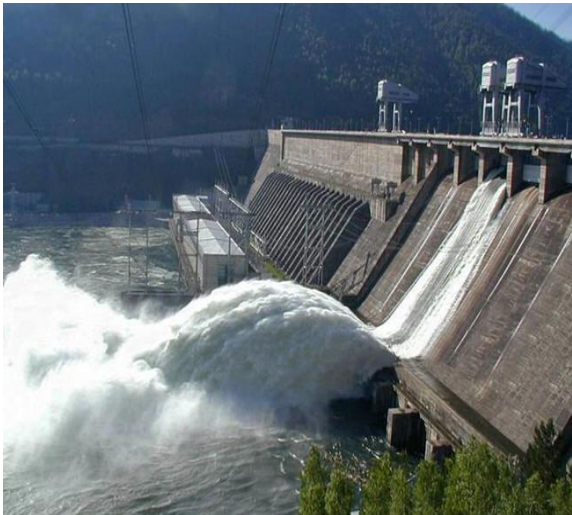
**Forecast financial and economic indicators of the project:** Forecast data will be determined after clarifying the terms of the project financing

**Plans for the sale of the finished products:** Electricity generation and sales on the domestic and foreign markets

**Influence of the project on ecology:** The construction project does not have a negative impact on the environment

**Amount of investment - \$1 370 000 000**





## Name of the enterprise:

Construction and operation of **Kulanak cascade of HPPs**

## Brief description of the project :

The investment project provides the construction of 5 hydroelectric power plants with a total installed capacity of 439 MW with an average annual generation of 2667.8 million kWh:

- At-Bashi - 135 MW;
- Uchkun - 88 MW;
- Ak-Talaa - 38 MW;
- Dzhilanaryk-1 - 80 MW;
- Dzhilanaryk-2 - 98 MW

**Location:** Naryn region, At-Bashi district. On the Naryn river, between the confluence of the At-Bashi and the Ala-Buka rivers

**The final results of the project:** The average annual power generation is 2667.8 million kWh

**Project objectives:** The implementation will increase the capacity and power generation to cover the growth of loads in the energy system

## Description of the project initiator :

Ministry of energetics of the Kyrgyz Republic

**Sources of debt repayment:** Funds from the sale of electricity

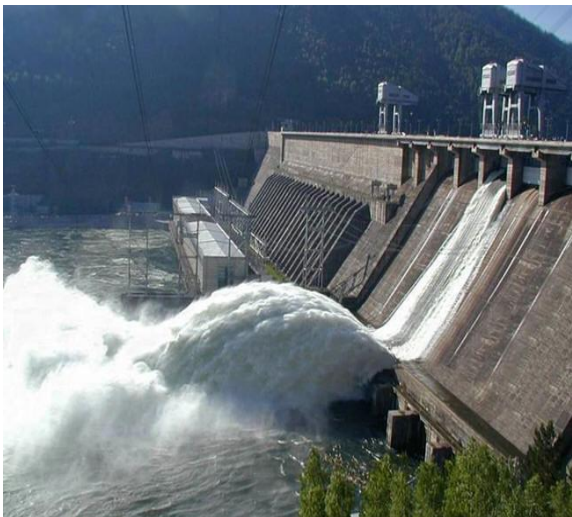
**Forecast financial and economic indicators of the project:** Forecast data will be determined after clarifying the terms of the project financing

**Plans for the sale of the finished products:** Electricity generation and sales on the domestic and foreign markets

**Influence of the project on ecology:** The construction project does not have a negative impact on the environment

**Amount of investment - \$2 780 000 000**





## Name of the enterprise:

Construction and operation of **At-Bashi cascade of HPPs**

## Brief description of the project :

**Project aim:** Financing the project for construction of 5 HPPs with a total installed capacity of 132.2 MW with an average annual generation of 753 million kWh, including:

- Taldy-Suu 1 - 20.0 MW;
- Taldy-Suu 2 - 26.7 MW;
- Oitersken 1 - 28.5 MW;
- Oitersken 2 - 17.0 MW;
- Akzhar - 40.0 MW

**Location:** Naryn region, At-Bashi district. On the Naryn river, near the At-Bashi river

**The final results of the project:** The amount of the energy produced by two units over the average annual period will amount to an average annual generation of 753 million kWh

**Project objectives:** The implementation will increase the capacity and power generation to cover the growth of loads in the energy system

## Description of the project initiator :

Ministry of energetics of the Kyrgyz Republic

**Sources of debt repayment:** Funds from the sale of electricity

**Forecast financial and economic indicators of the project:** Forecast data will be determined after clarifying the terms of the project financing

**Plans for the sale of the finished products:** Electricity generation and sales on the domestic and foreign markets

**Influence of the project on ecology:** The construction project does not have a negative impact on the environment

**Amount of investment - \$1 600 000 000**





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## Name of the enterprise:

Chong-Kemin hydropower plant



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## Brief description of the project :

The project involves the construction of a small hydropower plant with a capacity of 7.1 MW on the Chon-Kemin River in Kemin district of Chui region. The site is located in Chon-Kemin valley. The topography of the terrain allows the construction of HPP with unpressurized derivation.

The location of the HPP is chosen taking into account the use of the largest slope with maximum use of the hydro potential of the river.

The preliminary total area of land allotment for the construction of a small hydropower plant on the river Chon-Kemin is 14 hectares



## Description of the project initiator:

The initiator of the Project is JSC "Chakan HPP". The company consists of Alamedin Cascade of small HPPs and Bystrovskaya HPP.

Alamedin HPP Cascade with a total installed capacity of 29.8 MW consists of eight hydroelectric power plants. The capacity of Bystrovskaya HPP is 8.7 MW.



## Deputy General Director for Economics and Finance of Chakan HPP JSC Kubanychbek Astapayev

- Work experience in government agencies
- Experience in the energy sector of the Kyrgyz Republic

## Project cost - \$6 732 460

- Construction – \$1 438 333
- Hydromechanical equipment - \$3 570 000
- Electrical equipment - \$897 333
- Other - \$354 340

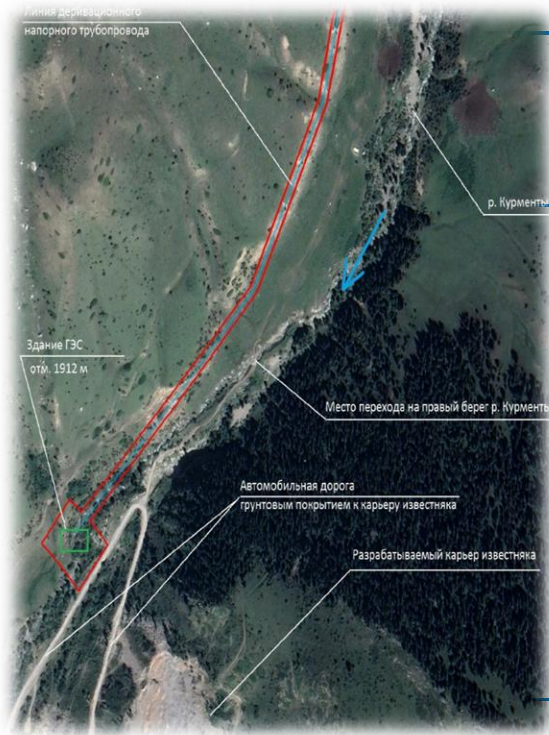
## Amount of investment - \$6 732 460

IRR – 19,15%

Payback period – 4,31 year







## Name of the enterprise:

Construction of the Kurmenti hydropower plant

## Brief description of the project :

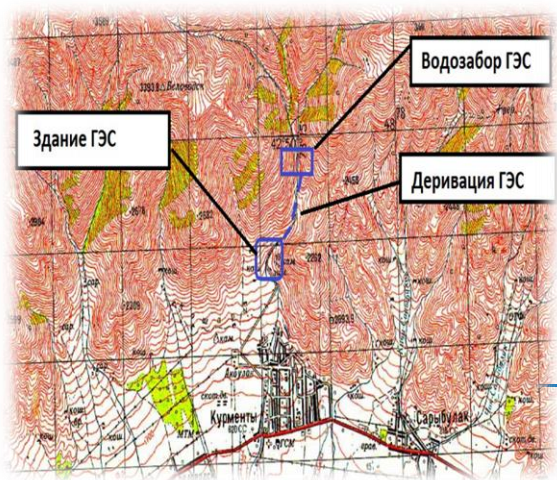
The project involves construction of a small hydropower plant (hereinafter - SHPP) with a capacity of 2.3 MW at the potential alignment, located on the river Kurmenty, Tyup district, Issyk-Kul region. The topography of the terrain allows the construction of SHPP with pressure derivation.

It is planned to build a water intake at the elevation of 2193,0 m and the building of the MGES station at the elevation of 1912,0 m.

Potential annual power generation is 11.9 million kWh.

## Description of the project initiator:

Chakan HPP JSC is a domestic company 100% owned by the National Energy Holding Company JSC. The main activities are the operation, design and construction of small HPPs in the Kyrgyz Republic, as well as the production, transmission and sale of electricity. Chakan HPP JSC sells electricity to the domestic market and has 28 electricity consumers. At the same time, 80-90% of electricity is sold by Severelectro OJSC. The average annual volume of electricity production by Chakan HPP OJSC is 162.0 million kWh.



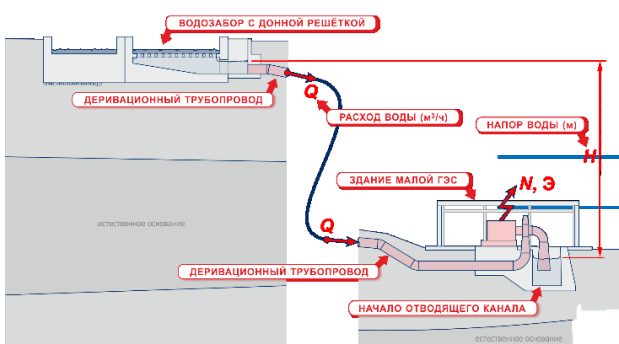
## Project cost - \$2 259 213

- Hydraulic structure - \$744,003
- Hydromechanical facility - \$1,172,298
- Electrical facility - \$65,465
- Contingencies - \$158,541
- Administrative expenses - \$118,906

## Amount of investment - \$2 259 213

IRR – 11,53%

Payback period – 5,76 year







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## Name of the enterprise:

Construction of a hydropower plant on the basis of the Papan reservoir

## Brief description of the project :

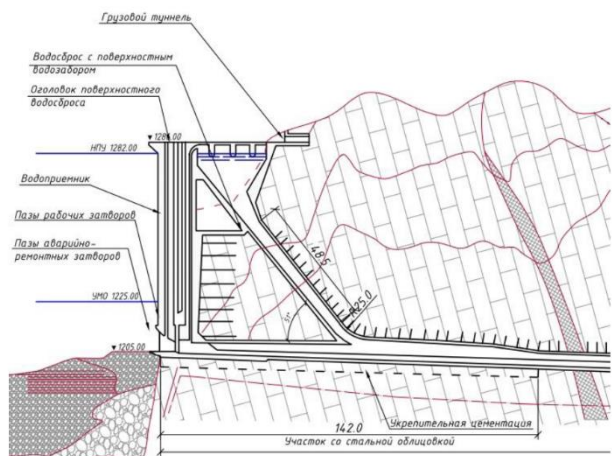
The project envisages construction of hydropower plant (hereinafter - HPP) with potential capacity of 20 MW on the basis of Papan reservoir, located in the middle course of Ak-Buura river and designed to increase water supply of Osh oblast lands and water supply of Osh city. The capacity of the reservoir is 260 million m<sup>3</sup>. The dam site is located in the narrow Katar gorge, cut by the river in the mountain massif.

The potential average annual power generation is 93 million kWh.



## Description of the project initiator:

Chakan HPP JSC is a domestic company 100% owned by the National Energy Holding Company JSC. The main activities are the operation, design and construction of small HPPs in the Kyrgyz Republic, as well as the production, transmission and sale of electricity. Chakan HPP JSC sells electricity to the domestic market and has 28 electricity consumers. At the same time, 80-90% of electricity is sold by Severelectro OJSC. The average annual volume of electricity production by Chakan HPP OJSC is 162.0 million kWh.



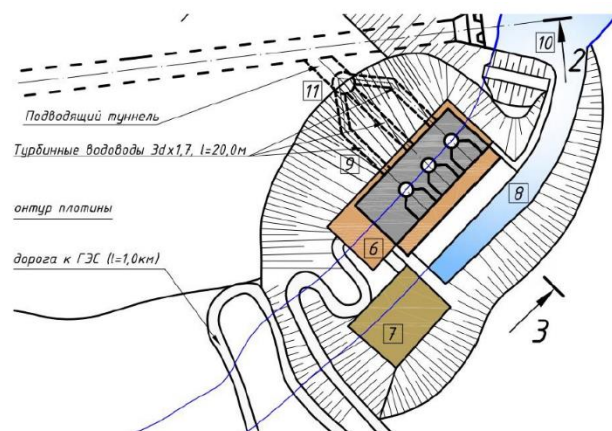
## Project cost - \$26 000 000

Total construction estimate, including supply and supervised installation of electrical equipment - \$26,000,000

## Amount of investment - \$26 000 000

IRR – 4,45%

Payback period – 7,93 year







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## Name of the enterprise:

Construction of a hydropower plant on the Talas river

## Brief description of the project :

The project involves construction of a small hydropower plant (hereinafter - SHPP) with a capacity of 5.4 MW at the potential alignment located on the Talas River, Talas district, Talas oblast. Relief of the terrain allows the construction of SHPP with non-pressure derivation.

Location of SHPP selected with the greatest slope with maximum use of hydro potential of the river.

Potential annual power generation is 36.8 million kWh.

## Description of the project initiator:

Chakan HPP JSC is a domestic company 100% owned by the National Energy Holding Company JSC. The main activities are the operation, design and construction of small HPPs in the Kyrgyz Republic, as well as the production, transmission and sale of electricity.

Chakan HPP JSC sells electricity to the domestic market and has 28 electricity consumers. At the same time, 80-90% of electricity is sold by Severelectro OJSC. The average annual volume of electricity production by Chakan HPP OJSC is 162.0 million kWh.

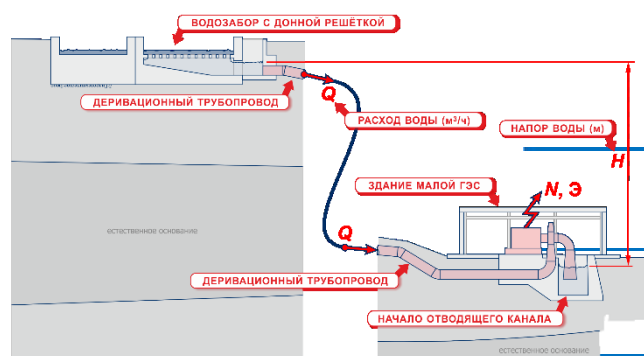
## Project cost - \$8 375 960

- Hydraulic structure - \$3,327,333;
- Hydro-mechanical facility - \$2,740,000;
- Electrical facility - \$1,280,000;
- Contingencies - \$587,787;
- Administrative expenses - \$440,840

## Amount of investment - \$8 375 960

IRR – 9,23%

Payback period – 6,35 year





# Thank you for your attention!!!

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