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Agro-Industrial Complex

Business plan for the organization of a genetic selection center in Almaty region

About the Project

Creation of a genetic selection center with closed-loop technology - from breeding a special breed of pigs according to a Danish technology to selling pork meat.

Initiator:

Hybrid breeding center Karatal LLP

Project location:

Almaty Oblast, Karatal district, city of Ushtobe

Principal products:

- pork (frozen and chilled);
- meat offal;
- gilts as genetic material.

Project's peak capacity:

- Production of pork and meat offal – 13 thous. tonnes/ year;
- Number of sows – 5800 heads.

Sales Markets:

Russia, China and the domestic market

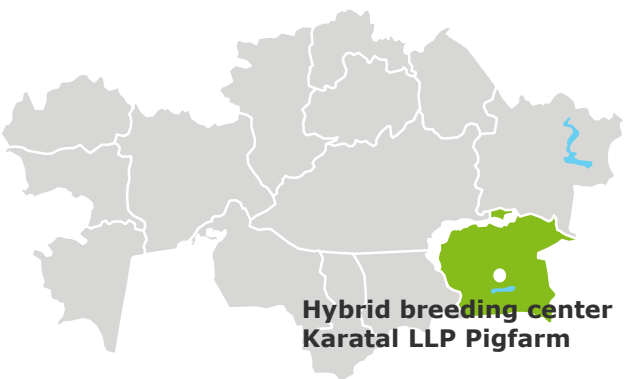
Livestock Suppliers:

DanBred (Denmark)

Investment attractiveness of the Project

Indicator	Results
Investment amount, US$ thous.	26,811
Project NPV, US$ thous.	34,662
IRR, %	31.7%
EBITDA yield, %	28.5%
Payback period, years	5.4
Discounted payback period, years	6.8

Project Location: Almaty oblast



Prerequisites for implementation of the Project

Increase in pork imports to China

Over the past 5 years, China's pork imports have more than doubled, and in 2018, it amounted to 1.1 million tonnes worth US$ 2 billion. According to OECD forecasts, pork production in China will slightly lag behind consumption, and in the near future, China will import about 1.4 million tonnes of pork per year.

Low cost of production

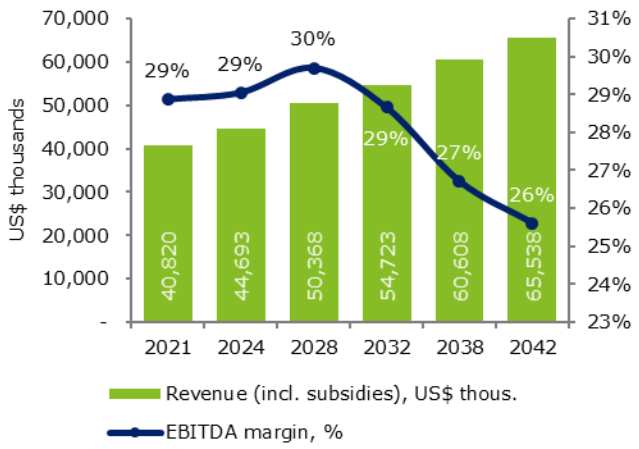
The extensive and cheap fodder base for the Project - agricultural enterprises in Almaty Oblast and other regions of Kazakhstan - will significantly reduce the cost of fattening and the maintenance of pigs. Also, the costs of manure disposal, water tariffs and employee wages are several times lower than at EU enterprises or other producers.

Export of premium products

China and Russia mainly import pork from countries in Europe and America, which forces suppliers to transport frozen meat. Freezing negatively affects the quality and the price of meat. The geographical location of Kazakhstan allows for the supply of pork (by road) to both China and Russia in a chilled form, which will allow the Project to sell products at higher competitive prices.

Geographical remoteness of the project implementation region from other pigfarms – African swine fever has shown the vulnerability of the pig industry to epidemics and diseases. The factors protecting the Project's livestock from infection of this disease and other diseases are the remoteness of the Project's implementation site from other pig farms and households with infected pigs. Density of pig livestock in the region is very low, which reduces the chance of accidental direct or indirect contact.

Project Profitability



Construction of a complex for breeding and incubating commercial sturgeon and beluga

Agro-Industrial Complex

Project overview:

Construction of a complex for breeding and incubating commercial sturgeon and beluga

Project location:

Atyrau Oblast, Atyrau, Ural river, Sadok channel

Initiator:

Caspian Eco-Tour LLP, specializing in the development of freshwater aquaculture and eco-tourism

Products and capacities:

Commercial fish (sturgeon and beluga) - 300.0 tonnes

Food caviar - 2.0 tonnes

Production process:

1. Keeping and feeding in a closed water installation (spawning of females, fertilization, sorting)
2. Maintenance and feeding in cage (hibernation, sorting, selling)

Market assumptions

Increase in demand for fish

According to OECD and FAO forecasts, we will face global increase in fish consumption in total. Compound annual growth rate (CAGR) in 2019-2025 will be 1.8 percent. Thus, by 2027 fish consumption will reach 21.3 kg per capita (2018: 20.3 kg per capita).

Import substitution

Currently, Kazakhstan imports 74% of fish and fish products included in the consumption pattern. It proves that the country is highly dependent on imports. For example, in 2018, Kazakhstan imported 30 tonnes of frozen fish which is five times higher than domestic production capacities.

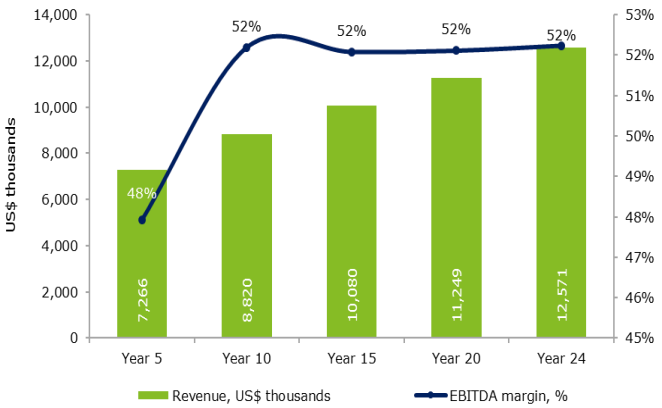
Export development

Kazakhstan also exports organic fish products. In 2018, due to commencement of high volume supplies to Russia, its major purchaser, Kazakhstan fish export reached 12.5 thousand tones and saw 64% increase versus 2013. As of 2017, over 25% of total exports have been delivered to China.

Key investment indicators

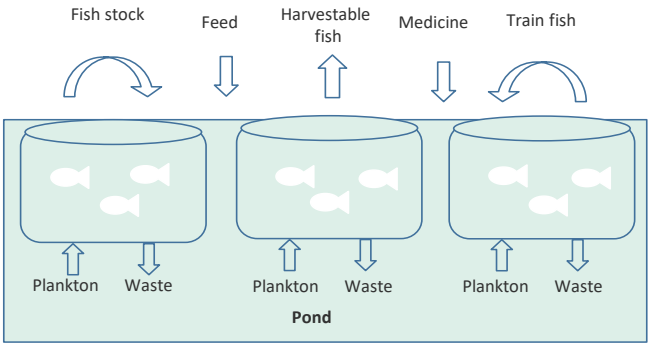
Indicator	Results
Investment, US$ thousands	10,982
Project NPV, US$ thousands	13,613
IRR, %	22.9%
EBITDA returns, %	52%
Payback period	6.7
Discounted payback period	9.1

Project profitability



Project location: Atyrau Oblast

The scheme of the typical construction of the cage line



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Agro-industrial complex

Construction of a plant for the production of biological products according to the GMP standard

Project description: Construction of a biopharmaceutical plant for the production of biological products according to the GMP (Good Manufacturing Practice) standard with a capacity of 15 million doses per year.

Project goals: Construction of the first biopharmaceutical plant in Kazakhstan in accordance with the international GMP standard.

Project initiator: Republican State Enterprise "Research Institute for Biological Safety Problems".

Product and output:

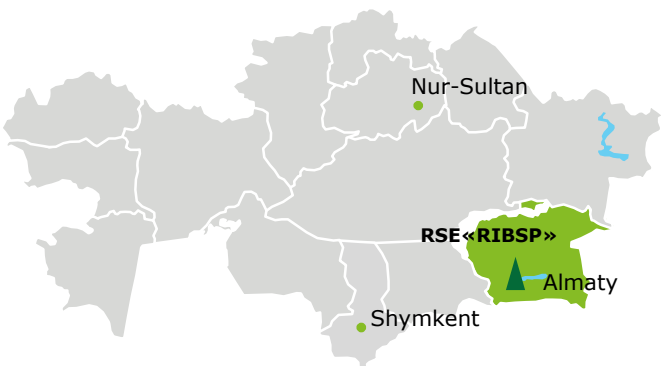
- Smallpox vaccine – 3,750 thousand doses;
- Avian influenza vaccine – 2,250 thousand doses;
- Cattle Nodular Dermatitis Vaccine – 3,000 thousand doses;
- Cattle Plague Vaccine – 2,250 thousand doses;
- Small Cattle Ecthyma Vaccine – 1 500 thousand doses;
- Animal Brucellosis Vaccine – 2,250 thousand doses.

Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	10,171
Project NPV, thous. USD	8,603
IRR, %	22.4%
EBITDA margin, %	57%
Payback period, years	8.2
Discounted payback period, years	11.2

Project location:

Almaty Oblast, Zhambyl disctrict, urban-type settlement Gvardeyski.



Prerequisites for Project implementation

Lack of production in accordance with GMP standards

As of today, there are no production of biological products that meets international GMP standards in Kazakhstan. Compliance with GMP standards will provide laboratory comprehensive verification and regulation of production parameters, the quality of all products, and reduce the risk of manufacturing errors to a minimum.

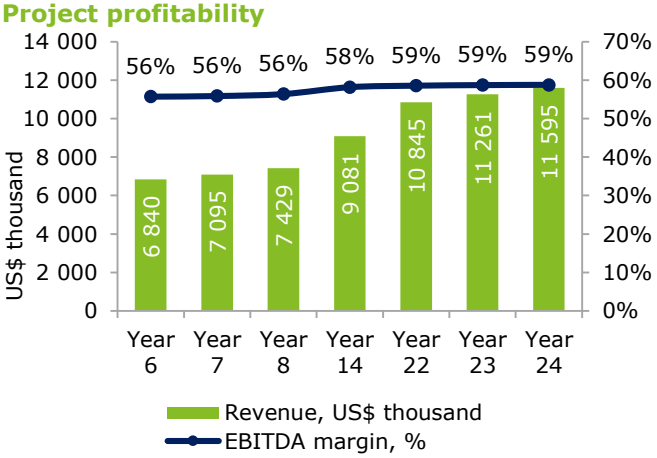
The growth of cattle, small cattle and poultry

Currently, Kazakhstan has seen an increase in the number of cattle, small cattle and birds. For example, in 2018, the increase in the number of cattle was 6%, small cattle - 2% and birds - 11%. For this reason, the need for veterinary drugs for the prevention and treatment of animals is increasing.

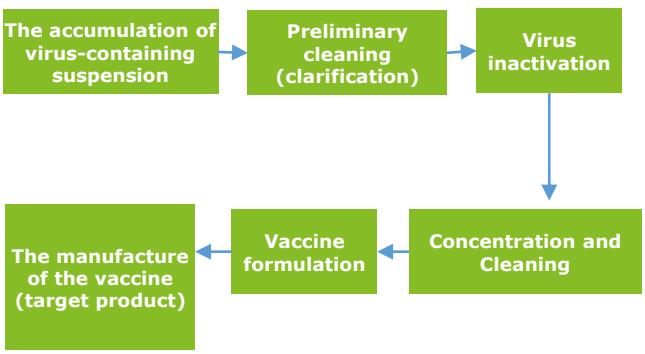
Import substitution

The share of imports in the structure of consumption of veterinary drugs in the country is 78%, which indicates a high import dependence. In 2018, imports to the country amounted to 246 tons of veterinary drugs, of which 200 tons were imported from Russia.

Project profitability



Biological product manufacturing technology



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Agricultural sector

Construction of irrigation infrastructure

Project description:

Construction of water infrastructure for the regular irrigation section of Balatobe in the Urdzhar district of East Kazakhstan region. It is planned to install a circular irrigation system on a land area of 2,200 ha.

Initiator: URDZHAR AGRO COMPANY JSC

Targets:

- Increasing crop yields while maintaining and improving soil fertility:
- Leading in grain and oilseed production volumes

Project location:

East-Kazakhstan Oblast (EKO), Urdzhar region.

Commercial products: soybeans, corn, sunflower seeds.

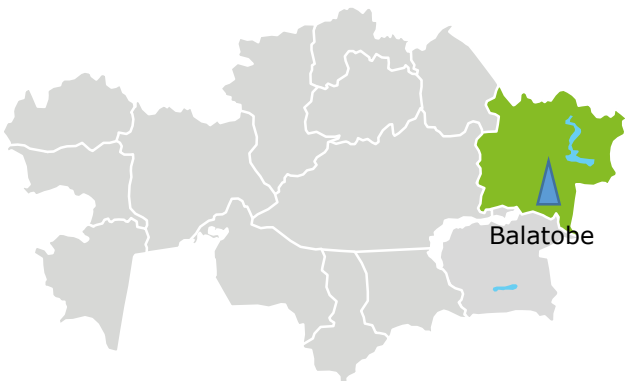
Production capacity:

per year: corn - 18 thousand tons, sunflower – 2,800 tons, soybeans - 300 tons.

Key investment indicators of the Project

Indicator	Results
Investment amount, thous. USD	7,421
Project NPV, thous. USD	16,291
IRR, %	37.1%
EBITDA margin, %	69.9%
Payback period, years	4.3
Discounted payback period, years	5.1

Project location: North-Kazakhstan Oblast, Akmola Oblast



Prerequisites for Project implementation

Productivity

The irrigation technique and technology has a decisive influence on the quality of regulation of the water regime of the soil, and, consequently, not only on crop yields, but also on the efficiency of the use of water, soil-climatic, material-technical and energy resources, as well as the ecological state of the environment .

Stable demand for corn and sunflower seeds in the domestic market

The growing demand for corn and sunflower seeds creates favorable conditions for growing these crops. Over the past 5 years, per capita consumption of corn and sunflower seeds has grown with an average annual growth rate of 4.6% and 7.9%. Most of the domestic demand is covered by the domestic production of these crops.

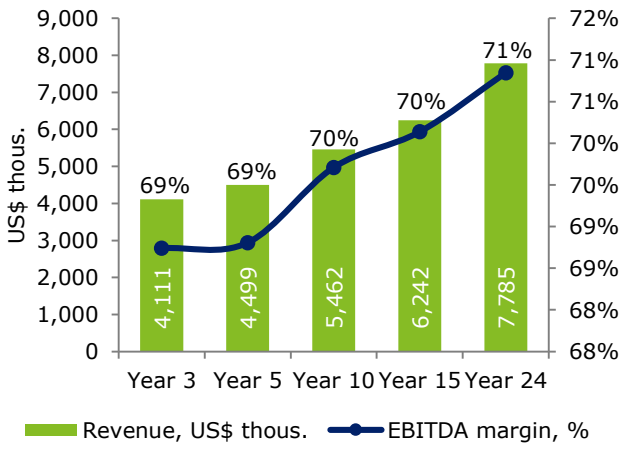
Export potential

The neighborhood with one of the largest corn importers - China - provides convenient access to the target large and large-scale sales market. China's imports in 2018 amounted to 3,521 thousand tons of corn. In addition, more than 93% of the corn export from Kazakhstan goes to Uzbekistan, whose import volumes have increased by 40% over the past year.

Price differential with neighboring countries

In the regions of the Russian Federation adjacent to Kazakhstan, the average price of a kilogram of sunflower seeds during the year varies depending on the region in the range of 0.25 - 0.4 US dollars, which is higher than the average price in Kazakhstan by 5% - 60%.

Project profitability



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Mining and metallurgical complex

Construction of a mining and metallurgical complex on Besshoky Square in the Karaganda region

Project overview:

This investment project (hereinafter referred to as the "Project") provides for the construction of a mining and metallurgical complex at the Besshoky field.

Project goals: development of a group of deposits on Besshoky Square, creation of an effective integrated business for the extraction and processing of copper-molybdenum ore.

Initiator: Ulmus Fund B.V.

Production process: open pit mining; ore processing at the processing plant and production of copper-molybdenum concentrate; processing of concentrate at a smelter to produce copper and molybdenum.

Products: copper and molybdenum

Production capacity:

10 mln tons of ore per year

Project implementation assumptions:

Large reserves of copper. Kazakhstan takes the 8th place in the world in copper reserves with a share of 4.7% of world reserves (37 million tons).

High demand. Copper plays a significant role in modern infrastructure, generation and transmission of electricity, in the production of industrial equipment and electrical appliances. According to the forecasts of the International Copper Study Group, the annual growth in demand for refined copper will be 2% in 2019 and 1.5% in 2020.

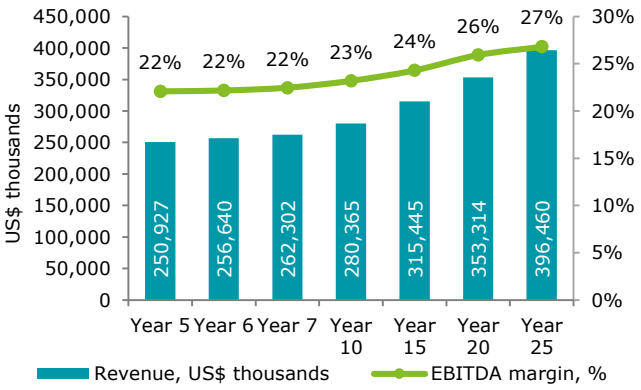
Price stabilization. According to Bloomberg, the price of refined copper is expected to increase with its subsequent stabilization in the medium term: 2019 - 6038.5 USD, 2023 – 6087 USD per ton.

Molybdenum price increase. Despite a significant drop in molybdenum prices from 2013 (24,889 USD) to 2015 (11,625 USD), according to the London Metal Exchange (LME) index, the price of molybdenum began to rise steadily to 24.9 thousand USD in 2018 (CAGR for 2015-2018 - 29%).

Key investment indicators

Indicator	Results
Amount of investments, US$ thousands	210,000
Project NPV, US$ thousands	116,747
IRR, %	21.2%
EBITDA margin, %	14-28%
Payback period, years	8.5
Discounted payback period, years	11.7

Project profitability



Project location: Besshoky square, Karagandy oblast

Field reserves by JORC (2012)

Field	Ore, mln tons	Copper, ths tons	Cu, %
East Besshoky			
Measured	9.64	74.58	0.77
Indicated	19.09	116.93	0.61
South Besshoky			
Measured	44.36	164.52	0.37
Indicated	147.32	527.03	0.36
Kaindyshoky			
Measured	-	-	-
Indicated	37.87	143.52	0.38

Mining and metallurgical complex

Construction of a mining and processing plant for the production of manganese concentrate

Description of the Project

The present investment project (the "Project") provides for the construction of a mining and processing complex for the production of manganese concentrate at the Karamola deposit in the Almaty region.

Product: manganese concentrate.

Aims of the Project: Creation of an innovative mining and metallurgical complex for the production of manganese concentrate in the Almaty region.

Manufacturing process: The developed technological enrichment scheme includes two-stage crushing of the initial ore to a fineness of 40 mm, followed by wet screening into fineness classes of 40-5 mm, 5-125 mm and 1.25-0.0 mm.

Initiator: Tentek LLP.

Production volumes:

ore - 49.6 thousand tons per year,

concentrate - 19.2 thousand tons per year.

Market conditions:

High demand. Manganese in ferromanganese alloys is used to "deoxidize" steel during its melting (to remove oxygen from it). The high growth of steel production in the world and the strategic importance of the further development of industries using steel as raw materials create a steady demand for the products manufactured under the Project. According to the forecasts of the International Steel Association, the global demand for steel and steel products will increase by 1.4% in 2019. According to Lucintel forecasts, the average annual growth rate (CAGR) for steel pipes will be 1.6% in 2019-2024.

Export potential. China is the world's largest importer of manganese concentrate (27 656 thousand tons in 2018). Russia is the fourth largest importer of manganese concentrate (1318 thousand tons in 2018). Over the past 5 years, the growth rates of imported manganese concentrate by China and Russia amounted to 14.3 and 6.6%, respectively.

Key investment indicators of the Project

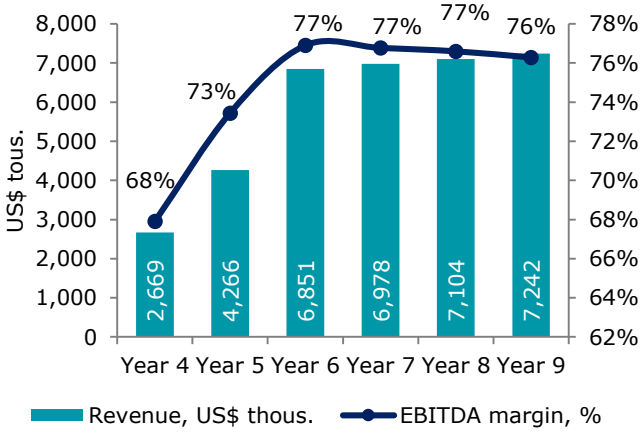
Indicator	Results
Investment amount, US$ thous.	10,114
Project NPV, US$ thous.	5,651
IRR, %	24.04%
EBITDA yield, %	75.2%
Payback period, years	6.48
Discounted payback period, years	8.22

Deposit reserves

Currently, one area has been explored with estimated reserves of 1.5 - 2.0 million tons of manganese ores, including the estimated and approved GKZ RK C1 - 233.4 thousand tons (Mn 22.65%), C2 - 215, 0 thousand tons (Mn 22.53%). The reserves of the deposit are estimated at more than 16 million tons of manganese and 80 million tons of ore. The manganese content in ores varies from 12-14% to 38-46%, with a phosphorus content of up to 0.1%. Estimated reserves in general for 23 ore sites (including the Karamola deposit) of the Karamola area are estimated at 250 million tons.

Project location: Alakol district, Almaty Oblast

Project profitability



Mining and metallurgical complex

Construction of a metallurgical complex for the production of pig iron in Mangystau Oblast

Project description:

The project involves construction of a complex for the production of pig iron, with ROMELT technology. Iron ore mining and crushing will be carried out at the Beskempir deposit. The processing complex with the ROMELT technology, to which iron ores are going to be transported after crushing, will be located on the SEZ "Seaport Aktau".

Product: intermediate pig iron.

Production process:

Mining – open-pit;

Processing – ROMELT, liquid phase recovery with energetic coals.

Initiator: Technogran Aktobe LLC.

Location: Mangystau district, Mangystau Oblast

Consumer markets: China, Russia

Annual production capacity:

250 thousand tonnes of pig iron.

Key investment indicators

Indicator	Results
Amount of investments, US$ thousands	179,220
Project NPV, US$ thousands	77,054
IRR, %	21.9%
EBITDA margin, %	45%
Payback period, years	6.5
Discounted payback period, years	9.5

Project implementation assumptions:

Existence of a rich resource base. Beskempir deposit, located in the central part of the Karatau ridge, is the largest iron ore deposit in Mangystau oblast.

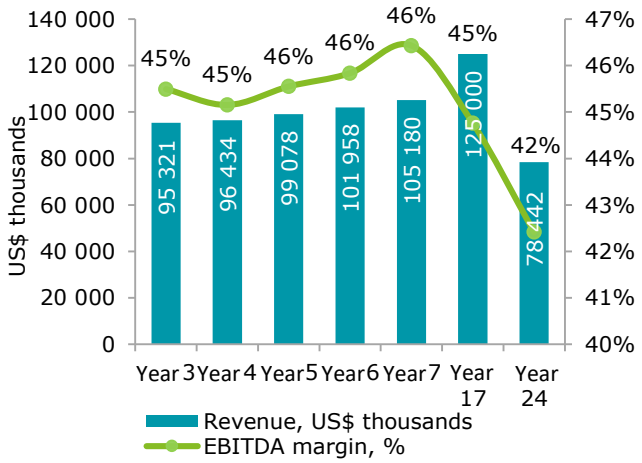
Positive price dynamics. After the downturn in 2014-2015, the last two years have shown prices for pig iron returning to a positive trend. According to the market analysts (available in the Bloomberg database), these prices will remain relatively stable in the medium term.

Export potential for pig iron. Currently, the export of pig iron in Kazakhstan is underdeveloped (in particular, there were no exports to China before 2018). Moreover, imports of pig iron in Russia is growing rapidly. Since 2018 China's interest in imports of intermediate pig iron from Kazakhstan is growing rapidly: in 2018 China imported 93 thousand tons of pig iron, of which 39 thousand tons were imported from Kazakhstan. In the period from 2017 to 2018, the import of pig iron in the Russian Federation increased from 96 thousand tons to 540 thousand tons (463%). These factors create preconditions for the development of export potential for Kazakhstani producers.

Projected growth in demand for pig iron. According to forecasts from the World Steel Association, global demand for steel (product obtained from pig iron processing) will increase by 1.4% and 1.7% in 2019 and 2020, respectively. Thus, taking into account the specifics of the pig iron and steel market, the growth in demand for pig iron is also expected.

Project location: Mangystau district, Mangystau Oblast

Project profitability



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Metallurgy and mechanical engineering

Launch of long products manufacturing at Aktau Foundry in Aktau city

Project description:

This investment project provides for the launch of production of long products at the Aktau Foundry, carried out as part of a comprehensive reengineering program.

Production capacity:

180,000 tones/year

Project objectives:

•Creation of an efficient integrated business for long product production and its sale on domestic and foreign markets;

•Obtaining high quality, competitive products using advanced approved production technologies corresponding to the world class level of the long products manufacturing.

Products: rebar, I-beam, structural channel, angle.

Initiators: ALZ LLP and BCC Invest.

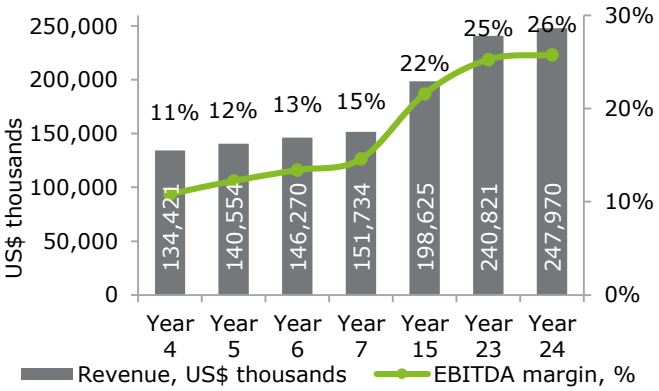
Market background:

Growth in consumer demand for long products. According to Metal Expert forecasts, in the non-residential construction sector, the main drivers of demand will be actively initiated government programs and measures to stimulate industrial production and investment. In the conservative scenario, demand is expected to grow by 3-5%.
Import substitution. Growth in consumer demand has sharpened competition between domestic producers and suppliers from the Russian Federation. Also, in Kazakhstan there are no enterprises producing a full range of long products.
Export Development. Over the past five years, Kazakhstan mainly exported rebars (among long products). In the structure of exports, the share of Tajikistan in the total volume of exports of rebars is 73% (86,663 tons); Russian Federation and Kyrgyzstan account for 11% (13,217 tons) and 10% (12,031 tons), respectively.

Key investment indicators

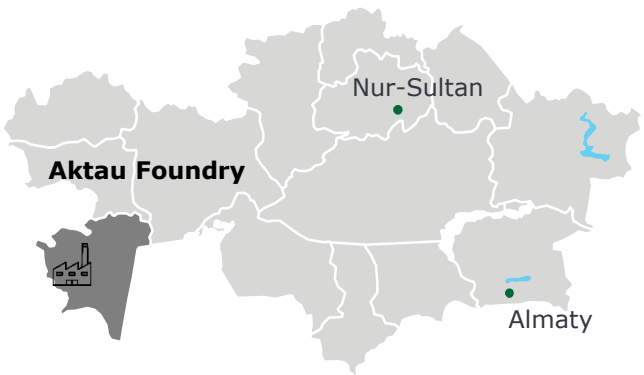
Indicator	Results
Investment amount, US$ thousands	79,348
Project NPV, US$ thousands	59,687
IRR, %	15.9%
EBITDA margin, %	19%
Payback period, years	9.7
Discounted payback period, years	16,4

Project profitability

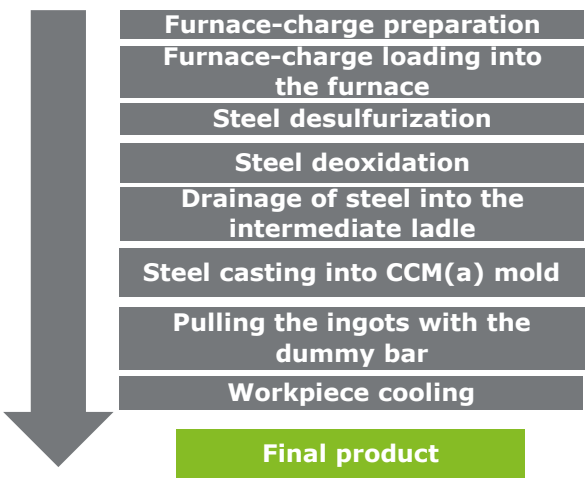


Project loaction:

Mangystau oblast, Aktau, Industrial area



Technological process:



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Metallurgy and mechanic engineering

Expansion of the production of steel pipes in the Mangistau Oblast

Description of the Project:

The investment project provides for the construction of a plant for the production of oil and gas equipment in the SEZ "Seaport Aktau" of the Mangistau Oblast.

Production and annual capacity:

- Tubing pipes – 78.3 thousand tonnes per year;
- Casing – 66.7 thousand tonnes per year;
- Line pipe – 5089 tonnes per year.

Raw materials:

High alloy steel

Initiator:

The initiator of the project is Kaskor-Mashzavod JSC, which is one of the leading machine-building enterprises in the Republic of Kazakhstan.

Location: SEZ "Seaport Aktau" - subzone 3, the Mangistau Oblast

Sales market: domestic market, China, Russia, Turkmenistan

Market background:

Growth in demand for steel pipes. Lucintel predicts that there will be an increase in global demand for steel pipes in the world. Compound annual growth rate (CAGR) in 2019-2024 will be equal to 1.6%, and revenue will be equal to about US$ 68.4 billion. The main drivers of this market are the construction of new pipelines, the replacement of obsolete pipelines, the level of urbanization and the development of infrastructure.

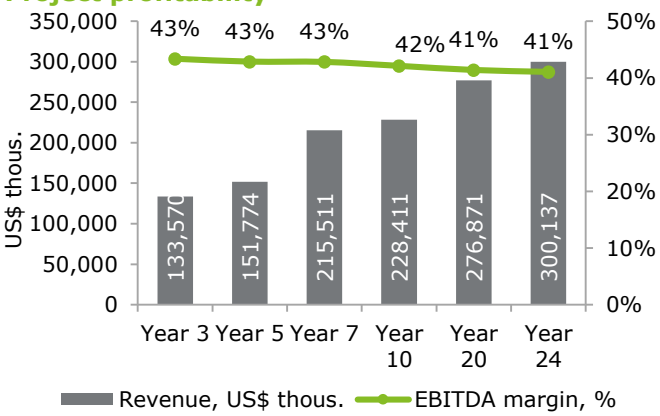
Import substitution. Import volumes over the past year equal to 210.8 thousand tonnes, which is twice as high than in 2015, given that the country's domestic production rate is 2.4 times lower than the use of tubing, casing and line pipes. The expansion of the steel pipe plant will reduce the dependence on imports.

Export development. Kazakhstan also exports steel pipes. In 2018, the volume of export of tubing pipes, casing and line pipes amounted to 149.4 thousand tonnes, demonstrating an increase of 57% compared to 2014.

Key investment indicators

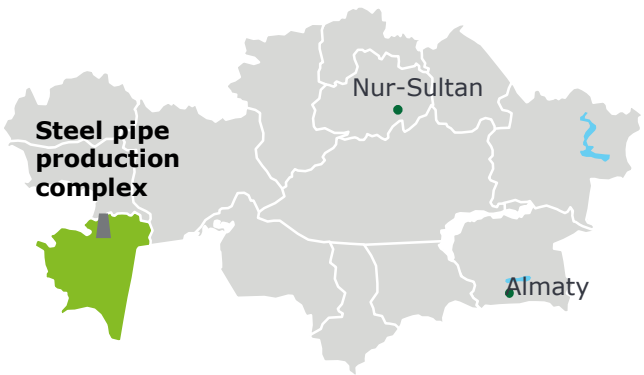
Indicator	Results
Investment, USD thousands	245,923
Project NPV, USD thousands	257,581
IRR, %	25.5%
EBITDA returns, %	42%
Payback period, number of years from the start of production	6.8
Discounted payback period, number of years from the start of production	8.4

Project profitability

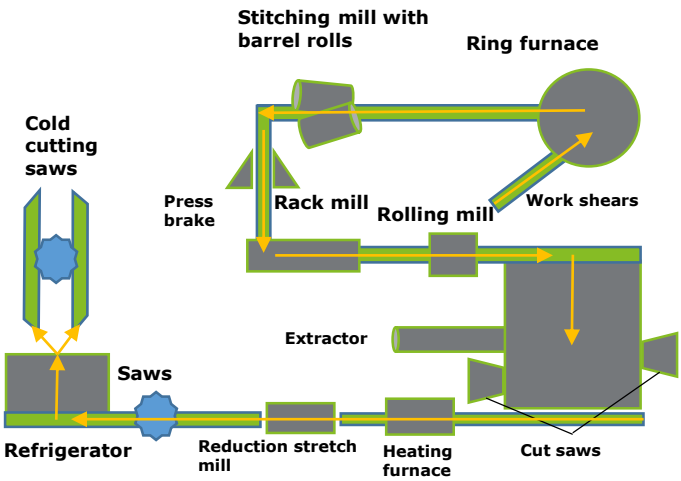


Location of the Project:

Aktau, Mangistau Oblast



Technological process of the Project:



Chemical and petrochemical industry

Construction of the base oil production plant in Turkestan Oblast

Project overview:

Construction of Group I, II and III base oil production plant in Turkestan oblast

Raw materials:

Straight-run fuel oil from "PetroKazakhstan Oil Products" (PKOP) oil refinery.

Commercial products:

high-quality base oils of Group I (1200SN), Group II (60N, 150N, 350N), and Group III (650N)

Output capacity:

255 thousand tonnes of base oils per annum

Initiator:

HILL Corporation Group, the only major producer of lubricating oils in Kazakhstan.

Project location:

Turkestan Oblast, Shymkent city industrial zone

Consumer markets:

Kazakhstan, China

Market assumptions:

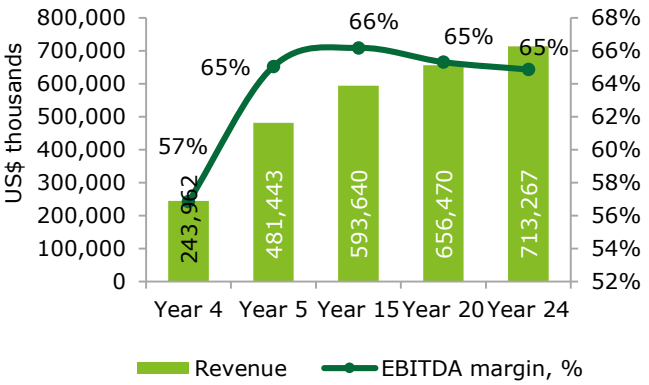
Availability of customers and raw materials - There is a need to supply raw materials to HILL Corporation's operating plant for compounding lubricating oils. Straight-run fuel oil is the main raw material for the Project, which will be supplied by PetroKazakhstan Oil Products LLP ("PKOP"), an oil refinery in Shymkent located 350 m from the future plant.

Import substitution and export potential – Kazakhstan doesn't produce base oils, which are used by local enterprises as a basis for creating lubricants and motor oils. The foreign market (China) is attractive for exporting due to the existence of high demand. Preliminary agreements for selling products in Kazakhstan and in China have already been concluded. Volume of oil exports is expected to reach 183 thousand tonnes per year.

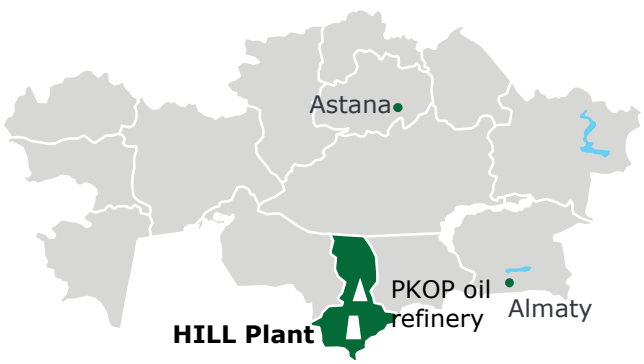
Key investment data

Index	Results
Project implementation period, years	24
incl. the investment stage, years	*4*
operational stage, years	*20*
Investment, US$ thousands	729,238
Project NPV, US$ thousands	770,807
IRR, %	26.3%
EBITDA returns, %	65%
Payback period, years	6.5
Discounted payback period, years	8.5

Project profitability



Project location: Turkestan Oblast, Shymkent city industrial zone



Planned output capacity

Product	Volume, tonnes	Share
Base oils	**254,738**	**100%**
Base oil 60N	20,000	8%
Base oil 350N	36,044	14%
Base oil SN1200	40,470	16%
Base oil 650N	60,950	24%
Base oil 150N	97,274	38%
Secondary products	**240,000**	**100%**
Drilling fluid	18,000	8%
Naphtha	50,542	21%
Deasphaltizate	75,074	31%
Diesel fuel	96,026	40%

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Chemistry and petrochemistry

Construction of a complex for the production of caustic soda, hydrochloric acid and coagulants in the territory of the SEZ "NIPT"

Project overview:

Construction of a chemical complex for the production of caustic soda, hydrochloric acid and coagulants using specialized technologies in the territory of the SEZ "NIPT" in the Atyrau Oblast.

Commercial products and annual output:

- Sodium hydroxide 48%: 30 thousand tonnes per year;
- Calcium hypochlorite: 16.5 thousand tonnes per year;
- Ferric chloride 40%: 5 thousand tonnes per year;
- Hydrochloric acid 35%: 8.5 thousand tonnes per year;
- PAC-17 (aluminum oxychloride): 2 thousand tonnes per year.

Initiator:

Global Chemical LLP

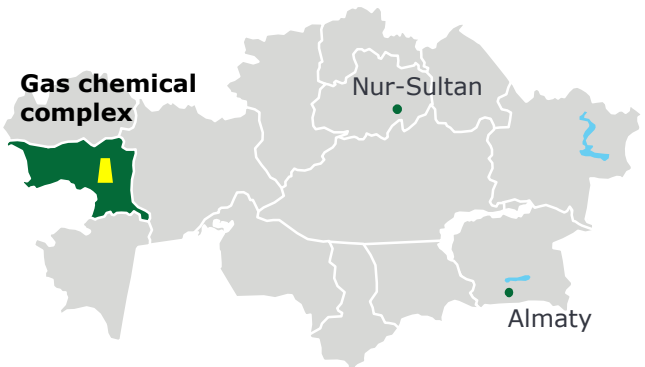
Project location: SEZ "NIPT", Atyrau Oblast

Consumer markets: Domestic market, China, Russia

Key investment indicators

Indicator	Results
Investment, US$ thousands	70,000
Project NPV, US$ thousands	55,646
IRR, %	22.2%
EBITDA returns, %	49%
Payback period, amount of years from the start of production	6.1
Discounted payback period, amount of years from the start of production	8.8

Project location: SEZ "NIPT", Atyrau Oblast



Market assumptions:

Growing demand for caustic soda

According to forecasts of the analytical agency Grand View Research, by 2024 the volume of the world market of caustic soda will exceed US$ 46 billion.

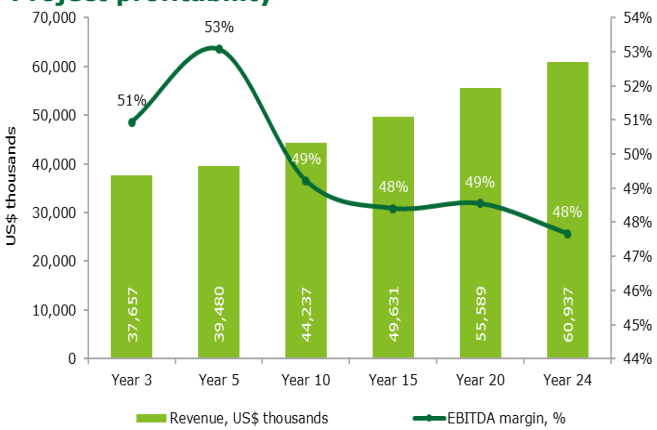
Growing demand for hydrochloric acid and coagulants

Demand for hydrochloric acid and coagulants, according to Grand View Research, the global market will exceed US$ 160 million (CAGR 5.8%) and US$ 2.63 billion dollars (CAGR 2.4%), respectively.

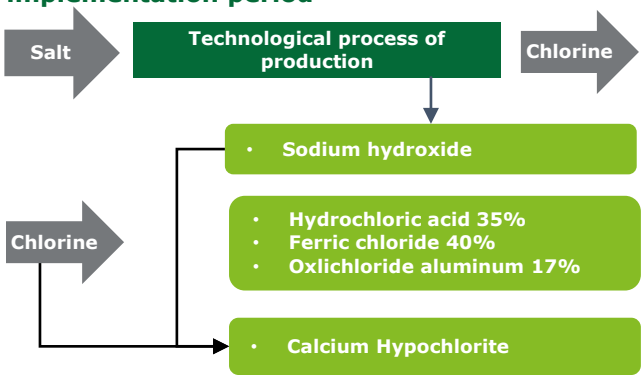
Raw materials availability

The main raw material for the production of caustic soda is plain salt, the supplier of which will be TUZ LLP. Salt supplies will be 27 thousand tonnes per year for a period of operation of 20 years. Also, an important raw material for the production of soda is technical water, the supplier of which will be the Association "Su Arnasy Kazakhstan".

Project profitability



Technological flows during Project implementation period



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Chemistry and petrochemistry

Construction of a gas chemical complex for the production of methanol and olefins in Aktau

Project overview:

Construction of a gas chemical complex for processing natural gas and methanol using specialized technologies, where gas is primarily processed into methanol, and methanol, subsequently, processed into olefins.

Commercial products and annual output:

- AA class methanol: 1,800 thousand tonnes per year;
- Olefins: 600 thousand tonnes per year (propylene - 360 thousand tonnes, ethylene - 240 thousand tonnes).

Initiator:

WestGasOil LTD, an industrial enterprise in the West Kazakhstan Oblast, which is engaged in large-scale gas chemical projects.

Project location: Mangystau Oblast, Aktau

Consumer markets: domestic market, Europe, Russia.

Market assumptions:

Growing demand for methanol and olefins

According to a report by Market Research Future® (WantStats Research And Media Pvt. Ltd.), the global methanol market is expected to reach US$ 61 billion by 2023. Global imports of propylene are growing at an average rate of 2.2% per year, while ethylene imports are growing at an average rate of 4.2% per year.

Import substitution

Over the past five years, Kazakhstan imported about 24 thousand tonnes of methanol per year, despite the fact that import volumes grow by an average of 14% per year. Production of domestic products will reduce the volume of gas and chemical imports.

Export potential

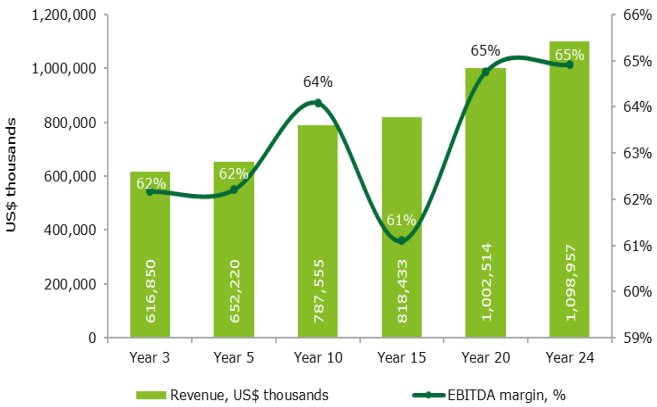
Besides sales, products will also be exported. The external market is attractive for sales due to the growing demand and availability of cheap raw materials, which opens up significant prospects for the organization of export of the Project's products.

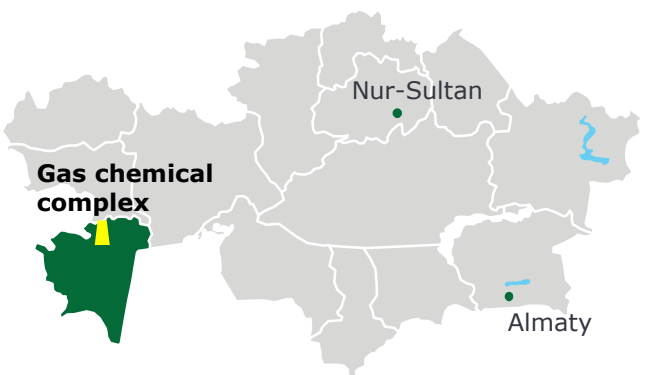
Key investment indicators

Indicator	Results
Investment, US$ thousands	1,800,000
Project NPV, US$ thousands	1,068,605
IRR, %	21.2%
EBITDA returns, %	63%
Payback period, amount of years from the start of production	6.9
Discounted payback period, amount of years from the start of production	9.7

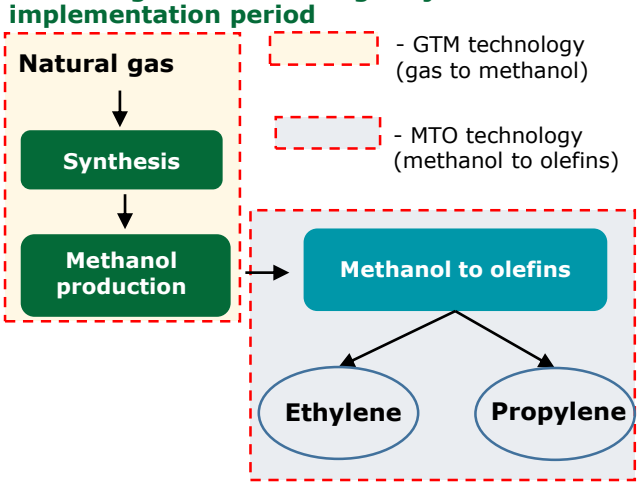
Project location: Mangystau Oblast, Aktau

Project profitability





Technological flows during Project implementation period



Deloitte.

Chemistry and petrochemistry

Construction of a new complex for the production of nitrogen mineral fertilizers in Aktau

Project overview:

Construction of a new complex for the production of class 2 ammonia, on the territory of the existing ammonia and ammonium nitrate production plant in Aktau, Republic of Kazakhstan.

Commercial products and annual output:

300 thousand tonnes of liquid class 2 ammonia per year.

Initiator:

The Project is initiated by KazAzot JSC ("Initiator"), an industrial enterprise in Mangystau Oblast, the only country producer of ammonium nitrate and ammonia.

Project location: Mangystau Oblast, Aktau.

Consumer markets: domestic market, Ukraine, as well as possible supplies to China, Turkey, Russia and Europe.

Market assumptions:

Growing demand for fertilizers

According to the report of Grand View Research Inc. it is expected that by 2025 the world demand for fertilizers will reach US$ 178.26 billion (CAGR 3.4%).

Import substitution

Kazakhstan is import-dependent on ammonia, the annual import of which amounted to 20-30 thousand tonnes. Imported ammonia is used by agricultural enterprises as a nitrogen fertilizer.

Raw materials availability

A new complex for the processing of natural gas into nitrogen mineral fertilizers will be built in close proximity to the current plant of KazAzot JSC.

Export potential

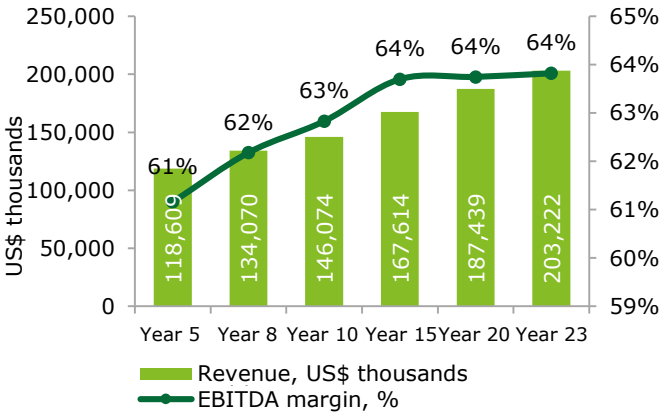
By increasing the production of ammonia, Kazakhstan can increase its share of exports to Turkey, China, Russia, as well as to Europe, which are one of the main consumers of ammonia on the world market.

Key investment indicators

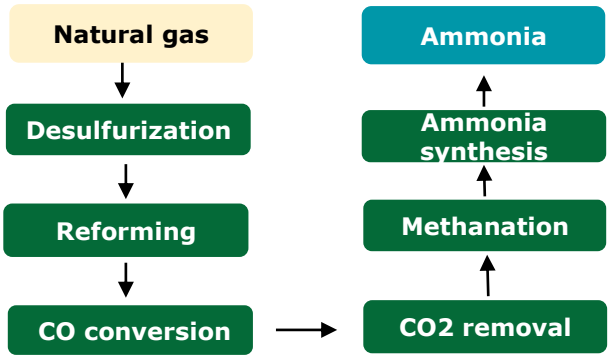
Indicator	Results
Investment, US$ thousands	344,571
Project NPV, US$ thousands	79,986
IRR, %	14.0%
EBITDA returns, %	63%
Payback period, amount of years from the start of production	9.7
Discounted payback period, amount of years from the start of production	20.1

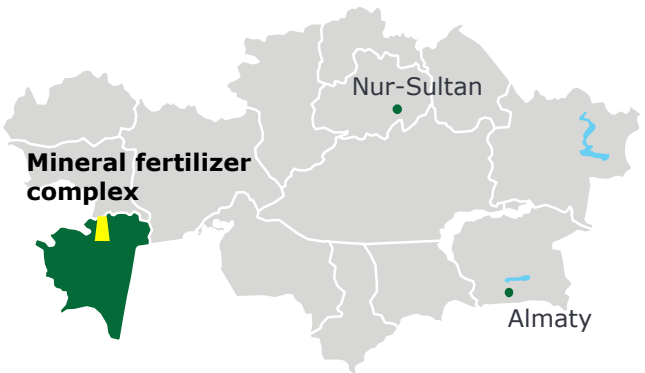
Project location: Mangystau Oblast, Aktau

Project profitability



Technological flows during Project implementation period





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Transport and logistics

Modernization of the sea ferry complex Kuryk in the Mangystau oblast

Project description:

This investment project (the "Project") provides for the modernization of the sea ferry complex Kuryk with the possibility of providing following services: the transshipment of bulky, heavy cargo, and the mooring ships to the berth using tugboats. It is planned to build a grain complex in the port.

Project Goal: The development of the socio-economic situation of the region, the expansion of cross-border external trade and economic relations, increasing the transport, export and transit potential of the Republic of Kazakhstan.

Types of services: Transshipment of cargoes, ship calling services at a port for cargo operations. Services as mooring of vessels to the berth with the help of tugboats, and transshipment of bulky, heavy cargoes are planned.

Initiator: Port Kuryk LLP/NC KTZ JSC

Location: Mangistau oblast, Kuryk rural area

Key investment indicators

Indicator	Results
Investment amount, US$ thousand	37,742
Project NPV, US$ thousand	97,699
IRR, %	33.3%
EBITDA margin, %	75%
Payback period	5.5
Discounted payback period	6.9

Project development location:

R, Mangistau oblast, Karakiya district, KuKryk rural area, Sarsha region, sites 26 and 27

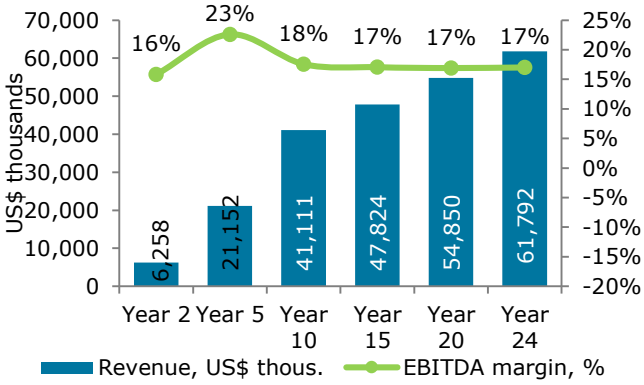
Market prerequisites:

The position of Kazakhstan between the largest trading partners - China and the EU countries gives an advantage for increasing the volume of transit cargo. The volume of foreign trade between China and the EU by 2020 will increase from 615 to 800 billion USD, and, taking into account these factors, the potential volume of transit freight through the RK can reach 5-8% of the total transit freight.

The growth of cargo transit. The transit of goods through the territory of the RK in 2014 amounted to 8.7 million tons and reached 9.3 million tons by 2018. According to experts of Strategy Partnership, an increase in the volume of transit of goods through the RK to 36 million tons is expected by 2020, with the subsequent achievement of up to 50 million tons per year.

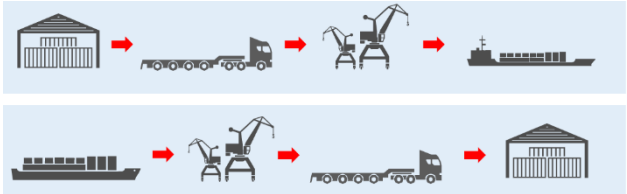
Low competition. The location of the Kuryk port allows the supply of port cranes for the organization of bulky and heavy cargo transshipment, which cannot be physically handled through the port of Aktau and the Aktau Sea North Terminal due to overall dimensional restrictions.

Project profitability



Technical process

The main activity of the port of Kuryk is transshipment from one mode of transport to another. The production process of transshipment operations is the movement of cargo in the port for the purpose of loading or unloading vehicles (ships, wagons, cars). The structure of transported vehicles is railway, automobile, self-propelled machinery, rolling cargo.



Chemistry and petrochemistry

Construction of a gas-chemical complex for the production of methanol in the West Kazakhstan region

Project overview:

Construction of a gas-chemical complex for the production of methanol in the West Kazakhstan region

Raw materials:

natural gas (potential supplier – "Zhaikmunai" LLP)

Commercial products:

AA grade methanol

Output capacity:

Production of 350,000 metric tons of methanol/year;
Consumption of 306,000 thous. normal cubic meters of natural gas/year.

Project initiator:

Limited Liability Partnership "Zhaik Petroleum Ltd"

Project location: country district Beles, Zelenovsky district, West Kazakhstan region.

Consumer markets : Sweden, Finland, Kazakhstan.

Investment attractiveness of the Project

Indicator	Results
Investment, US$ thousands	166,100
Project NPV, US$ thousands	127,522
IRR, %	22.4%
EBITDA returns, %	43%
Payback period, years	6.3
Discounted payback period, years	9.3

Project Location: country district Beles, Zelenovsky district, West Kazakhstan region

Market assumptions:

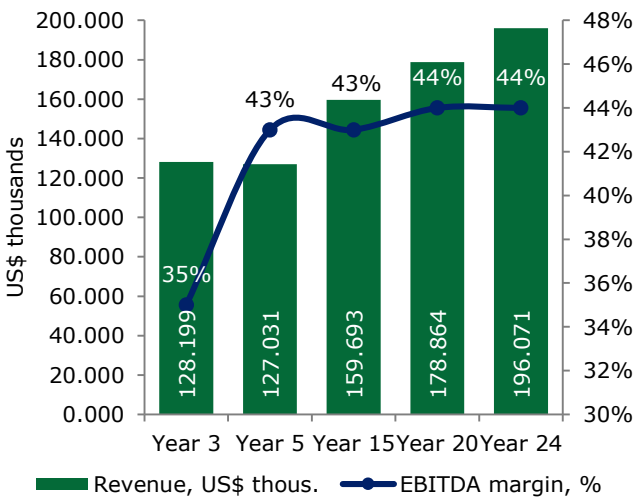
Growing demand – According to a report by Market Research Future® (WantStats Research And Media Pvt. Ltd.), the global methanol market is expected to reach $ 61 billion by 2023. Methanol is widely used as an alternative fuel in internal combustion engines due to its efficiency and cost-effectiveness.

Import substitution – Kazakhstan is 100% import dependent on methanol, the annual consumption of which is at least 25 thousand tons. Imported methanol is used by gas industry enterprises as a method to combat the formation of hydrates. The need to import methanol (raw materials) at high prices determines the price non-competitiveness of Kazakhstan's final products and enterprises.

Availability of customer base – The largest potential consumers can be large oil-extracting and oil refineries of Kazakhstan, importing gas chemical elements for the production of drilling fluids, coagulants and inhibitors.

Raw materials availability – The plant will be built in the West Kazakhstan region, bordering the Aktobe and Atyrau regions, the country's oil and gas centers. In the region itself there is the Karachaganak oil and gas condensate field, with reserves of 1.35 trillion cubic meters of gas and 1.2 billion tons of oil and gas condensate.

Project profitability



MSW recycling

Modernization of MSW management system in the Karaganda Oblast

Project description:

Construction and equipment of 300 waste collection points. As well as the acquisition and commissioning of equipment using composting technology, to reduce the volume of municipal solid waste disposal by production of biogas and generation of green energy.

Capacity: 5 MW of electricity;

Service of 265 thousand people per year for Municipal Solid Waste ("MSW") disposal services.

Products: Service of MSW disposal and electric power.

Initiator: GorKomTrans goroda Karagandy LLP

Location: Karaganda and Karaganda Oblast.

Main consumers:

1) The main consumers of electrical energy are the Financial Settlement Center of RE (state) and enterprises operating on electric power.
2) The main consumers of sorted MSW are companies engaged in recycling of secondary raw materials.

Market prerequisites

High level of MSW generation. The Republic of Kazakhstan has a high level MSW generation at the level of 3 million tonnes annually. Moreover, due to the dynamic growth of the economy and the growth of the well-being of population, the waste generation indicator is anticipated to grow to 8.3 million tonnes per year.

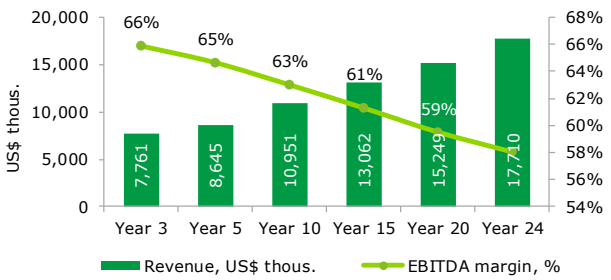
Lack of competition in the region. The Karaganda Oblast does not have the enterprises engaged with the recycling of MSW by production of biogas, while the total volume of wastes continues to increase annually. Thus, by the end of 2017, more than 350 thousand tonnes of MSW was generated in the Karaganda Oblast, which is the third highest indicator across the country after the largest cities Almaty and Nur-Sultan.

The development of new sources of electricity production. Currently, the state allocates large amount of the investments in the sphere of electricity production by Renewable Energy Sources ("RES"), therefore, production volumes are growing at an average of 3% annually. At the same time, the volume of production using biogas in 2017 amounted to only 200 thous. kWh, while the total volume of produced electricity by RES being equal to 11,643 mln kWh.

Key investment indicators

Indicator	Results
Investment amount, US$ thous.	16,713
Project NPV, US$ thous.	28,418
IRR, %	25.7%
EBITDA margin, %	61%
Payback period, years	6.1
Discounted payback period, years	7.6

Project profitability



Project location:
Karaganda and Karaganda Oblast

Product sales provision

MSW disposal services

The main income will be generated through the payments made by the population and legal entities for waste disposal services. 300 waste collection points will serve 265,000 people in the city of Karaganda.

Electrical power

According to the Law of the Republic of Kazakhstan "On support for the use of renewable energy sources", KOREM JSC conducts auction bidding for the purchase of "green energy" produced. The winner receives a contract for a guaranteed purchase of electricity for a period of 15 years.

GorKomTrans goroda Karagandy LLP is currently registered as a participant in an auction for RES bidding.

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Transport and logistics

Introduction of roadside services on the roads of the Republic of Kazakhstan

Project description:

This investment project provides for the construction and organization of roadside service along the roads of national and international importance.

Project Goal: Creation and development of a roadside service network on the country's roads to improve transport infrastructure in the Republic of Kazakhstan and increase budget revenues, as well as improve the quality of transport services, ensure safe and uninterrupted traffic and increase the competitiveness of Trans-Kazakhstan transit routes.

Services provided:

Motels with 25 rooms, commercial and public service blocks with cafes, maintenance blocks (gas stations, service stations with a car wash), parking lots, engineering structures and networks in all regions and cities of the regional destination of Kazakhstan.

Initiator:

JSC "National company"KazAvtoZhol"

Key investment indicators of one object

Index	Categories of motoway servies		
	A and B	C	D
Investment, US$ thousands	2,456	367	883
Project NPV, US$ thousands	2,045	319	167
IRR, %	26.12%	28.41%	17.10%
EBITDA return, %	18.4%	79.9%	13.1%
Payback period, years	5.12	4.81	6.98
Discounted payback period, years	7.35	6.67	13.84

Types of roadside service points

- For IB, IIIA, IIIB climatic subareas with usual geological conditions;
- For IVA, IVG climatic subareas with usual geological conditions;
- For IB, IIB, IIIA, IIIB, IIIB, IVG climatic subareas with seismic activity of 7 points;
- For IB, IIB, IIIA, IIIB, IVA, IVG climatic subareas with seismic activity of 8 points;
- For IB, IIB, IIIA, IIIB, IVA, IVG climatic subareas with seismic activity of 9 points;

Buildings and construction of the objects of category "A" and "B"

Name	Floors	Built-up area, sq. m	Total area, sq. m	Construction volume of the building, cub. M
Motel with 25 rooms	2	410	567	2,667
Block of commercial services with a cafe	1	850	616	3,584
Maintenance block with gas station building	1	370	275	1,437
Total	**-**	**1,630**	**1,348**	**7,688**

Market prerequisites:

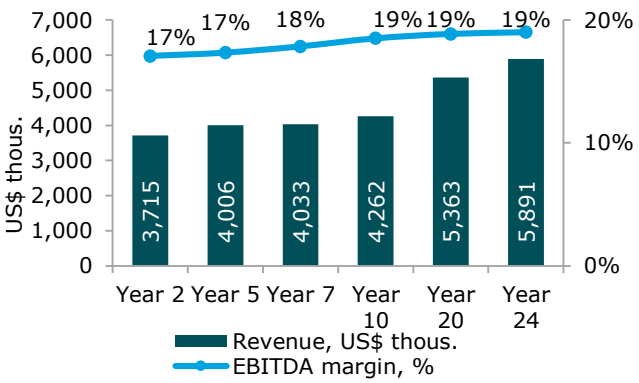
Growing demand for cars. Over the past 10 years, the average annual increase in the number of cars in the country amounted to 5%. According to forecasts, the car fleet will grow from 4.3 million units in 2018 to 10 million units by 2045-2050. The country has also increased passenger and cargo turnover in road transport. The average annual growth for these indicators over the past 5 years was 2.6% and 2.05%, respectively. At the same time, Project implementation will create pressure on informal road carried for their registration and subsequent streamlining of the transport industry.

Transit potential. The use of the territory of the Republic of Kazakhstan for the transit of goods between East and West is becoming increasingly attractive. The growth in transit by road over the past year amounted to 223%. Project implementation is necessary to extract the greatest benefits from transit flows and ensure high quality transport infrastructure for them.

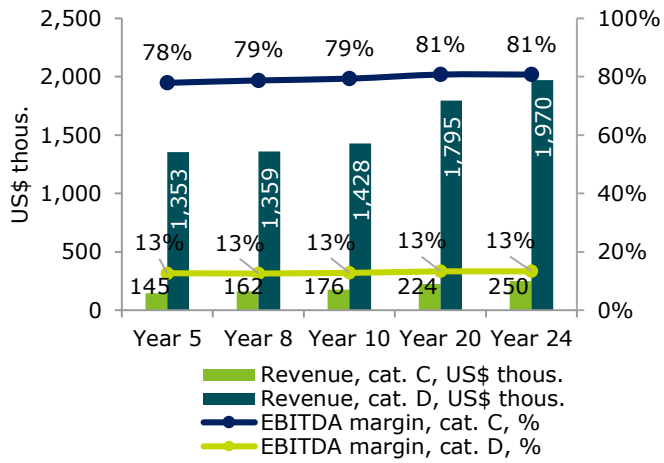
Extensive customer base. In 2018, the share of cargo transportation by land was 30%, and the share of passenger turnover was 88%.

Project profitability

Categories "A" and "B"



Categories "C" and "D"



Waste-to-Energy Projects in Kazakhstan

Strictly Confidential

2020

Waste-to-Energy in Kazakhstan – an Opportunity for a Strategic Investor

Overview of the Project

PlanetCare Management is a Kazakhstan-based company operating in waste management. It collects, transports, sorts, recycles and landfills more than 97% of the municipal solid waste (MSW) in Nur-Sultan (the capital city of Kazakhstan).

The company plans to participate in a project to construct and operate Waste-to-Energy (WtE) plants across the country. This is a new sector for Kazakhstan, and the State plans to ensure the construction of **7 WtE plants** in Nur-Sultan and 6 other large cities.

To ensure the investment attractiveness of the sector, the State is considering favorable amendments to legislation (scheduled to be completed by September 2020). The State will initiate an auction to select a strategic investor and the auction winner will sign a **15-year Power Purchase Agreement** to supply the electricity generated from the waste to the national energy system at a special **"green" feed-in-tariff**. The Ministry of Ecology will set an upper tariff value, and the auction participants will submit bids based on their proposed tariffs. Auctions have been successfully used in Kazakhstan's renewable energy since 2017.

The State will also ensure a stable supply of municipal solid waste to the plants and will set emission limits in line with European standards.

Criteria for a Strategic Investor

PlanetCare Management is looking for a joint venture partner (strategic investor) to construct Waste-to-Energy plants across Kazakhstan with total annual capacity of **up to 1.5 million tonnes** of MSW. The strategic investor is expected to have relevant, successful **experience** in the construction of Waste-to-Energy plants (as an investor), and to own and operate a number of similar plants in its portfolio.

PlanetCare Management is prepared for a strategic investor to hold a **controlling stake** in the joint venture SPV and to be the lead- partner in the project. The strategic investor is assumed to be the partner responsible for selection of technology and other related technical and operational aspects of the project.

A company which provides relevant technology or equipment may also be an attractive joint venture partner, but it would need either to co-invest or bring an additional financial partner.

PlanetCare Management is also ready to co-finance the project and transfer its MSW related-assets in Nur-Sultan to the joint venture SPV company if appropriate.

Samruk-Kazyna, the sovereign wealth fund which owns and operates the key national companies in Kazakhstan, with total asset value of $60 billion, is also interested in participating in the joint venture.

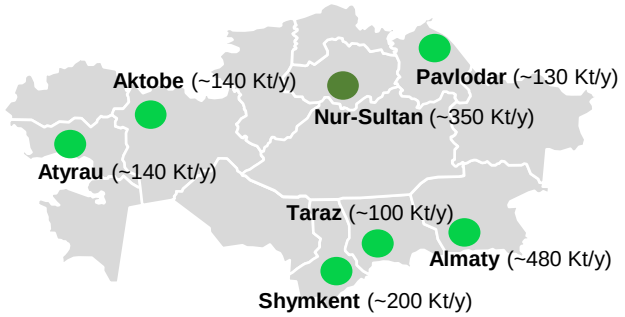
WtE projects in Nur-Sultan and other cities in Kazakhstan

New Waste-to-Energy Sector in Kazakhstan

Project Description

Construction of up to 7 plants in Nur-Sultan, Almaty, Shymkent, Pavlodar, Taraz, Atyrau and Aktobe for MSW incineration with electricity generation

Total annual capacity of 7 plants – up to 1.5 million tonnes of waste *(indicative volumes)*



The Government is developing a framework to support waste-to-energy projects at the legislative level:

- WtE projects to be granted a competitive "green tariff" with 15-year PPAs to be officially revealed in an auction process
- Each city's administration to be obliged to support continuous supply of MSW to the plants

There is also an opportunity to sign an investment contract with the Government to secure tax and custom incentives

Nur-Sultan Project

Nur-Sultan is the first city where the auction is planned to be held (further actions are planned to be held in other 6 cities in Kazakhstan)

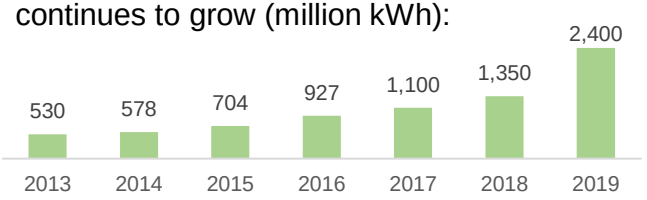
Nur-Sultan is the capital of Kazakhstan, with a population of 1.1 million growing by 5-7% a year

The Astana International Financial Center (AIFC) opened in 2018 to become a hub for financial services in Central Asia, with separate commercial jurisdiction based on English law, and various tax privileges provided to its members. The SPV can be established at the AIFC site or elsewhere

Successful Experience in Renewable Energy:

The same mechanism of state support and long-term PPAs has been successfully applied in the renewable energy sector. More than 90 renewable energy projects have been launched in Kazakhstan with total installed capacity of 1,050 MW

Electricity volume generated by renewables continues to grow (million kWh):



Kazakhstan

Favorable Investment Climate

Kazakhstan's GDP in 2019 is $170 billion

Ranked 25th in the World Bank's 2020 Doing Business Index:

- 4th in Contract Enforcement
- 7th in the Protection of Minority Investors' Rights
- 31st on the Human Capital Development index

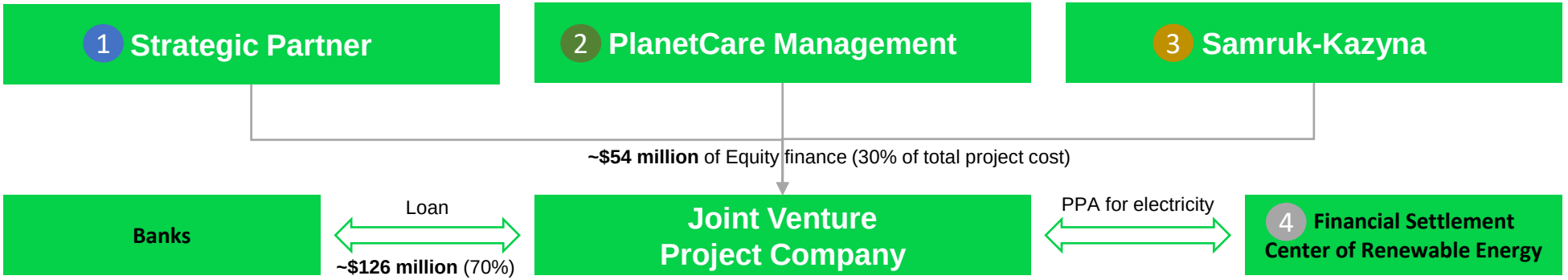
Most Favorable Tax Regime in the Region

(total tax and contribution rate as % of profit)

Kazakhstan – 29.4%
Russia – 46.3%
Uzbekistan – 48.2%
China – 64.9%

Standard corporate income tax rate 20% and VAT rate 12%. There is an opportunity to secure tax advantages for WtE projects

Potential Model for Joint Venture Cooperation (estimated project cost for WtE plant in Nur-Sultan ~ $180 million)



1 Strategic Partner (investor)

- A company with relevant success in construction and operation of Waste-to-Energy plants worldwide (as an investor)
- A company with similar plants in its portfolio and readiness to expand its business into Kazakhstan
- May hold more than 50% interest in the JV (controlling stake)
- Invests into the project equity capital reflecting its pro rata share in JV
- Responsible for, technical and operational issues related to construction and maintenance of the plant
- Ensures the JV fulfils all obligations to the state, including emissions control

2 PlanetCare Management (local partner)

- Manages MSW cycle in Nur-Sultan: transportation, sorting, recycling, landfill
- Ready to transfer its MSW management assets in Nur-Sultan to JV
- Holds a leased plot of land suitable for WtE
- Invests capital into the project equity pro rata its share in JV
- Responsible for government relations and all regulatory matters

3 Samruk-Kazyna

- National state-owned welfare fund
- Owns and manages most state companies (oil & gas, uranium, industrial, railway & aircraft transportation, telecoms and other sectors)
- Committed to sustainable development projects in Kazakhstan

4 Financial Settlement Center of Renewable Energy

- The Government will hold auctions to select investors for Waste-to-Energy projects and will authorize KEGOC, the state-owned company, to conclude a 15-year Power Purchase Agreement at an auction-based feed-in-tariff
- KEGOC JSC is a subsidiary of Samruk-Kazyna
- The auction mechanism has already been successfully applied in the renewable energy sector. More than 90 renewable energy projects have been launched with total installed capacity of more than 1GW

PlanetCare Management LLP Group of Companies

Group Profile

Purpose

Effective operation of, and investment in, waste management, green economy and other related sectors

Year Established

2017.

Investment policy

Implementation of best available technologies in waste management and the green economy sector, becoming a strategic and/or financial investor in those projects

Sustainable Development

The Group is an active member of the following organizations:

- Association of Ecological Organizations of Kazakhstan
- Association of Waste Management Organizations
- International Green Technologies Center

Experienced Leadership Team

- **Nurlan Rakhmetov** – CEO, over 20 years experience in Government and SOE, IE Business School (GXMBA)
- **Nurlan Akhanzaripov** – COO, over 20 years experience in SOE and private sector in oil & gas and finance sectors
- **Yersain Ospanov** – CLO, 15 years experience in SOE, private companies and consulting, Warwick Business School
- **Zhanna Klyumova** – CFO, over 10 years international experience in SOE and private companies, INSEAD (MBA)
- **Yelzhas Otynshiyev** – CBDO, over 10 years experience in SOE and consulting, Moscow MIPT

Experience

1 **Municipal Solid Waste Management in Nur-Sultan (1.1 million population)**

- Full-cycle WSW management *(from dumpsters to landfill)*
- Collection of more than **97%** of the city's waste *(>350 kt p.a.)*
- The only active landfill in the city *(full compliance with requirements)*

2 **Industrial Waste Recycling**

- Automobiles – up to 50,000 p.a.
- Car tires – up to 5 kt p.a.
- Motor oil – up to 6 kt p.a.

3 **Other Assets** – education, wellness and IT