
angenium

Project Business - Plan Angenium

Contents

PROJECT SUMMARY

Brief description of the project business idea

This project involves the construction of an industrial complex for utilization of ash and slag waste (hereafter referred to as ASH) from coal-fired power plants (up to 250,000 tons per year) and pyrite cinders (up to 250,000 tons per year) through their high-level processing.
As a result of the project, it is planned to produce the following products:

- Ferrous oxide
- Silicon oxide
- Aluminium oxide
- Gold
- Silver

The complex will meet modern demands of environmental and technological supervision.

The main advantage of the project is the use of unique invisible assets belonging to the initiators of the project, including

- Know-how (unique technologies) to extract certain products from ash and slag waste and pyrite cinders;
- Database of chemical composition of ash and pyrite cinders;
- Databases of equipment for use in the process of utilization of ASH and pyrite cinders
- Knowledge (unique technologies) of composition of special sorbents to extract useful elements from ASH and pyrite cinders.

In order to finance the project, it is planned to conduct an ICO with issuing security tokens, which ensures that an investor receives income from the project's tokens ownership.

Project efficiency

The project demonstrates the highest level of efficiency. Using almost free raw materials (costs of half a million tons of raw materials are 5.2 million dollars) and technologies, the rights to which belong to the project initiator, it is possible to produce high-quality and marketable products valued at over 500 million dollars.
Return on core activities is over 65%.

The average annual net profit is more than 4.5 times the cost of fixed assets required for the project.

Even in the absence of any competitive position of selective production localization (the income base and current project expenses are calculated at average world prices), the project shows the highest efficiency.

The main project performance indicators are listed in the following table.

Table 1. The main project performance indicators

Indicators	Unit of measure	Value
Payback time	years	1 year 8 month
Maximum negative cash flow	thousand USD	$87 235
Current net value of the project	thousand USD	$831 101
Current net value of the project	% per annum	733%

Planned internal rate of return is 733% per annum. Current net value of the project is over 831 million dollars with the discount rate of 28, 33%.

Initial investments pay off within 6 months after the completion of the plant construction.

Obviously, the choice of a certain localization of the plant will lead to an increase in the project efficiency due to the emergence of opportunities to use competitive natural advantages (cheaper raw materials, proximity to consumers, cheap energy, low wages, etc.).

MARKET ANALYSIS

MARKETING OUTLETS

As a result of the project, it is planned to produce the following products:

- Ferrous oxide
- Silicon oxide

- Aluminium oxide
- Gold
- Silver

Ferrous oxide is used as a pigment in the production of paint materials, concretes, pigment pastes, in agriculture. When briquetting it is a perfect substitute for waste metals, scraps, iron ore nugget. High quality of the finished product, produced due to the project initiator's know-how (purity of 99.9%), allows choosing the most effective application of end products. The cost of ferrous oxide in the form of fine, high-purity (99.9%) powder for use as a pigment ranges from $600 to $1,300 per ton, while its use in the iron industry would provide the revenue of $70 to $160 per ton of finished products.

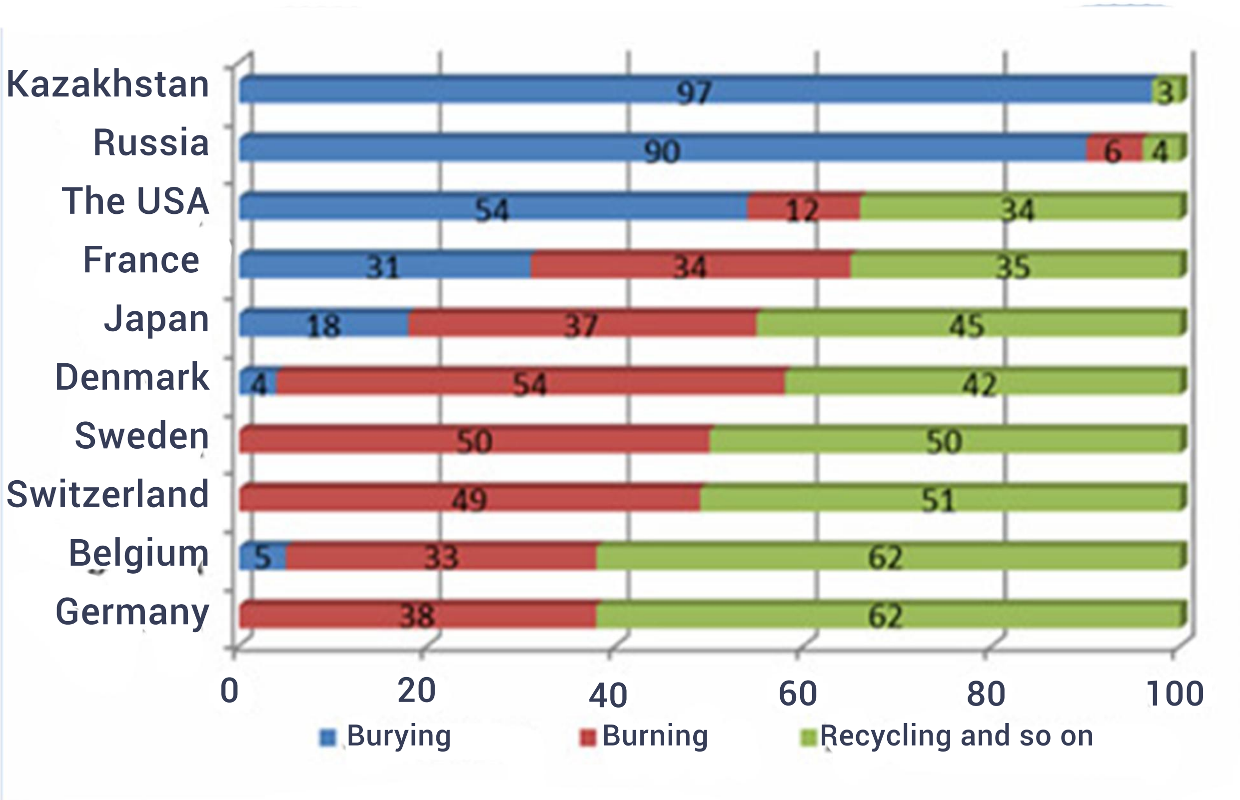
Silicon oxide, in this case, is an amorphous microsilica, depending on the characteristics (purity, particle size, specific surface area, density, etc.) has various prices and a very wide range of applications: as a filler, additive in perfumes, cosmetics, medicine, toothpastes, production of tires and industrial rubber, composite materials (fiberglass, basalt fiber reinforced polymers, other composites), in the production of paints, paper, silica gels, additives for concrete and dry building mixes, in agriculture, etc. The shipping price varies from $10 per ton, additives for concrete up to €30,000 per ton, if it is "Aerosil" of certain brands. High quality of the finished product, produced using the project initiator's know-how (purity of 99.9%), allows choosing the most effective application of end products. The use of silica in the form of fine, high-purity (99.9%) powder in the chemical industry will allow it to be shipped at the price of at least $1,000 per ton, regardless of the project localization.

Aluminium oxide (alumina is the general name of the group) is used for the production of technical ceramics, armored ceramics, grinding wheels, technical corundum, synthetic sapphire for electronics, etc. (with a purity of at least 99.995%), when smelting aluminum as a raw material. High quality of the finished product, produced using the project initiator's know-how (purity of 99.9%), allows choosing the most effective application of end products. The price depending on applications varies as follows: when used as a raw material for aluminum smelting it is about $445 per ton, for growing leucosapphire crystals - $10,000 per ton.

The main consumers of gold and silver are refineries, as precious metals turnover is traditionally highly regulated. During price formation suppliers and consumers focus on the fixing of the London Metal Exchange.

In different countries waste is processed in various ways. For example, in Germany almost 40% of waste is burned and nearly 60% is recycled, while in such countries like Kazakhstan 97% of waste is buried in the hope that future generations will solve the problem of waste processing.

Figure 1. The main areas of waste handling in the world.



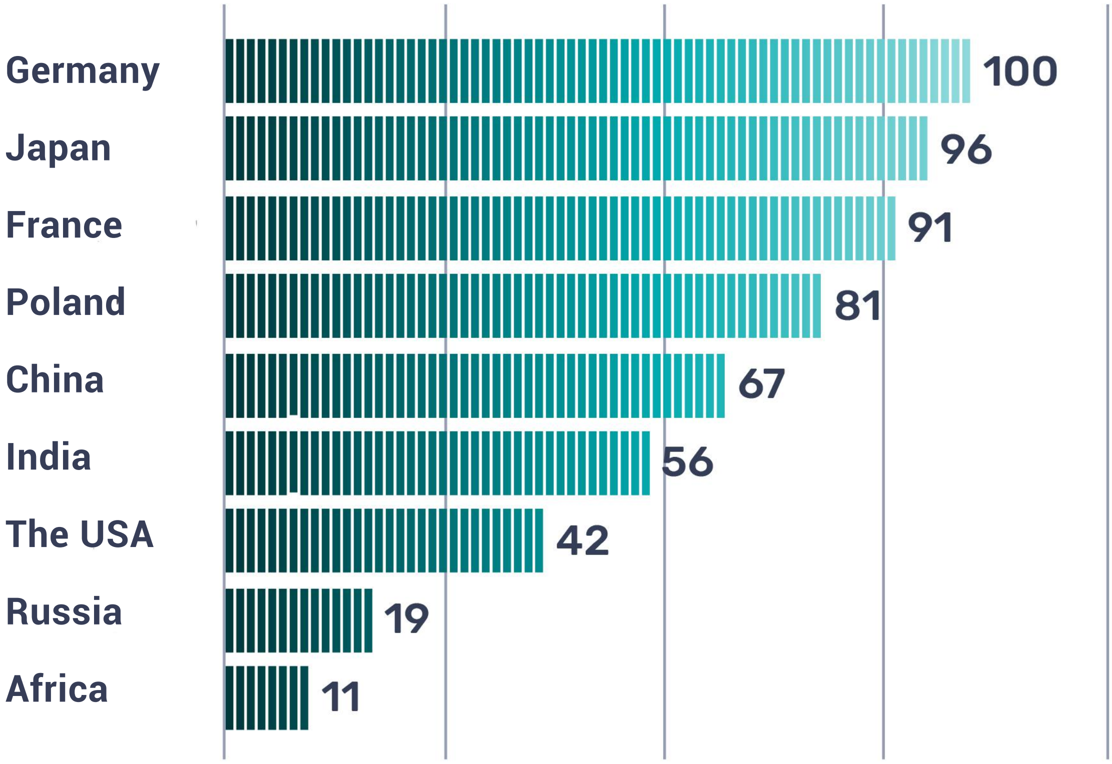
Ash and slag wastes (ASH) appear as an independent type of waste from the production of electricity or heat, and as a result of work on the processing of other wastes.

The global production of ash and slag is about 739 million tons per year.

The largest ASH producers are China, the United States and India.

In such industrialized countries as Germany, Japan and France, most industrial waste (from 60 to 100%) is usually processed into inert materials widely used in construction. In Russia and African countries, processing accounts for a mere 10-20% of the ASH volume.

Figure 2. Waste processing depth across countries



Source: Research data of Siberian State Automobile and Highway Academy

Traditionally, the bulk of ash and slag waste is produced by coal firing. Coal firing takes place at a temperature of 1100-1600°C. When the organic portion of coal is burned, volatile compounds are formed as smoke and steam, and the non-burning mineral matter of the fuel comes out as solid ash residue, forming dusty mass (ash) and lump slag. The amount of solid residues for stone and brown coal varies from 15 to 40% of the initial mass of coal. Before firing coal is crushed and they often add a small (0.1-2%) amount of fuel oil in it.

During firing of crushed fuel, small and light ash particles are usually carried away by flue gases called fly ash. The particle size of fly ash varies from 3-5 to 100-150 µm. The number of larger particles usually does not exceed 10-15%. The fly ash is captured by ash collectors.

The heavier ash particles are deposited on small heating stoves and fuse into lump slags, which are aggregated and fused ash particles with a size of 0.15 to 30 mm. Slag is crushed and removed with water. First fly ash and crushed slag are removed separately, then they are mixed to form ash and slag mixture. In the ash and slag mixture, except ash and slag, there are always particles of unburned fuel, the amount of which is 10-25%. The amount of fly ash, depending on the type of boilers, fuel and the mode of its firing, can be 70-85% of the mixture mass, 10-20% of slag. The ash and slag sludge is removed to the ash-disposal area. The color of the ash is dark grey; it's layered in section, due to the alternation of unevengrained layering and precipitation of white foam consisting of aluminosilicate hollow microspheres. As an example, the table below shows the average chemical composition of ASH of TPS using coals of the Kuznetsk basin.

Table 2. The main elements that form ASH of TSP using coals of the Kuznetsk basin (Russia)

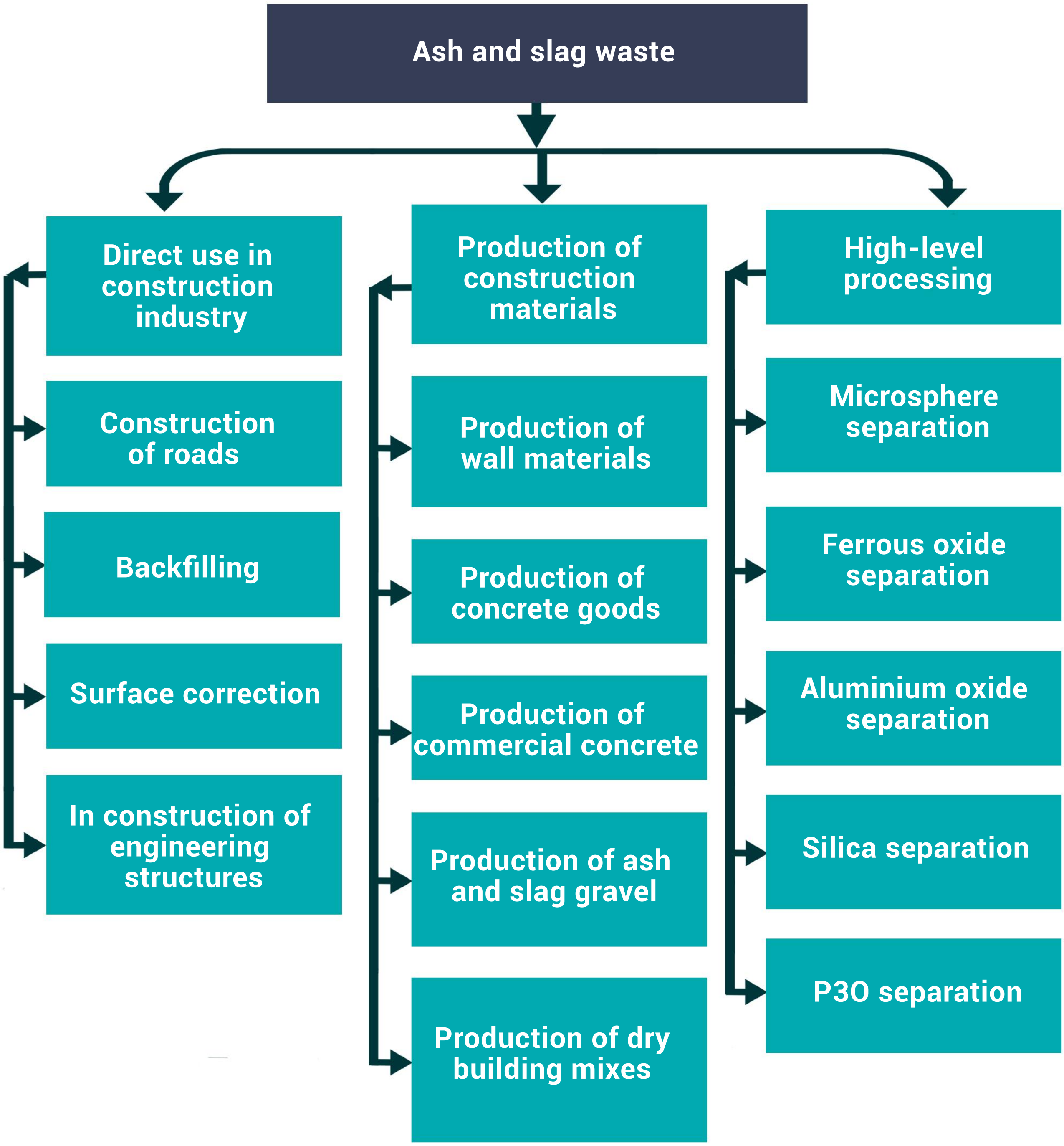
Component	Average grade %		Component	Average grade %	
	From - to	Average		From - to	Average
SiO_2	51-60	54,5	CaO	3,0-7,3	4,3
TiO_2	0,5-0,9	0,75	Na2O	0,2-0,6	0,34
Al_2O_3	16-22	19,4	K2O	0,7-2,2	1,56
Fe_2O_3	5-8	6,6	SO3	0,09-0,2	0,14
MnO	0,1-0,3	0,14	P2 O5	0,1-0,4	0,24
MgO	1,1-2,1	1,64			

The ashes of TPS using stone coal, in comparison with the ashes of TPS using brown coal, differ in the high content of SO3 and the reduced content of silicon, titanium, iron, magnesium and sodium oxide. As for slags, we can speak about increased content of silicon, iron, magnesium, sodium oxides and reduced sulfur and phosphorus oxides.

Among useful impurities there are potassium, titanium and barium which are the main in terms of the content, and gold and ytterbium in terms of the cost. However, in the absence of gold and ytterbium separation technologies, as well as due to the low content of these chemical elements (for example, there are only 0.05- 2 grams of gold per ton of ASH), extraction of these elements is considered to be inadvisable.

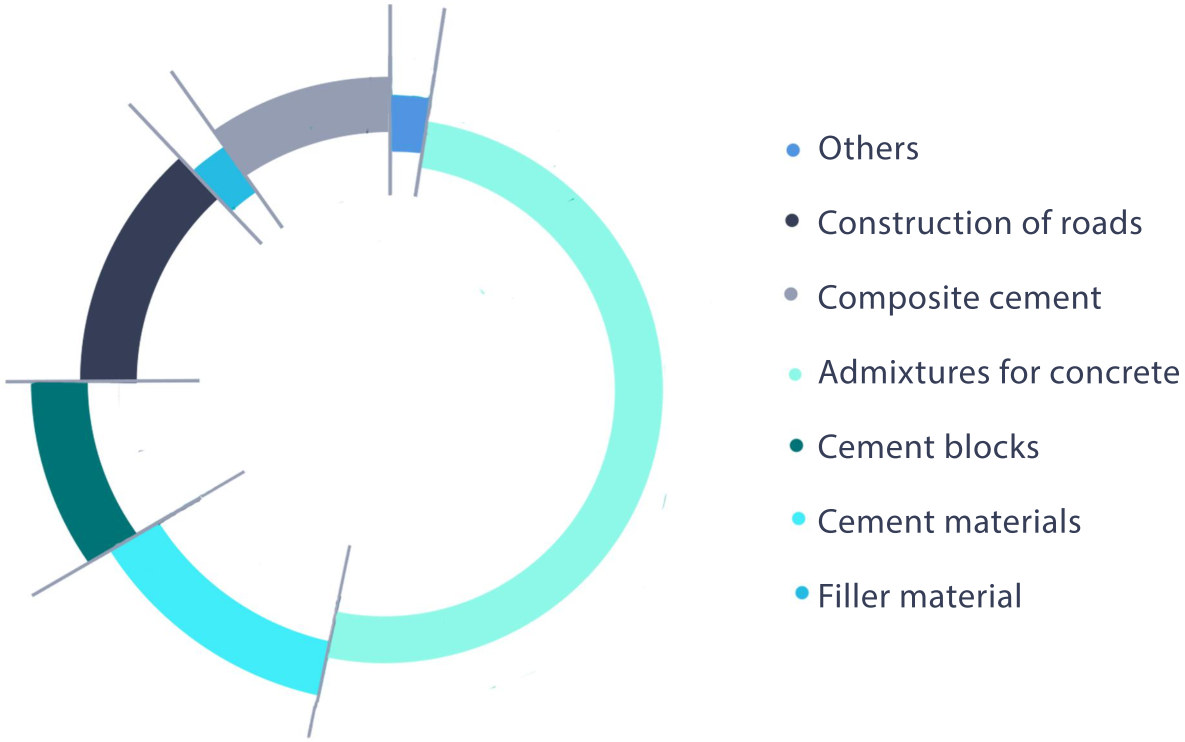
The main areas of using ASW are presented in the following figure:

Figure 3. The main areas of using ASH



The methods presented in the first two columns are now widely used, which almost led to a universal reduced demand for the products of the relevant industries, which makes the access to these markets unprofitable for new manufactures.

Figure 4. Structure ASH use in Europe.



High-level processing of ASH has a great potential due to the low demand for the products of ASH refinery products. And if the demand for silica is now balanced, the demand for microspheres and alumina (aluminum oxide) is quite high to increase the processing of ASH for their separation.

Pyrite cinders are wastes that appear when iron (FeS_2) and copper pyrites are processed into sulfuric acid. In the business plan, only pyrite cinders are considered as waste from the production of sulfuric acid from iron pyrites

Pyrite cinders mainly consist of iron and have the following chemical composition: Fe_2O_3 56-77%, SiO_2 9-22%, Al_2O_3 1-18%, CaO 0.8-5%, MgO 0.1-0.2%, besides they contain copper, zinc, lead, sulfur, precious metals (including approximately 2 grams of gold and nearly 10 grams of silver per ton of cinder), arsenic, selenium. When roasting the pyrite concentrate of cinder, about 70% of the pyrite mass is formed.

Now pyritic cinders are widely used in industry and agriculture.
Traditionally pyrite cinders are used as raw materials in iron industry.

Despite the value of pyritic cinders as a metallurgical raw material, its use in metal industry is limited by three factors: the first is the presence of a significant amount of residual sulfur. Sulfur is harmful from many points of view: at a high content it dramatically increases the oxygen consumption on its oxidation during smelting of cast iron to steel, and at small – it binds alloying components in the processes of obtaining special steel grades. But even with very low residual concentrations in cast iron, sulfur dramatically worsens the quality of the steel produced, giving it shortness and reducing corrosion resistance.

The second factor that does not allow directing pyritic cinders to metallurgical extraction (even for obtaining less responsible and cheap grades of steel or cast iron), is that in sludge, in addition to incompletely roasted pyrites, there are sulphides of other heavy metals, chalcosine $Cu2S$, covelline CuS, wurtzite ZnS, chalcopyrite $CuFeS2$, arsenic pyrite $FeAsS2$, as well as their isomorphous series in which sulfur is replaced by the atoms of selenium Se and tellurium Te. Besides, there are small amounts of Ni, Co, Ag, Au and Pt sulfides in the cinder composition.

The third limitation of the use of pyrite cinders as a raw material in iron industry is unsatisfactory granulometric composition (the grade is less than 1.5-2.0 mm with the fraction content of less than 0.07 mm 50-60%), because of which pyrite cinders cannot be directly used in blast furnace smelting and require preliminary preparation, on the technology of which depends the amount of pyrite cinders used in the composition of burden components.

The above mentioned limitations led to the rapid development of technologies for the separation of non-ferrous metal from pyrite cinders in the middle of the last century.

Traditionally, more environmentally friendly hydrochemical processing of pyrite cinders is used, which consists in the transfer of valuable compounds contained in the cinder to the solution. The transfer can be carried out by processing crushed materials with acids, but this is unprofitable, and it is difficult in the absence of oxidants necessary for the oxidation of incompletely roasted sulfides. The use of autoclaves makes it possible to use oxygen as an oxidant. As a result, all the valuable components of the cinder are transferred to the solution from which they are extracted: copper - by iron cementation, zinc, nickel, cobalt, cadmium - by electrolysis (sludge containing silver, gold and platinum is processed by one of the methods described above), iron (II) – by anodic oxidation to Fe3 + and ferric hydroxide precipitation from the solution with alkali.

The technologies for pyrite cinders processing, although being self-sustainable, offer only a partial solution to the problem of their use with obtaining low-quality concentrates, low extraction of valuable components and the formation of new, conditionally dump waste products-tail ends.

In addition, pyrite cinders have been developed and widely used in the cement industry for the production of high ferriferous cement (obtained from pyrite cinders mixed with chalk in a ratio of 4:6).

Pyrite cinders are usually used as additives in the processing of expanded clay (the sulfide gas formed during the decomposition of pyrite inflates an argillous raw material).

Pyrite cinders are also used in the production of wall ceramic materials to reduce the firing temperature, improve the quality and color characteristics of ceramic products.

Another traditional method of using pyrite cinders is the production of iron oxide pigment by fine grinding and roasting. Finally, pyrite cinders are considered to be a valuable fertilizer in agriculture. Pyrite cinders are added to the soil every 5 to 6 years in the amount of 5-6 hundred kilograms per hectare for plant nutrition.

Today hundreds of companies are looking for various options of high-level ASW processing. The efficiency of extracting chemicals and compounds contained in such wastes is steadily improving.

PROJECT BUSINESS IDEA

The project involves the commercialization of the project initiators' technological know-how in terms of processing of ASH and pyrite cinders by building a special plant for high-level processing of up to 250 thousand tons of ASH and 250 thousand tons of pyrite cinders per year.

As a result of the project, it is planned to produce the following products:

- Ferrous oxide
- Silicon oxide
- Aluminium oxide
- Gold
- Silver

The complex will meet modern demands of environmental and technological supervision.

The main advantage of the project is the use of unique invisible assets belonging to the initiators of the project, including

- Know-how (unique technologies) to extract certain products from ash and slag waste and pyrite cinders;
- Database of chemical composition of ash and pyrite cinders;
- Databases of equipment for use in the process of utilization of ASW and pyrite cinders.
- Knowledge (unique technologies) of composition of special sorbents to extract useful elements from ASH and pyrite cinders.

The specific localization of the project will be chosen later. The project initiators considered various localization options that demonstrated the high efficiency of the project due to the additional use of competitive advantages of concrete locations. However, in this business plan the Initiator refused to specify a certain location, demonstrating that even in conditions when the project does not use the competitive advantages of specific locations (cheap resources in a specific location, low taxes, etc.), and relies on average or mean prices for resources and finished products, and in the context of averaged taxation schemes, the project remains highly efficient. In these conditions, the final localization of the project will prove to be more effective in any case than it is indicated in this business plan.

ORGANIZATIONAL AND FINANCIAL SCHEME OF THE PROJECT IMPLEMENTATION

The organizational and financial scheme the project implementation is presented in the following diagram.

The project involves raising funds from private investors via an ICO. Investors' funds are sourced for a certain period of time. In this case, at the time of purchase an investor can choose one of two options for tokens calculation:

- At the end of the second year from the project implementation, an investor transfers tokens to the project company and receives a lump payment guaranteeing the receipt of income at 100% per annum, regardless of the results of the project.
- During the first five years of the project implementation, investors collect dividends in the amount of 40% of the net profit received by the project company, and at the end of the sixth year (that is, after the investor received dividends for 5 years), the tokens are bought back by the project company at par value.

The first option guarantees investors a high profitability with minimal risks.

• The second option provides profitability lower than the first, if we calculate an investor's income in accordance with the business plan. Nevertheless, the business plan is conservative, and if the project specific location is significantly better than the average for the present business plan, investors can much higher returns. However, at the same time they spread all the risks with the project company. The project initiators, in turn, contribute licenses of their intangible assets to the project's capital. The funds collected by a specially created project company are directed to the construction of the complex in accordance with this business plan. The project company carries out further project management.

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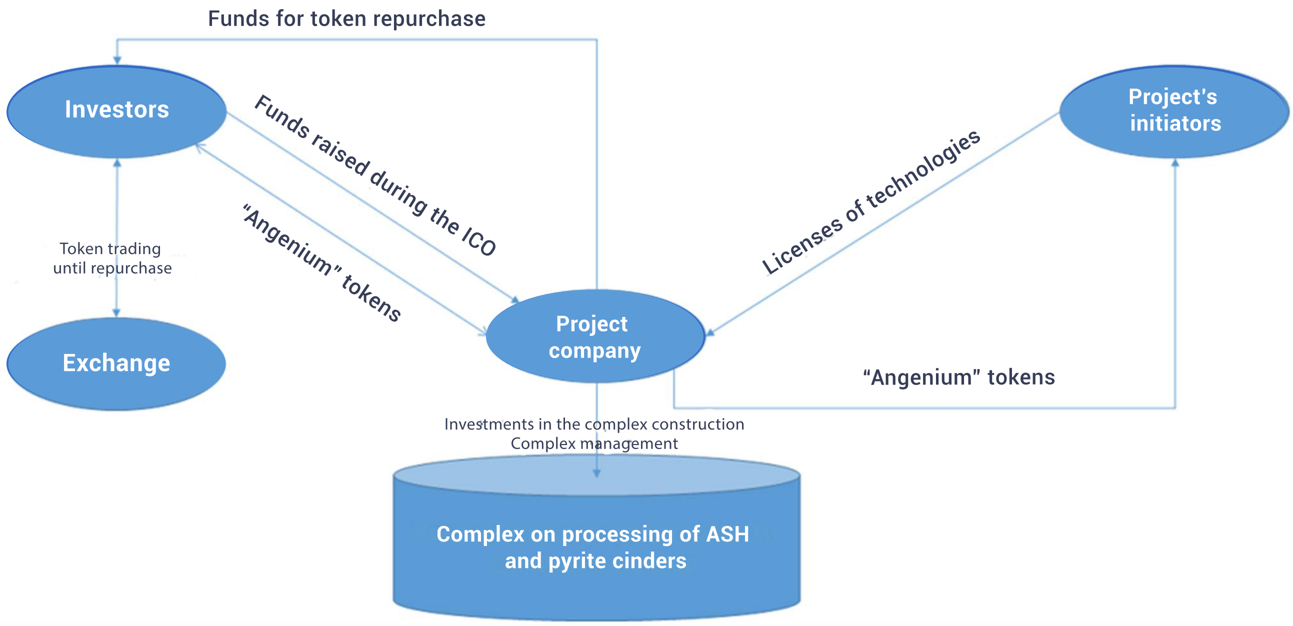
Investors can trade the project tokens on the exchange until the token repurchase. The high economic efficiency of the project guarantees the growth of the value of the project token in US dollars in comparison to the par value.

Figure 5. Organizational and financial scheme for the project implementation



Emission volume for the ICO

FINANCIAL PLAN

Planning horizon

The planning horizon is chosen based on the following factors :

- The payback period of the project, as well as its discounted payback period, shall be within the limits of the planning horizon.

- When analyzing the project's sensitivity, the payback period of the project will not exceed the planning horizon, with minor indicators deviations (up to 5%).

Based on the above factors, the planning horizon is set for 9 years from the beginning of the Pre-ICO.

The planning horizon is divided into 4 phases:

1. Pre-ICO: in this phase, pre-sale of tokens is conducted in order to assess the potenti al of the project. The collected funds are partially directed to the promotion of the project, and are partially accumulated to carry out the activities of the business plan. The duration of the phase is 1 month.

2. ICO: This phase is the public sale of the project tokens. The collected funds will be invested in accordance with this business plan. The duration of the phase is 2 months.

3. Investment phase: this phase is the main investment in the construction of the plant. The duration of the phase is equal to the term of the plant construction, that is, 11 months.

4. Operational phase: only current activities are carried out in this phase. The phase is subdivided into intervals. The duration of the first interval of this phase is 6 months in order to demonstrate the return on investments for this period. The duration of the second phase interval is 4 months, this phase accounts for the discounted payback period. Besides, during the second interval of the operational phase, repurchase of tokens is required in case an investor choose the lump payment option. Each subsequent interval will take 12 months.

Investments

Investments in the project consist of the following main areas:

- Promotion of the project
- Building construction
- Acquisition of equipment
- Installation of equipment
- Site improvement
- Invisible assets
- Land lease for the period of construction
- Unexpected investments

Investments in the promotion of the project are connected with the organization and conduction of an ICO. These expenses include the costs for developing the necessary documents for the ICO, creating the ICO project site, preparing and conducting an advertising campaign for the project. The volume of costs for this investment item is based on the experience of conducting a successful ICO, analyzed by the developers of this business plan.

Investments in building construction are disclosed as follows:

- To install the equipment for pyritic cinders processing, it is necessary to construct a building with a total area of 6 thousand square meters.

- To install the equipment for ASH processing, it is necessary to construct a building with a total area of 6 thousand square meters.

Expenditures for the buildings construction were taken on the basis of worldwide mean expenses for the construction of prefabricated industrial buildings (up to $400 per square meter).

Costs to buy equipment were determined based on the project initiator's knowledge of the necessary equipment configuration. The used equipment configuration is provided below.

Equipment for pyrite cinders processing

- Planetary mill "TowerMill" by Thyssen-Krupp - 2 pcs. x 5 million EUR
  http://www.tkisrus.com

- Filter press by Andritz - 8 pcs. x 1 million EUR
  https://www.andritz.com/separation-en

- Hydrochloric Acid Regeneration Systems by Andritz - 2 pcs. x 4 million EUR https://www.andritz.com/group-en

- Evaporators by Walger - 6 pcs. x 0,6 million EUR http://www.walger-group.ru/vakuumniy-viparivatel.php

- Process piping (10% of the cost of the basic equipment):
- Hydraulic impact resonance blending station - 2 pcs.
- Dosing system - 1 pc
- Bin for initial cinder - 1 pc
- Reaction agitation tank - 2 pcs.
- Reaction vessel with agitator (for BRM) - 1 pc.
- Muffle furnace - 1 pc.
- Storage silo for ground cinder - 1 pc.
- Storage tanks for chemical solutions - 1 pc.
- Solutions transfer pumps - 10 pcs.
- Steam generator - 2 pcs.
- Discharge blower, transfer conveyors, containerization and decontainerization, fittings, instrumentation and so on

Equipment for ASH processing

- Planetary mill “TowerMill” by Thyssen-Krupp - 2 pcs. x 5 million EUR http://www.tkisrus.com
- Filter press by Andritz - 8 pcs. x 1 millioneur https://www.andritz.com/separation-en
- Nickel plated refractory-lined tank (stirred-tank reactor of 15 cubic meters each) 4 pcs. x 0,5 million EUR http://www.ipecengg.com
- Evaporators by Walger - 30 pcs. x 0,6 million EUR http://www.walger-group.ru/vakuumniy-viparivatel.php
- Process piping (10% of the cost of the basic equipment):

- Polyethylene containers - 2 pcs.
- High-pressure fan - 2 pcs.
- Drum-type dryer, including automatic equipment - 2 pcs.
- Blowpipe - 2 pcs.
- Freezer - 1 pc.
- Fluid pump - 10 pcs.
- Ammonia absorber (components for manufacturing - Venturi tube, refrigerator, etc.) - 4 pcs.
- Filling equipment - 1 pc.
- Additional equipment: a big strongbox, conveying belts (or feed screws), electrical equipment, automatic equipment, ventilation equipment, conveyors and so on)

The specific equipment configuration refers to the project initiator’s know-how.

The total cost of the purchased equipment will be $74 million.

The equipment installation costs are taken at the level of 2% of the equipment price.

Expenditures for the site improvement include the costs of building in-site roads and sites, drains, arrangement of green spaces. The expenses are calculated as 7% of the cost of building.

Investments in invisible assets represent the costs of R&D carried out to localize the project. This cost item is insignificant in comparison to other investments, it requires about $1000, but the newly created invisible assets will improve the quality of the project's invisible assets.

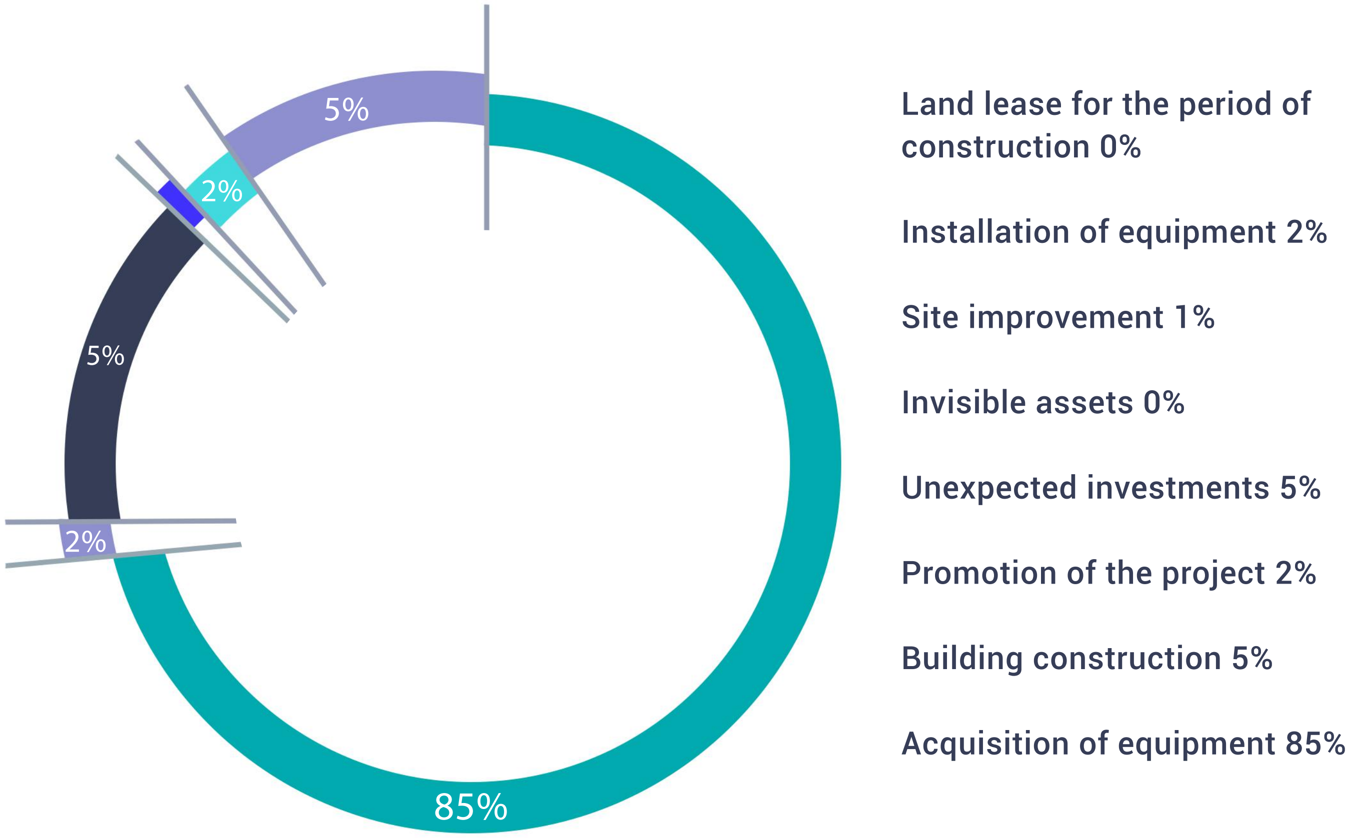
Land lease for the period of construction. This item is presented in the list of investment expenses, as during the construction period the project does not make any profit. According to legislation of many countries, these expenses can be capitalized and included in the cost of buildings and structures. Subsequently, the lease of a land plot will be considered as an item of operating costs.

Unexpected investments are the reserve allocated in the business plan for covering unforeseen expenses during the investment period. This indicator is traditionally regulated. In the basic version of the business plan, unexpected investments account for 5% of all other investment expenditures.

Thus, the project investment will be 86 million dollars.

The expense structure is presented in the following diagram.

Figure 6. The project investment costs structure



The dynamics of investment costs by the intervals of the account period is given in Table 9 in Appendix 1.

The project income base

Production program.

The project involves the processing of 250 thousand tons of ASH and 250 thousand tons of pyrite cinders.

In accordance with the business plan the yield of finished products is based on the project initiator's knowledge of the composition of ASH and pyritic cinders.

Prices for finished products are taken as follows:

Gold and silver is at the closing rate of the LME on the date of preparation of the business plan.

Silicon dioxide is at the lowest cost for the last 6 months in the world market (http://www.infogeo.ru/metalls/worldprice/?vid=31).

Aluminum oxide is at the average world price of 2017, taken from the annual report of RUSAL for 2017.

Ferrous oxide is at the price in accordance with the project initiator. The concept of the "world price" for this type of product is hardly suitable for use, as there is a wide range of use of this product with different requirements for its quality. The choice of a specific option depends on the project localization and the availability of demand from various industries for this product in the localization region. In this business plan, the supply of ferrous oxide as fine, high-purity (99.9%) powder, pigment, is considered at the price between $600 and $1,300 per ton.

Table 3. The prices of the finished products used in the project (pretax)

Finished products	World price	Project selling price
Gold	$40-42/gram	$38,75/gram
Silver	$0,50-0,52/gram	$0,49/gram
Silicon dioxide	$1760-2300/ton	$1760/ton
Aluminum oxide	$445-500/ton	$445/ton
Ferrous oxide	$70 -1000/ton	$1000/ton

It is expected that the project will immediately reach the design capacity and in the first year after construction it will process the volume of 250 thousand tons of pyrite cinders and 250 thousand tons of ASH.

In addition to returns from the production program implementation, the business plan introduces the concept of other returns.

Formally, the plant can act, among other things, as a supplier of thermal energy, and also has the opportunity to sell by-products of processing not specified in this business plan, for example, the production of silicon, raw materials for growing synthetic sapphires, etc. However, the amount of income in accordance with this item depends heavily on the project localization. In the business plan this income item is regulated. The rate of other returns is set at 5% of the returns from the production program.

The dynamics of the income base is presented in Table 7 in Appendix 1.

Operating costs

Variable and fixed costs are allocated in the structure of costs.

Variable costs consist of the cost of raw materials and wages of the plant personnel (general and indirect) with accruals.

The cost of raw materials is calculated over the entire range of raw materials used. The volume of raw material costs with natural values per ton of processed waste is taken from business plans.

The price of raw materials is taken from the following sources:

- Ammonium fluoride - according to the Initiator
- Ammonia - according to the Initiator
- Sorbent for ASH - according to the Initiator.
- Water - according to the median data on the cost of water in the world http://www.vrx.ru/treasury/347.html
- Electricity - according to the average world price for electricity (10 cents per 1 kWh)
- Natural gas - according to the average gas price in Europe (12 cents per 1 kWh)
- Hydrochloric acid - according to the Initiator
- Cooking salt - according to the Initiator
- Sorbent for pyrite cinders - according to the Initiator
- Filter paper - according to the Initiator

The use of average world prices allows, within the framework of the business plan, to abandon the geographical location of the new production. At the same time, the use of average prices does not allow showing the advantages of specific locations within the business plan.

Data of the project initiator are taken only for those resources whose proportion in the production cost is insignificant.

Nevertheless, if the project is effective when using average prices, in the case of point localization, when it is possible to take advantage of the specific location, the project's efficiency will most likely be substantially higher than in the business plan.

The number of the general and indirect plant staff was taken according to the initiator's data.

The average salary of staff, as well as labour charges is taken according to the project initiator. These costs are significantly lower than in the USA or the leading economies of Western Europe, and correspond to the current level of wages in Europe and China and seem overstated for the Third World countries. The same remark applies to the salary of administrative, management and commercial personnel described below.

Fixed costs consist of general production costs, repair, and land lease costs.

Overall production costs consist of salary of administrative and management personnel with charges, marketing charges, commissions of refineries, transportation costs.

The number of administrative and management personnel were provided by the project initiator.

Marketing charges were taken as 2% of the income base.

Commission of refineries is taken as 2% of the sales proceeds of precious metals.

Transportation costs were calculated as 8% of the cost for purchasing transported raw materials and materials.

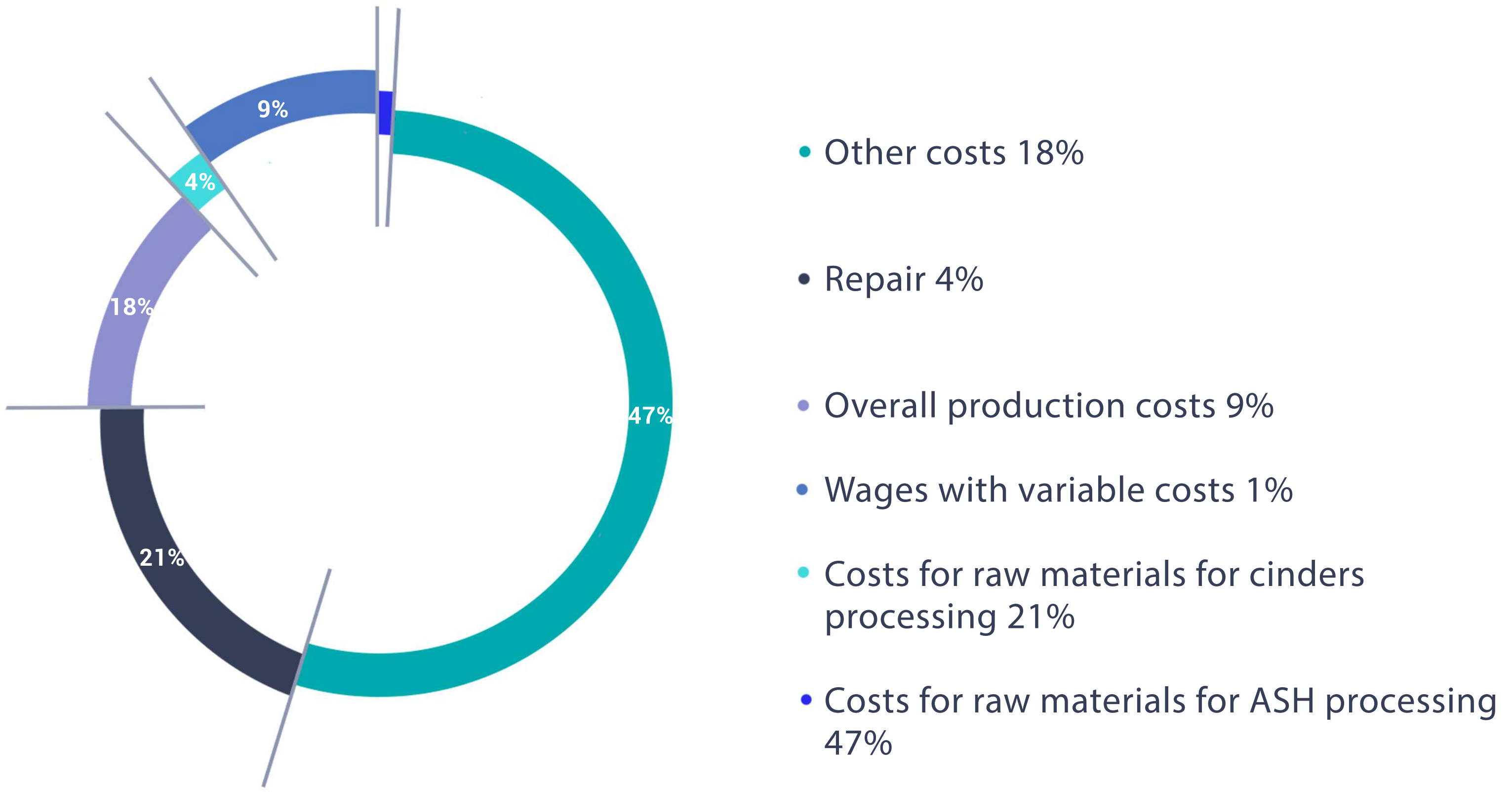
The repair costs (maintenance and repair costs) were taken at the depreciation cost level.

The lease of a land plot depends on the project localization. Since production is not expected to be located in city centers, where lease rates are usually high, the level of rental rates will have little impact on the total production cost. Nevertheless, these costs are included in the business plan in the amount of 20 thousand dollars per year.

Unexpected operating costs are taken as 5% of all operating costs.

The structure of net operating costs is shown in the following diagram.

Figure 7. Structure of net operating project costs



Amortization is calculated on the basis of data on the purchased equipment configuration. The useful service of equipment, as well as buildings and structures, should be taken on the basis of the project initiator's assumptions (but it can't be less than the useful service of the equipment specified by the manufacturers). Accelerated amortization was not used.

The calculation of operating costs is shown in Table 8 in the Appendix.

Income

Table 10 in the appendix shows the income of the project company.

The difference between incomes of the management company and its net operating costs forms the EBITDA of the project.

The project gross profit is calculated as EBIDA net of amortization, credit interests and taxes (excluding income tax).

Taking into account that the project does not involve borrowing, credit interest is zero during the entire projection horizon.

Taxes that are not attributable to prime cost are traditionally a property tax and a land tax.

Since it is not supposed to acquire ownership over a plot of land, the land tax won't be paid.

The property tax is taken at the rate of 2.2%, set by the jurisdiction of the Russian Federation, as the average rate for the jurisdictions considered by the project initiator to localize the project.

The income tax is calculated at the rate of 20% set by the jurisdiction of the Russian Federation as the average rate for the jurisdictions considered by the project initiator to localize the project.

Cash flows

Table 11 in the appendix shows the project cash flow calculation of the company if the Hard Cap is collected during the ICO.

The project cash flows are divided into

- Cash flows from operations (in the inflows - the company's income, and in outflows - net operating costs and taxes)
- Cash flows from investment (in outflows - investments and long-term financial investments).
- Cash flows from financing (in inflows - raising funds within the ICO, and in outflows - dividends to the token holders).

The total cash flows over periods show growth or increase in the company's active balance.

The project is implemented if the active balance (that is, the accumulated cash flow of the project) is positive at any time, that is, there is no cash deficiency under the project, the sources of repayment of which are not established when planning the project.

Besides, the tables calculate net cash flow, that is, the cash flow without taking into account the flows from financial activities.

The net cash flow shows the effectiveness of the project outside the source of funding. The dynamics of the accumulated net cash flow is the project financial profile.

The minimum value of the accumulated net cash flow is called "Maximum negative cash". This indicator shows the minimum necessary amount of financial resources for the project implementation.

Moreover, these tables provide a calculation of the net discounted cash flow (that is, the project cash flow calculated from the initial moment).

To bring different cash flows to the same point in time, such an indicator as the "discount rate" is used.

The discount rate is the capital cost expected by the investor, that is, the rate of expected return, at which the owner of the capital agrees to invest. Returns on deposits or other securities, inflation and other similar financial indicators are only indirect data, on the basis of which it is possible to make a decision on the return on investment acceptable to the investor. There are several ways to calculate the discount rate, for example, a cumulative and weighted methods to calculate discount rates. Traditionally, the CAPM model is used to calculate the discount rate, which determines the discount rate taking into account the level of investment risks.

Alternatively, the discount rate is defined as the guaranteed investment yield available to a potential investor.

The project is not localized, and therefore the use of the CAPM model is limited due to the inability to use the country risk correction. Nevertheless, the calculation of the discount rate according to the CAPM model will be given below.

To estimate the equity value in accordance with the CAMP (Capital Asset Pricing Model), the discount rate is calculated as follows:

$$R_e = R_f + \beta \times (R_m - R_f) + S_1 + S_2 + S_3$$

where: R_e - expected return by an investor (equity value);

R_f - risk-free rate;

β - Beta coefficient;

$R_m - R_f$ - market equity risk premium;

S_1 - country risk premium;

S_2 - small stock premium;

S_3 - specific risk premium

Next, we will consider the procedure for calculating each element of the discount rate separately.

Risk-free rate

Risk-free investment means that an investor, regardless of economic, political, social and other changes in the country, will get a return on investment that they expected at the time of investment. These investments include investments in government debt instrument. Generally, the rate of return on long-term government bonds of a country with a high investment rating with a repayment period equal to the company's life is used as a risk-free rate.

For the purposes of this business plan, the risk-free rate is US Treasury yields with a 20-year repayment period for April 2018, which according to Economagic is 2.96%.

Market equity risk premium

Risk-free investment means that an investor, regardless of economic, political, social and other changes in the country, will get a return on investment that they expected at the time of investment. These investments include investments in government debt instrument. Generally, the rate of return on long-term government bonds of a country with a high investment rating with a repayment period equal to the company's life is used as a risk-free rate.

For the purposes of this business plan, the risk-free rate is US Treasury yields with a 20-year repayment period for April 2018, which according to Economagic is 2.96%.

Beta coefficient

In the CAPM model, risks are divided into two categories: systematic risks and unsystematic risks. Systematic risks are the risk associated with changing situations in stock markets as a whole due to changes in such macroeconomic and political factors as interest rates, inflation, changes in public policy, and so on. These factors directly affect all companies, as they have impact on the economic and market conditions in which all enterprises act.

Systematic risks are taken into account in the CAPM model using the beta coefficient. The beta coefficient reflects the amplitude of price fluctuations for shares of a particular company (industry) in comparison to the price change of shares for all companies in the stock market

So a company with a beta of more than one is more risky than an "average" company, while a beta of less than one shows a less volatility in the price and therefore a lower risk than in the market as a whole.

Unsystematic risks are associated with individual financial and operational characteristics of a particular enterprise. An unsystematic risk can be divided into two types:

- business risk connected with the ability of an enterprise to reach the expected level of profit due to uncertainty of such factors as income and costs, competition, management level, etc.

- financial risk connected with the financial business structure (such indicators as, for example, liquidity, the amount of debt and fixed liabilities).

The need to calculate and use the beta coefficient is based on the fact that the shares of different companies have unequal sensitivity to macroeconomic factors. A lower sensitivity to systematic risk implies a lower market premium. As a rule, the beta coefficient is calculated on the basis of the retrospective information from the stock market over the past 5-10 years. At the same time, it is expected that the beta value will remain at this level in the future horizon period.

The value of this indicator was used as the beta coefficient for the "Chemical (Specialty)" sector, calculated by the New York University's Stern School of Business (Damodaran on-line) using the most complete database of US companies of Value Line over a five-year period. The weighted-average value of the unlevered beta for companies in the "Chemical (Specialty)" sector was (rounded) 3.43.

The value of the levered beta for the companies of the "Chemical (Specialty)" sector is 4.03.

Country risk premium

To calculate the country risk premium, the estinator used the average country risk premium determined on the basis of the Aswath Damodaran methodology. As of May 2018, it was 3.57%.

Small stock premium

The need to introduce this amendment is due to the fact that when investing in small companies, investors require greater compensation for risk than when investing in large companies. It has to do, specifically, with the advantages that a large company has: relatively easier access to financial markets when it is necessary to generate additional resources, as well as greater business stability in comparison to small competitors. Relatively small companies have more erratic development than their large industry competitors. Accordingly, investors require an additional return rate to cover the specific risk arising from the small size of the company.

The premium index for the risk of investing in a company with a particular capitalization is calculated as the difference between the average historical return on investments in the US stock market and the average historical return on investment in the business of such companies. Size risk premium: the results of numerous studies indicate that in smaller companies the return rate is higher than that of larger companies. According to the results of studies in this sphere conducted by Ibbotson, the premium value for a cluster of companies with an ultra-minimal capitalization is 5.78%.

Specific risk premium

The specific risk premium reflects additional risks connected with investments that were not taken into account in the beta coefficient, country risk premium and company size. This premium is determined by experts on the basis of the identification and analysis of possible specific features of the activity, which may have a negative impact in the future, and can range from 0% to 5%.

In this case, the specific risk is the attraction of financial resources within the ICO. The high volatility of cryptocurrencies poses additional specific risks for the project. In this regard, it was decided to set a specific risk rate at 5%.

Conclusions

The table below shows the calculation of the equity value with the sources used in the assessment process of the model parameters (see table below).

Table 4. Assessment of the equity value (expressed in US dollars)

Parameter name	Parameter value	Source
Risk-free rate	2,96%	20-year Treasury Constant Maturity dated 01.5.2018, http://www.economagic.com/em-cgi/data.exe/fedbog/tcm20y
Market equity risk premium	5,69%	http://pages.stern.nyu.edu/~adamodar/
Beta coefficient	4,03	Damodaran Online, Industry Group «Chemical (Specialty)», http://pages.stern.nyu.edu/~adamodar/
Country risk premium	3,57%	Damodaran Online,Country Risk Premium, http://pages.stern.nyu.edu/~adamodar/
Small stock premium	5,78%	Ibbotson Associates Inc. 2015
Specific risk premium	5,00%	Analysis of specific risks
Equity value	28,31%	

Depending on the geographical location, the discount rate can be both much higher (for example, if the project is localized in Ukraine, the discount rate will grow by 8% due to the fact that the country risk level is 10.38%), and lower (for example, in Russia with the country risk level of 2.88%, it will be almost 0.8% lower). It is possible to significantly reduce the country risk level if the project is localized in China or Western Europe, as well as in North America and Australia, where the country risk level is usually below 1%. However, in general, the discount rate in US dollars cannot be below the level of 25% for this project.

In view of the above, the discount rate of 28.31% was used for the purposes calculations.

The amount of net discounted cash flows for the life of the project is called its net present value.

The following project performance indicators are also calculated in these tables:

- The payback period of the project is the point of time from which the accumulated net cash flow becomes and remains positive.
- Discounted payback period is the point of time from which the accumulated net discounted cash flow becomes and remains positive.
- Internal rate of return (IRR) is the discount rate at which the net present value of the project becomes zero.

Project efficiency

The main criteria for the project effectiveness are presented in the table below.

Table 5. The main project performance indicators

Indicators	Unit of measure	Value
Payback time	years	1 year 8 month
Maximum negative cash flow	thousand USD	$87 233
Current net value of the project	thousand USD	$831 101
IRR	% per annum	733%

Planned internal rate of return is 733% per annum. Current net value of the project is over 831 million dollars with the discount rate of 28, 33%.

Initial investments pay off within 6 months after the completion of the plant construction.

Obviously, the choice of a certain localization of the plant will lead to an increase in the project efficiency due to the emergence of opportunities to use competitive natural advantages (cheaper raw materials, proximity to consumers, cheap energy, low wages, etc.).

SENSITIVITY ANALYSIS

Income base sensitivity

In order to confirm the project risk tolerance, a sensitivity analysis of its main indicators was performed.

The main project risk is the risk of changes in its income base. It was analyzed how the main indicators of the project will change if its finished products cannot be sold at the prices set in the business plan.

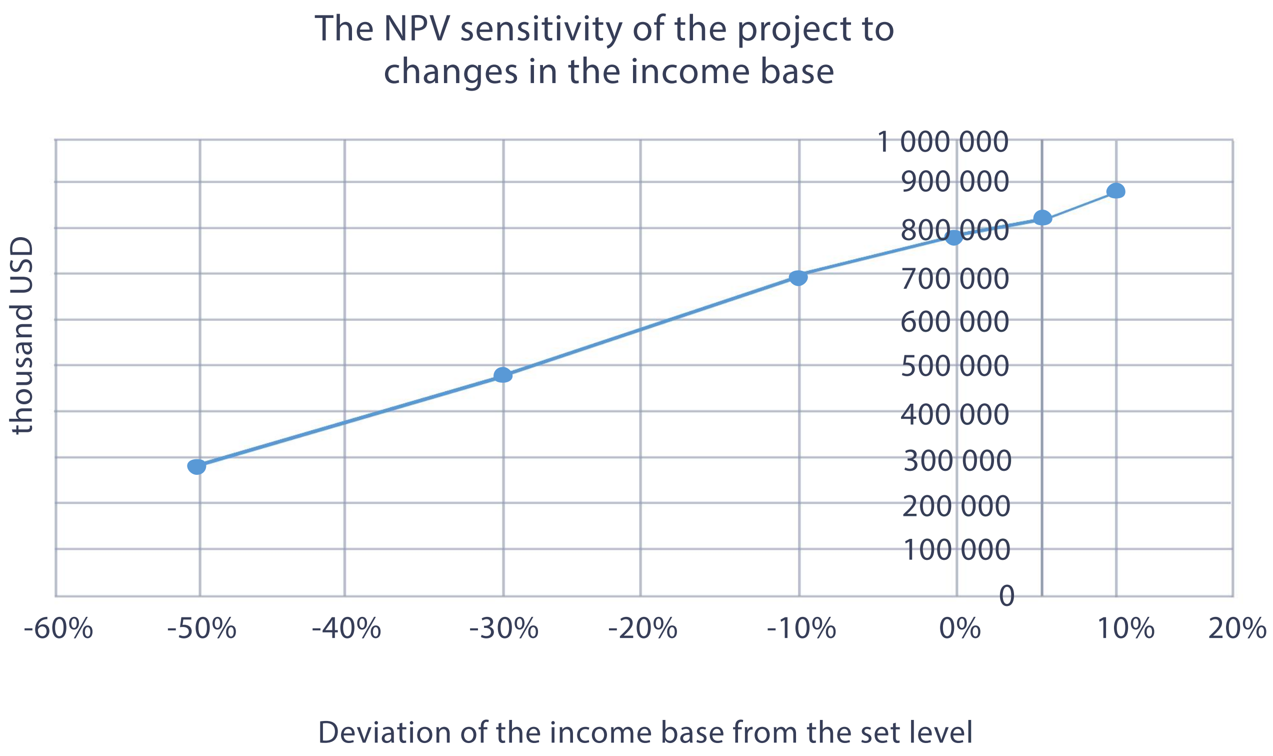
To analyze the project sensitivity, the developer of this business plan changed the value of the "Share of Other Project Incomes" indicator, the value of which is rigidly linked to the main items of the income base within a wide range from -50% to + 10%. In the baseline projection, this share is set at 5%. If the indicator value is set at -50%, it means that no other project income will be received and all prices for finished products will be half that of the business plan.

Table 6. Income base sensitivity of the project

Share of other incomes	-50%	-30%	-10%	0%	5%	10%
Payback period	2	1,67	1,67	1,67	1,67	1,67
Maximum negative cash flow	87 233	87 233	87 233	87 233	87 233	87 233
Discounted payback period	2	1,67	1,67	1,67	1,67	1,67
Current net value of the project	275 987	477 846	679 706	780 636	831 101	881 565
IRR	212%	388%	596%	709%	768%	827%

The project demonstrates a high level of resistance to the risks of reducing the income base. Even with a decrease in the cost of finished goods by 2 times in comparison to the level set in the business plan, the payback period will not exceed 2 years and the internal rate of return will not be below 200% per annum.

Figure 8. The NPV sensitivity of the project to changes in the income base



Operating costs sensitivity

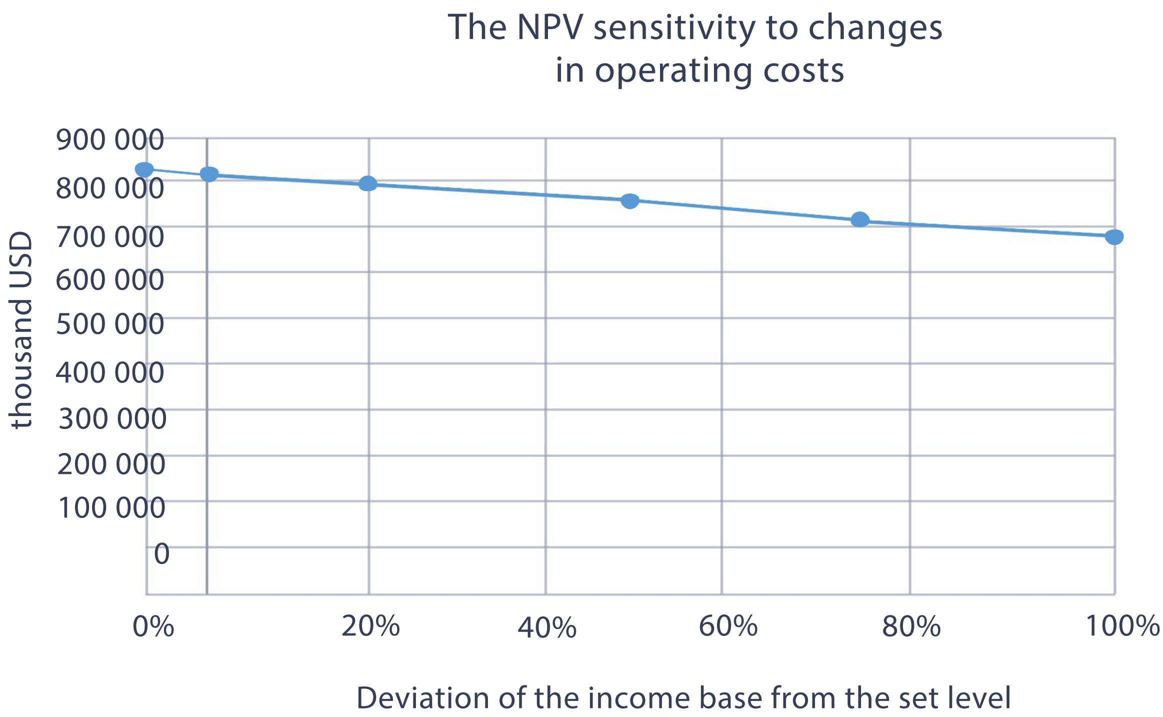
An important factor that can have impact on the project efficiency is the level of operating costs.

To estimate the sensitivity, the developer of the business plan analyzed changes in the project performance indicators when changing such an indicator as the "Rate of unexpected operating costs". In the business plan, the value of this indicator is 5%. We will vary it in a wide range from 0% to 100% and follow the performance indicators.

Unexpected operating costs	0%	5%	20%	50%	75%	100%
Payback period	1,67	1,67	1,67	1,67	1,67	1,67
Maximum negative cash flow	87 233	87 233	87 233	87 233	87 233	87 233
Discounted payback period	1,67	1,67	1,67	1,67	1,67	1,67
Current net value of the project	839 851	831 101	804 850	752 347	708 596	664 844
IRR	778%	768%	736%	675%	624%	575%

The project demonstrates high resistance to the operating costs level. The payback period will not change even if the operating costs are twice as high as those set in the business plan. The internal rate of return will not be below 500%.

Figure 9. The NPV sensitivity to changes in operating costs

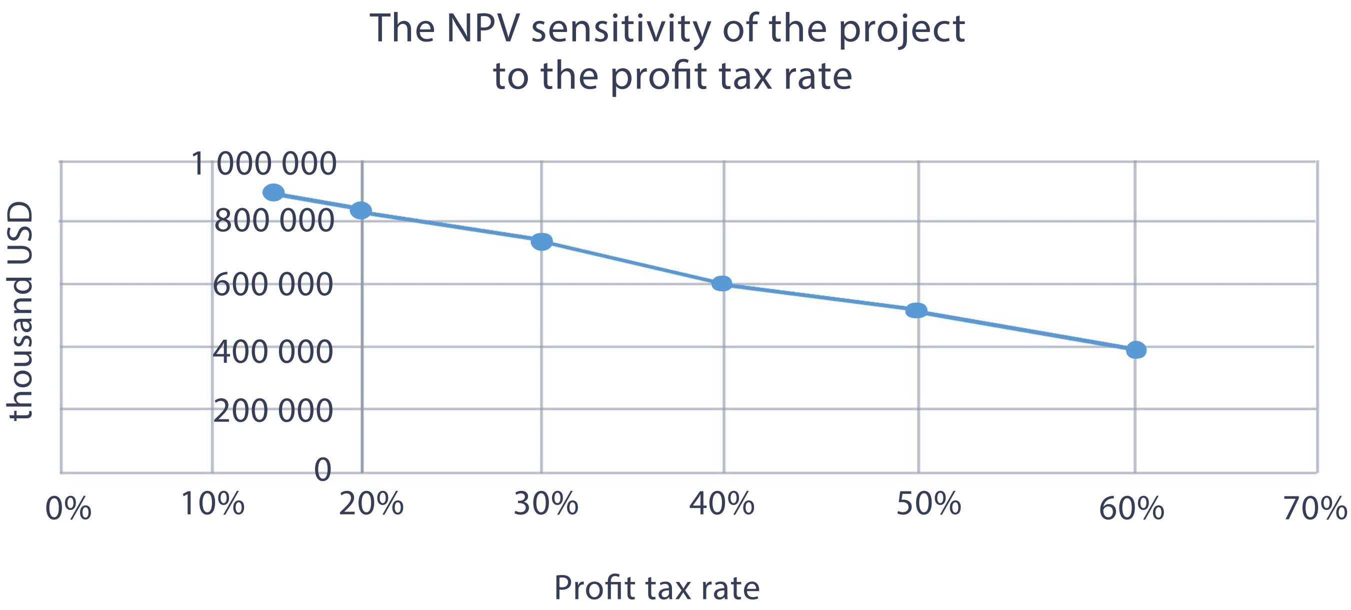


Profit tax sensitivity

The increase in the tax burden can significantly affect the project efficiency. In the business plan, the profit tax rate is 20%. It was decided to see how the project efficiency will change if the rate of this tax varies from 15% to 50%.

Profit tax	15%	20%	30%	40%	50%	60%
Payback period	1,67	1,67	1,67	1,67	1,67	1,67
Maximum negative cash flow	87 233	87 233	87 233	87 233	87 233	87 233
Discounted payback period	1,67	1,67	1,67	1,67	1,67	1,67
Current net value of the project	886 410	831 101	720 483	609 865	499 247	388 629
IRR	832%	768%	642%	523%	412%	309%

The project demonstrates high resistance to this risk. Even in the case of a threefold increase in the tax burden the payback period of the project will not exceed 2 years, and the internal rate of return of the project will not be below 300%.



Conclusions

The project is not only high-efficient, but also sufficiently resistant to all major risks.

By donating to this project, investors can be sure that even under the most unfavorable conditions their investments will pay off in less than 2 years.

The best assurance for that is the project initiator's know-how, which guarantees the high quality of the finished products, obtained from almost free raw materials, waste from the electric power and chemical industries.

APPENDIX

Appendix 1. Calculation tables

Table 7. Income base of the project

Indicators	Unit of measure	Total	Including intervals of the calculation period											
			1	2	3	4	5	6	7	8	9	10	11	12
Project phase			Pre-ICO	ICO	Investment	Operational								
Phase duration	months	108	1	2	11	6	4	12	12	12	12	12	12	12
Period from the beginning of the project implemention	years		0,08	0,25	1,17	1,67	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00
Production program														
ASH processing														
Ferrous oxide	t/year	180 000	0	0	0	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000
Silicon oxide	t/year	1 350 000	0	0	0	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000	150 000
Aluminium oxide	t/year	337 500	0	0	0	37 500	37 500	37 500	37 500	37 500	37 500	37 500	37 500	37 500
Gold	t/year	2 250 000	0	0	0	250 000	250 000	250 000	250 000	250 000	250 000	250 000	250 000	250 000
Silver	t/year	11 250 000	0	0	0	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000	1 250 000
Pyrite cinders processing														
Ferrous oxide	t/year	1 579 500	0	0	0	175500	175500	175500	175500	175500	175500	175500	175500	175500
Silicon oxide	t/year	337 500	0	0	0	37500	37500	37500	37500	37500	37500	37500	37500	37500
Aluminium oxide	t/year	225 000	0	0	0	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000
Gold	t/year	4 500 000	0	0	0	500000	500000	500000	500000	500000	500000	500000	500000	500000
Silver	t/year	22 500 000	0	0	0	2500000	2500000	2500000	2500000	2500000	2500000	2500000	2500000	2500000
Price of finished products														
Ferrous oxide	$/t		1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00	1000,00
Silicon oxide	$/t		1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00	1760,00
Aluminium oxide	$/t		445,00	445,00	445,00	445,00	445,00	445,00	445,00	445,00	445,00	445,00	445,00	445,00
Gold	$/g		42,12	42,12	42,12	42,12	42,12	42,12	42,12	42,12	42,12	42,12	42,12	42,12
Silver	$/g		0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53	0,53
Income														
Ferrous oxide	Thousand $	1 531 417	0	0	0	97 750	65 167	195 500	195 500	195 500	195 500	195 500	195 500	195 500
Silicon oxide	Thousand $	2 585 000	0	0	0	165 000	110 000	330 000	330 000	330 000	330 000	330 000	330 000	330 000
Aluminium oxide	Thousand $	217 865	0	0	0	13 906	9 271	27 813	27 813	27 813	27 813	27 813	27 813	27 813
Gold	Thousand $	247 440	0	0	0	15 794	10 529	31 588	31 588	31 588	31 588	31 588	31 588	31 588
Silver	Thousand $	15 489	0	0	0	989	659	1 977	1 977	1 977	1 977	1 977	1 977	1 977
Other inconomes	Thousand $	229 861	0	0	0	14 672	9 781	29 344	29 344	29 344	29 344	29 344	29 344	29 344
Total income base	Thousand $	**4 827 071**	**0**	**0**	**0**	**308 111**	**205 407**	**616 222**	**616 222**	**616 222**	**616 222**	**616 222**	**616 222**	**616 222**

Table 8. Project operating costs

Indicators	Unit of measure	Total	Including intervals of the calculation period											
			1	2	3	4	5	6	7	8	9	10	11	12
Project phase			Pre-ICO	ICO	Investment	Operational								
Phase duration	months	108	1	2	11	6	4	12	12	12	12	12	12	12
Period from the beginning of the project implemention	years		0,08	0,25	1,17	1,67	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00
Variable costs														
Raw material costs for ASH processing	thous. $	**428 549**	**0,00**	**0,00**	**0,00**	**27 534,91**	**18 498,19**	**54 645,06**	**54 645,06**	**54 645,06**	**54 645,06**	**54 645,06**	**54 645,06**	**54 645,06**
Ash and slag waste (ASW)	thous. $	19 583	0,00	0,00	0,00	1 250,00	833,33	2 500,00	2 500,00	2 500,00	2 500,00	2 500,00	2 500,00	2 500,00
Ammonium fluoride	thous. $	144	0,00	0,00	0,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00	16,00
Ammonia solution 25%	thous. $	3 634	0,00	0,00	0,00	403,75	403,75	403,75	403,75	403,75	403,75	403,75	403,75	403,75
Sorbent	thous. $	45	0,00	0,00	0,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00
Running water	thous. $	1 726	0,00	0,00	0,00	110,16	73,44	220,31	220,31	220,31	220,31	220,31	220,31	220,31
Electricity (2MW/h)	thous. $	332 917	0,00	0,00	0,00	21 250,00	14 166,67	42 500,00	42 500,00	42 500,00	42 500,00	42 500,00	42 500,00	42 500,00
Natural gas	thous. $	70 500	0,00	0,00	0,00	4 500,00	3 000,00	9 000,00	9 000,00	9 000,00	9 000,00	9 000,00	9 000,00	9 000,00
Raw material costs for pyrite cinders processing	thous. $	**192 053**	**0,00**	**0,00**	**0,00**	**13 468,84**	**9 927,17**	**24 093,84**	**24 093,84**	**24 093,84**	**24 093,84**	**24 093,84**	**24 093,84**	**24 093,84**
Pyrite cinders	thous. $	24 375	0,00	0,00	0,00	2 708,33	2 708,33	2 708,33	2 708,33	2 708,33	2 708,33	2 708,33	2 708,33	2 708,33
Hydrochloric acid	thous. $	2	0,00	0,00	0,00	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
Sodium salt	thous. $	1	0,00	0,00	0,00	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
Sorbent	thous. $	90	0,00	0,00	0,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00
Filter paper	thous. $	1 125	0,00	0,00	0,00	125,03	125,03	125,03	125,03	125,03	125,03	125,03	125,03	125,03
Electricity (1 MW/h)	thous. $	166 458	0,00	0,00	0,00	10 625,00	7 083,33	21 250,00	21 250,00	21 250,00	21 250,00	21 250,00	21 250,00	21 250,00
Running water	thous. $	1	0,00	0,00	0,00	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
Salary with variable costs	thous. $	**5 190**	**0**	**0**	**0**	**331,248**	**220,832**	**662,496**	**662,496**	**662,496**	**662,496**	**662,496**	**662,496**	**662,496**
Wages of general plant personnel	thous. $	3 810	0,00	0,00	0,00	243,20	162,13	486,40	486,40	486,40	486,40	486,40	486,40	486,40
Wages of indirect plant personnel	thous. $	63	0,00	0,00	0,00	4,00	2,67	8,00	8,00	8,00	8,00	8,00	8,00	8,00
Labour charges	thous. $	1 317	0,00	0,00	0,00	84,05	56,03	168,10	168,10	168,10	168,10	168,10	168,10	168,10
Total variable costs	thous. $	**625 791**	**0**	**0**	**0**	**41 335**	**28 646**	**79 401**	**79 401**	**79 401**	**79 401**	**79 401**	**79 401**	**79 401**
Fixed costs														
General production costs	thous. $	**107 399**	**0,00**	**0,00**	**0,00**	**6 966,55**	**4 731,52**	**13 671,62**	**13 671,62**	**13 671,62**	**13 671,62**	**13 671,62**	**13 671,62**	**13 671,62**
Wages of administrative and management staff	thous. $	1 253	0,00	0,00	0,00	80,00	53,33	160,00	160,00	160,00	160,00	160,00	160,00	160,00
Lobour charges of AMS	thous. $	426	0,00	0,00	0,00	27,20	18,13	54,40	54,40	54,40	54,40	54,40	54,40	54,40
Marketing charges	thous. $	96 541	0,00	0,00	0,00	6 162,22	4 108,15	12 324,44	12 324,44	12 324,44	12 324,44	12 324,44	12 324,44	12 324,44
Commission of refinerias	thous. $	5 259	0,00	0,00	0,00	335,65	223,77	671,31	671,31	671,31	671,31	671,31	671,31	671,31
Transportation costs	thous. $	3 920	0,00	0,00	0,00	361,48	328,14	461,48	461,48	461,48	461,48	461,48	461,48	461,48
Repair	thous. $	**41 910**				**2 675,14**	**1 783,43**	**5 350,28**	**5 350,28**	**5 350,28**	**5 350,28**	**5 350,28**	**5 350,28**	**5 350,28**
Land lease	thous. $	**157**				**10,00**	**6,67**	**20,00**	**20,00**	**20,00**	**20,00**	**20,00**	**20,00**	**20,00**
Total fixed costs	thous. $	**149 467**	**0**	**0**	**0**	**9 652**	**6 522**	**19 042**	**19 042**	**19 042**	**19 042**	**19 042**	**19 042**	**19 042**
Unexpected operating costs	thous. $	**38 763**	**0**	**0**	**0**	**2 549**	**1 758**	**4 922**	**4 922**	**4 922**	**4 922**	**4 922**	**4 922**	**4 922**
Net operating costs	thous. $	**814 020**	**0**	**0**	**0**	**53 536**	**36 926**	**103 365**	**103 365**	**103 365**	**103 365**	**103 365**	**103 365**	**103 365**
Amortization	thous. $	41 910				2 675,14	1 783,43	5 350,28	5 350,28	5 350,28	5 350,28	5 350,28	5 350,28	5 350,28
Full operating costs	thous. $	**855 931**	**0**	**0**	**0**	**56 211**	**38 710**	**108 716**	**108 716**	**108 716**	**108 716**	**108 716**	**108 716**	**108 716**

Table 9. Investments

Indicators	Unit of measure	Total	Including intervals of the calculation period											
			1	2	3	4	5	6	7	8	9	10	11	12
Project phase			Pre-ICO	ICO	Investment	Operational								
Phase duration	months	108	1	2	11	6	4	12	12	12	12	12	12	12
Period from the beginning of the project implementation	years		0,08	0,25	1,17	1,67	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00
				1 900										
Project promotion		1 900												
Building construction	thous. dollars	4 800			4 800									
Acquisition of equipment	thous. dollars	74 360			74 360									
Installation of equipment	thous. dollars	1 500			1 500									
Site improvement	thous. dollars	500			500									
Invisible assets	thous. dollars	1			1									
Land lease for the period of construction	thous. dollars	18			18									
		0												
Unexpected investments	thous. dollars	4 154			4 059	0	0	0	0	0	0	0	0	0
		0												
Total investments	thous. dollars	87 233			85 238	0	0	0	0	0	0	0	0	0

Table 10. Income

Indicators	Unit of measure	Total	Including intervals of the calculation period											
			1	2	3	4	5	6	7	8	9	10	11	12
Project phase			Pre-ICO	ICO	Investment	Operational								
Phase duration	months	108	1	2	11	6	4	12	12	12	12	12	12	12
Period from the beginning of the project implementation	years		0,08	0,25	1,17	1,67	2,00	3.00	4,00	5,00	6,00	7,00	8,00	9,00
Income base exc. VAT	thous. dollars	4 827 071	0	0	0	308 11	205 407	616 222	616 222	616 222	616 222	616 222	616 222	616 222
Net operating costs	thous. dollars	814 020	0	0	0	53 536	36 926	103 365	103 365	103 365	103 365	103 365	103 365	103 365
EBITDA	thous. dollars	4 013 050	0	0	0	254 575	168 481	512 856	512 856	512 856	512 856	512 856	512 856	512 856
Amortization	thous. dollars	41 910	0	0	0	2 675	1 783	5 350	5 350	5 350	5 350	5 350	5 350	5 350
Taxes (exc. profit tax)	thous. dollars	16 877	0	0	0	1 875	1 875	1 875	1 875	1 875	1 875	1 875	1 875	1 875
Land tax	thous. dollars	0												
Property tax	thous. dollars	16 877				1 875	1 875	1 875	1 875	1 875	1 875	1 875	1 875	1 875
Taxable income	thous. dollars	3 954 263	0	0	0	250 025	164 822	505 631	505 631	505 631	505 631	505 631	505 631	505 631
Income tax	thous. dollars	790 853	0	0	0	50 005	32 964	101 126	101 126	101 126	101 126	101 126	101 126	101 126
Net income	thous. dollars	3 163 410	0	0	0	200 020	131 858	404 505	404 505	404 505	404 505	404 505	404 505	404 505

Table 11. Cash flows

Indicators	Unit of measure	Total	Including intervals of the calculation period											
			1	2	3	4	5	6	7	8	9	10	11	12
Project phase			Pre-ICO	ICO	Investment	Operational								
Phase duration	months	108	1	2	11	6	4	12	12	12	12	12	12	12
Period from the beginning of the project implementation	years		0,08	0,25	1,17	1,67	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00
Cash flows from operations	thous. $	**3 205 321**	**0**	**0**	**0**	**202 695**	**133 641**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**
Income	thous. $	4 827 071	0	0	0	308 111	205 407	616 222	616 222	616 222	616 222	616 222	616 222	616 222
Net operating costs	thous. $	814 020	0	0	0	53 536	36 926	103 365	103 365	103 365	103 365	103 365	103 365	103 365
Taxes	thous. $	807 730	0	0	0	51 880	34 840	103 001	103 001	103 001	103 001	103 001	103 001	103 001
Cash flows from investments	thous. $	**-87 233**	**0**	**-1 995**	**-85 238**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Investments	thous. $	87 233	0	1 995	85 238	0	0	0	0	0	0	0	0	0
Cash flows from financing	thous. $	-240 000	**10 000**	**90 000**	**0**	**0**	**-340 000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Raising funds within the ICO	thous. $	100 000	10 000	90 000										
Dividends to the token holders	thous. $	340 000					340 000							
Cash flows	thous. $	**2 878 087**	**10 000**	**88 005**	**-85 238**	**202 695**	**-206 359**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**
Active balance	thous. $		10 000	98 005	12 767	215 462	9 103	418 958	828 813	1 238 668	1 648 523	2 058 378	2 468 233	2 878 087
Net cash flows	thous. $	**3 118 087**	**0**	**-1 995**	**-85 238**	**202 695**	**133 641**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**	**409 855**
Cumulative	thous. $		0	-1 995	-87 233	115 462	249 103	658 958	1 068 813	1 478 668	1 888 523	2 298 378	2 708 233	3 118 087
Calculation of the payback period														
Discount rate	% per annum	28%												
Discount coefficient			0,979	0,940	0,748	0,660	0,607	0,473	0,369	0,287	0,224	0,174	0,136	0,106
Net discounted cash flow	**USD**	**831 101**	**0**	**-1 874**	**-63 716**	**133 751**	**81 149**	**193 930**	**151 118**	**117 758**	**91 762**	**71 504**	**55 719**	**43 419**
Cumulative	thous. $		0	-1 874	-65 591	68 160	149 309	343 239	494 358	612 115	703 877	775 381	831 101	874 519
Payback period	years	**1,67**												
Maximum negative cash flow	thous. $	**$87 233**												
Discounted payback period	years	**1,67**												
Current net value of the project	thous. $	**$831 101**												
IRR	% per annum	**733%**												

*Cash flows are presented for the option according to which all investors choose a one-time payment at the end of the 2 year of the project implementation