Deloitte.

Construction of a cascade of Hydroelectric Power Plants in Turkestan region

Commercial products

Average annual capacity:

- Electricity – 539 mln kWh;
- Drinking water - 99 million cubic meters

Project description

The project provides for the construction of a cascade of 7 hydroelectric power plants (HPPs) with an average annual electricity generation of 64 MW on the Ugam River in the Kazygurta district of the Turkestan region, as well as the construction of a 42 km long water pipeline that provides nearby areas with drinking water in the amount of 99 million cubic meters. The main raw material for the production of electricity from hydroelectric power plants is a natural renewable resource - water runoff

Company

Founded in 2011, Ocean Energy Company is an energy-related project company and a subsidiary of South-Oil LLP, which distributes and produces hydrocarbon raw materials

Market

- Global electricity production increased by 2% in 2020 to 26,422 billion kWh. According to Fitch Solutions, average annual growth will reach 2.6% in 2016-2024.
- In the last decade, electricity production in the southern zone of Kazakhstan grew by 50% to 12 billion kWh in 2020. Average annual electricity production growth in the southern zone in 2021-2027 will reach 3.8%.

Investment attractiveness of the project:

Investment – US$ 546,216 thousand
Project NPV – US$ 86,596 thousand
IRR – 13.8%
Payback period – 9.3 years

What is the attractiveness of the project?

- **Shortage of drinking water.** In a number of regions of the Turkestan region there is an acute shortage of fresh drinking water. The implementation of the project will cover the demand of the population for drinking water.
- **State support.** The State provides product sales guarantees, provides land and refunds investor's investment and operating costs for public-private partnerships.
- **Strong demand for electricity**. Historically, electricity consumption in Turkestan Oblast has exceeded production a number of times. In 2020, electricity consumption in the oblast was 4,673 million kWh, i.e. 20% of electricity consumption in the southern zone. That being said, the region generates 1,300 kWh of electricity or 11% of total production in the southern zone.

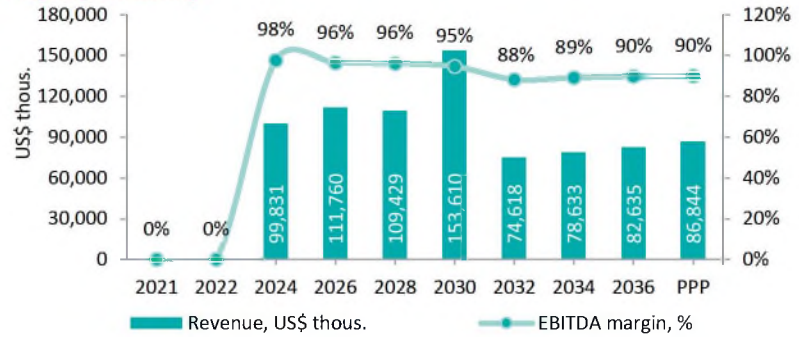
Investment proposal

The Project requires investment of US$ 546,216 thousand, of which:

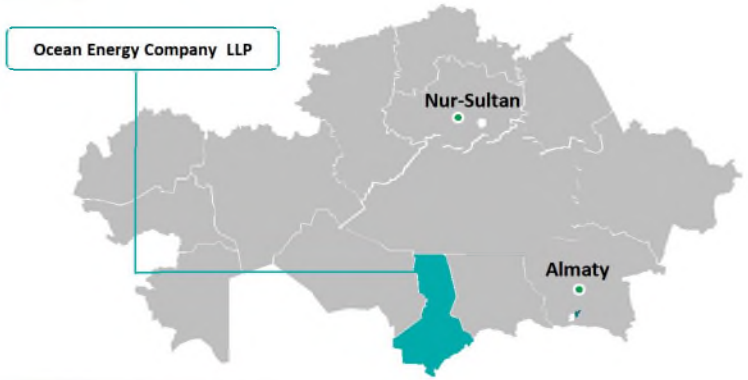
- 70% (US$ 382,351 thousand) – debt financing subject to collateral;
- from 30% (US$ 163,865 thousand) – investor participation.

The proposed financing structure and state support measures are indicative. The final financing structure and Project interests will be determined based on the results of negotiations with the investor.

Project profitability

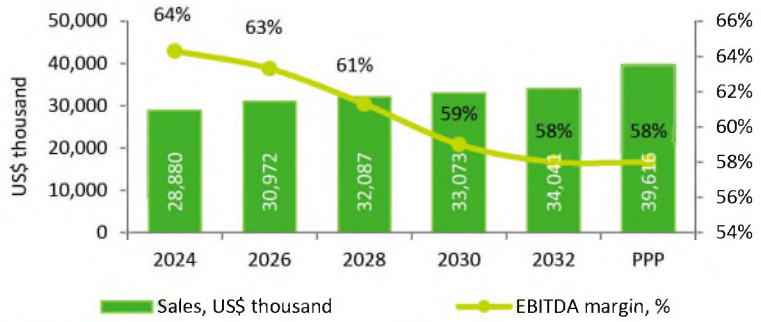


Location

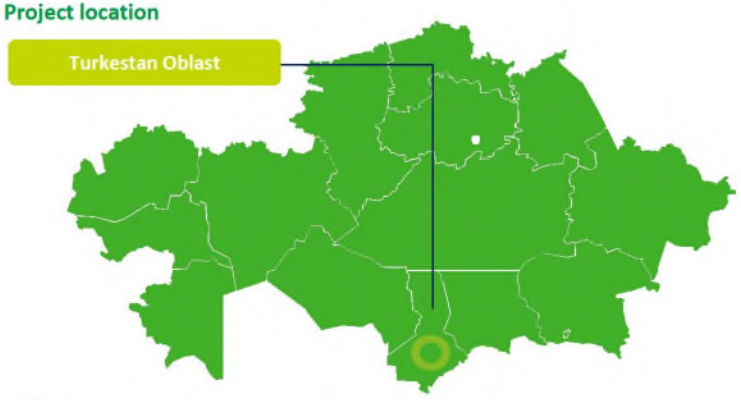


Deloitte.

Project profitability



Project location



TPP construction in Turkestan

Annual capacity:
- electricity – 382 mln kwh/year;
- heat energy – 200 thous. gcal/year.

Domestic demand:
- Energy consumption in Turkestan Oblast – 4,673 million kW/h.

Project investment attractiveness :
Investment – 91,785 thousand USD
Project NPV – 43,846 thousand USD
IRR – 15.3%
Payback period – 9.4 years

Project

The Project provides for the construction of a 49 mW TPP in Turkestan within the framework of a public-private partnership guaranteeing product sales, the provision of land and reimbursement of government review costs.
The TPP production process involves the use of modern gas-piston technology to combine the generation of thermal power and electricity. The main fuel used is natural gas and reserve fuel - diesel. Natural gas will be received from the AGRS-15 Turkestan gas distribution station on the Beineu-Shymkent major gas pipeline.

Company

Founded in 2011, Ocean Energy Company is an energy-related project company and a subsidiary of South-Oil LLP, which distributes and produces hydrocarbon raw materials.

Market

- In the last decade, electricity consumption in the southern zone grew by 43% to 23 billion kWh in 2020. At the same time, electricity production in the region amounted to 12 billion kWh, with annual average growth of 3.4%.
  The electricity deficit in the southern zone is covered by surplus from the northern zone through KEGOC grids, and also through insignificant imports from Kyrgyzstan.
- In 2020, electricity consumption in Turkestan Oblast amounted to 4,673 million kWh or 20% of total electricity consumption in the southern zone.

What is the project's attractiveness?

- **Regional development.** The region acquired new development impetus in accordance with Presidential Edict No. 702 dated 19 June 2018 moving the administrative centre of South-Kazakhstan Oblast from Shymkent to Turkestan. Construction in Turkestan Oblast is currently very active. In 2020, the city built 1,200 m^2 of new buildings (7% of the national total). CAGR was 19.5% in 2018-2020. Regional development creates the growing market for Project services.
- **Strong demand for electricity**. Historically, electricity consumption in Turkestan Oblast has exceeded production a number of times. In 2020, electricity consumption in the oblast was 4,673 million kWh, i.e. 20% of electricity consumption in the southern zone. That being said, the region generates 1,300 kWh of electricity or 11% of total production in the southern zone.

Investment proposal

The Project requires investment of 91,785 thousand USD, of which:
- 80% (73,428 thousand USD) – debt financing subject to collateral;
- 20% (18,357 thousand USD) – participation of joint venture (10% from each partner).

The proposed financing structure and state support measures are indicative. The final financing structure and Project interests will be determined based on the results of negotiations with the investor.

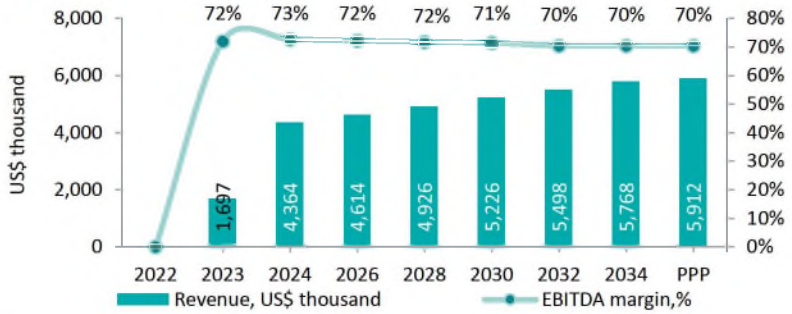
Deloitte.

Construction of a hybrid biogas and solar power station

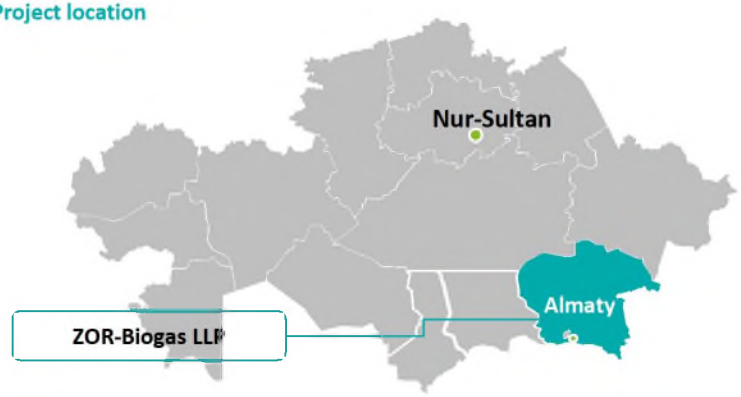
Annual capacity:
- electricity – 20,520 thousand kWh;
- organic fertiliser – 10 thousand tonnes.

Project investment attractiveness:
Investment – US$ 13,813 thousand
NPV – US$ 7,124 thousand
IRR – 20.6%
Payback period – 6.4 years

Project profitability



Project location



Project

The Project envisages the construction of a biogas power station, and an organic fertilizer production plant, located in Almaty Oblast's Ili District.

Company

ZOR-Biogas LLP is a project Initiator, whose core operations are non-hazardous waste processing and removal.

Market

- According to the IFA, global fertiliser consumption (nitrogen + phosphorous + potassium) in 2020 was 198.2 million tonnes or 7 million tonnes (5.2%) higher than in 2019
- In 2020, renewable energy (including biofuel) consumption grew 9.7%, slower than the average for the last 10 years (13.4% per year).
- In the last decade, electricity consumption in the southern zone of Kazakhstan grew by 43% to 23 billion kWh in 2020. At the same time, electricity production in the region amounted to 12 billion kWh, with annual average growth of 3.4%.

What is the project's attractiveness?

- **Eco-friendliness**. Electricity production at a biogas unit significantly reduces harmful emissions into the atmosphere.
- **Product demand.** According to the *Law On the Support of the Use of Renewable Energy Sources*, clean energy producers are able to sell electricity generated from renewable sources to general grids at special tariffs through the RE FSC, which guarantees the procurement of electricity from renewable sources.
- **Availability of a raw materials base.** Almaty Oblast has registered 2,122 organisations operating in the agricultural industry, including three major poultry farms, two beer breweries, two pig farms within a 30 km radius from power station

Investment proposal

The Project requires investment of 13,813 thousand USD, of which:

- 70% (9,669 thousand USD) – debt financing subject to collateral;
- from 30% (4,144 thousand USD) – investor participation.

The proposed financing structure and state support measures are indicative. The final financing structure and Project interests will be determined based on the results of negotiations with the investor.