

**Implementation of the investment project
"Production and transportation of water-coal
suspension using gravity forces to generate electric
energy and disposal of greenhouse gases from the
Dushanbe-2 HPP using wells of the depleted
"Komsomolskoye" gas field"**

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Dushanbe city - 2022г



Dear ladies and gentlemen, we offer for your consideration the Concept of the investment project "Production and transportation of water-coal slurry using gravity forces for electricity generation and greenhouse gas burial from HPP Dushanbe-2 using the wells of the depleted gas field "Komsomolskoye"".

The concept of investment project is developed taking into account all the comments made by the Academy of Sciences of the Republic of Tajikistan, the Ministry of Economic Development and Trade and the Ministry of Industry and New Technologies, based on the following inventions:

- A method of slurry transportation using gravitational forces to generate electrical and mechanical energy. Author: S. Usmanov
- The system and method of burial of carbon dioxide (CO₂) and the extraction of thermal energy from the earth's crust. Authors: S. Usmanov, R. Usmonov.



OBJECTIVES OF THE INVESTMENT PROJECT

1. Preparation and transportation of concentrated water-coal slurry purified from various impurities through the coal pipeline on the basis of Fon-Yagnob and Zidda hard coals.
2. Electric power generation using gravitational forces at the expense of existing differences in elevation during transportation of water-coal slurry WCS.
3. Bringing the qualitative and granulometric characteristics of water-coal slurry during transportation along the coal pipeline to the values required by the world standards, getting a qualitatively new type of fuel environmentally friendly water-coal slurry WCS.
4. Capture and disposal of carbon dioxide (CO₂) from HPP Dushanbe-2 using wells of the depleted gas field "Komsomolskoye".
5. Production of heat energy of the earth corridor by burying carbon dioxide (CO₂) in the liquid state for heating, hot water and cooling with the use of absorption heat pumps.



Paris climate agreement

The Paris Climate Agreement is the first global climate agreement signed by 194 countries of the world.

For the Republic of Tajikistan, a warming of the climate by more than 2.0 degrees is like death, because the basis of the economy of Tajikistan is hydropower and the catastrophic melting of glaciers will lead to the disappearance of the hydrosphere of Tajikistan. At the moment there are more than 13 thousand glaciers in Tajikistan. According to experts, even 30 years ago there were over 14 thousand of them. The total volume of the remaining glaciers is 850 cubic kilometers.



Analysis of world practice in the field of greenhouse gas carbon capture and storage (CCS)

1. **In Salah**, Algeria - underground burial of carbon dioxide, this project has been operating since 2004, the volume of injected CO₂ gas is 0.2 Million tons/year, the project cost is \$ 2 Billion.
2. **K12-In Krust**, the Netherlands – in the North Sea of the Netherlands, underground burial of carbon dioxide, this project has been operating since 2004, the volume of injected CO₂ gas is 1.2 Million tons/year, the project cost is \$ 2 Billion. 90% is funded by the Government of the Netherlands.
3. **Snohvit Norgvegia** - in the North Sea Norway. Carbon dioxide is captured at the LNG plant and pumped into the reservoir reservoir saturated with highly mineralized reservoir water, This project has been operating since 2008, the volume of injected CO₂ gas is 1.0 Million tons/year, the project cost is \$ 5.20 Billion.



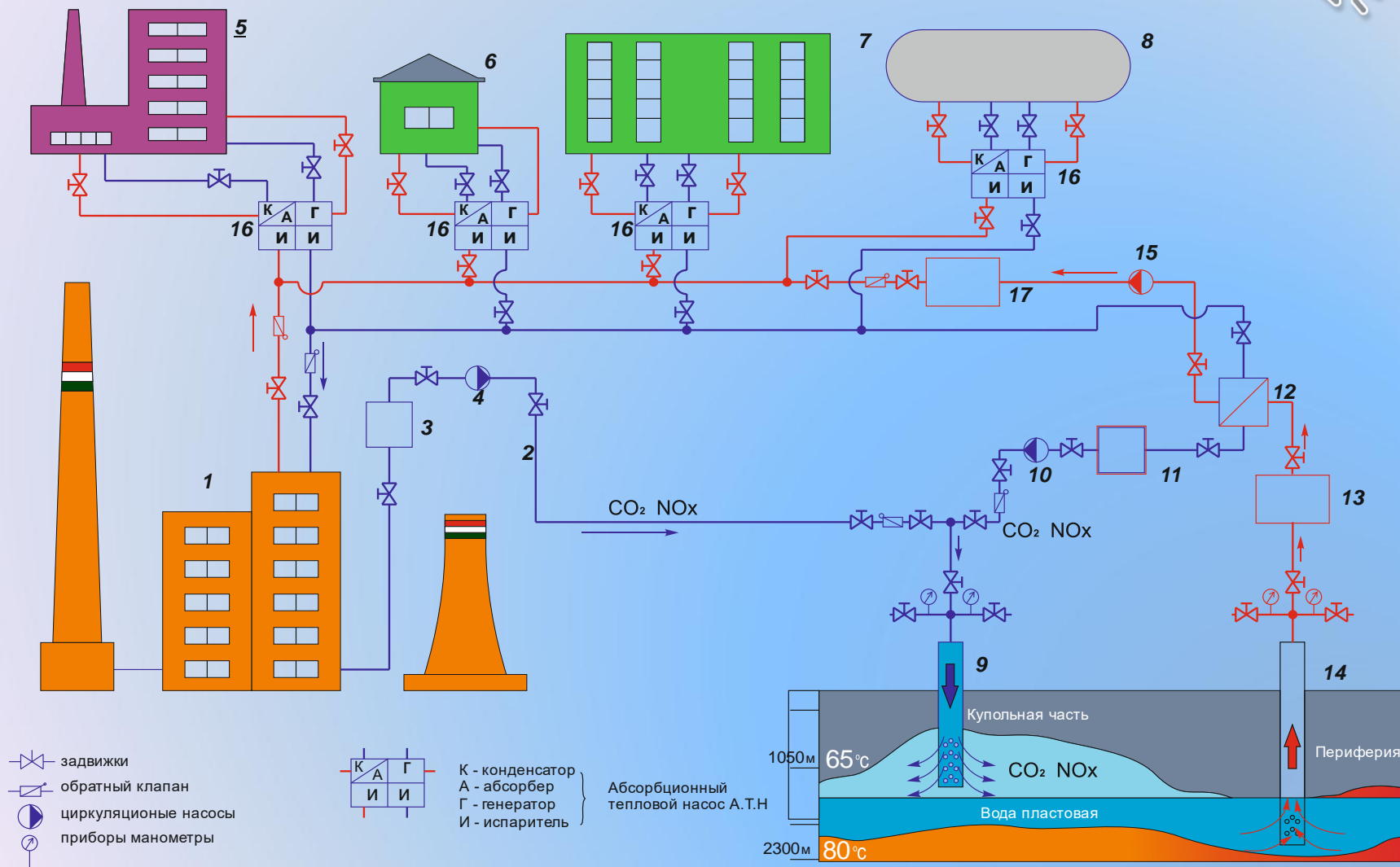
Economic data for project implementation

- Required Investment - \$333,811,392. 87 (three hundred and thirty-three million eight hundred and eleven thousand three hundred and ninety-two, 87) dollars. USD.
- Investment period - 10 years
- NPV Net discounted income for the investment period - \$601,708,456.57 USD
- Estimated Discount Factor - 13.1%
- The required IRR (internal rate of return) of the analyzed project - 24%.
- ROI - 180%
- Preferential taxation period after the commissioning of the entire complex - 7 years.



Schematic diagram of heat and hot water supply (HWS) using absorption heat pumps (AHP) and CO₂ burial

Принципиальная схема теплоснабжения и горячего водоснабжения с применением А.Т.Н., геотермальной энергии и захоронения CO₂ NO_x



Expected results after implementation of the project

The ecological situation of Varzob Gorge and Dushanbe city will be significantly improved by implementing the proposed project by decreasing ash content of coal, transportation of coal by pipeline, capture of CO₂ from HPP Dushanbe-2 and its burying, and it will be possible to solve 16 problems. Due to time constraints we apologize and can not elaborate on these problems in case of interest there is an e-mail address below and we will be happy to answer all your questions.





THANK YOU FOR YOUR ATTENTION

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