angenium

Presentation for investors

Essence of the project

Task and essence of the project

Raising of funds for the construction of a plant meant to extract precious and rare metals from man-made waste (pyrite cinder), processing of ash and slag wastes and the production of silica, alumina, iron oxide.

Mission of the project

Improvement of the ecological situation (release of tens of thousands of hectares of the territories irretrievably lost under the waste deposits), efficient, non-waste production of a closed type. Extraction and production of useful materials from waste, in particular of precious metals (gold and metals of the platinum group), silica, alumina, iron oxide from ash and slag wastes (ash) and pyritic cinders.

NEW VISION OF THE INDUSTRY OF PROCESSING OF HOUSEHOLD AND INDUSTRIAL WASTE

The first company in the world capable of extracting non-ferrous and noble metals, high-purity finely dispersed oxides of silicon, aluminum, iron, from ash and slag waste and pyritic cinders using a chemical method (at the molecular level) with the help of unique fluorination technology and the use of "smart" sorbents of its own production.
The use of techno genic wastes as independent complex deposits of minerals.

The classical industry for processing and recycling of waste does not extract useful materials from them, but uses them as additives to construction materials, backfilling in road embankments.

Values for consumers

- preservation of the environment
- health care
- affordable prices for products, containing non-ferrous metals

Purpose of the company

Ensure the preservation of nature, contribute to its purification from industrial waste, by means of extracting expensive oxides and noble metals from them in a most effective and environmentally friendly way.

Global problems

- environmental pollution
- Increase in the incidence of the local population and health expenditure
- reduction of available lands suitable for living
- high cost of chemical elements (black, color, precious and rare earth metals), extracted from ore raw materials
- as a rule, the content of an element of the periodic table in dumps is less than in natural deposits, but it will cost 5-15 times cheaper to extract it from dumps
- high cost of construction of ore-dressing plants
- long, expensive, not always successful geological exploration for mining operations
- long cycle of obtaining minerals

Local problems

- low processing efficiency of ash or slag wastes and pyritic cinders, as well as of extraction of value added of useful components
- high availability of existing ash dumps
- low rates of construction of new ash dumps because of their high cost price

Consumers

By the type of products, there can be consumers of final products or of the EQUIPMENT for processing industrial waste.

Consumers of the equipment

TPP, GRES, chemical plants, companies and landfills that process waste, research institutes, pilot plants, new project teams (start-ups).

Consumers of final products

The core of the target audience are enterprises - consumers of black, nonferrous, precious metals and by-products, including the state, refining companies. Producers of ceramics, tires, concretes, pigments and pigment pastes, metallurgical plants, electronics manufacturers, manufacturers of cosmetics, medicines, toothpastes, RTI, composite materials, paints, paper, building mixtures and much more, agriculture.

Consumers location

The countries of the EU, the CIS, Asia, Africa, Latin America. China, India, USA, Korea, Japan and many others.

Problems of the consumers

- high cost price of extraction of non-ferrous metals from ore raw materials
- high cost of production of pure, finely dispersed oxides of silicon, iron, aluminum
- most of Russia's gold deposits are located in areas with unfavorable climatic conditions and undeveloped infrastructure
- high transport costs
- insufficient liquidity of financial assets transformed into metals
- lack of securities nominated in precious metals or secured by them
- underdeveloped use of depersonalized metal accounts
- imperfection of the legislative base
- high share of shadow turnover of precious metals

Unmet needs

Clearing of territories, their release from techno genic dumps

Reduction of production and transportation costs in various fields of industry and agriculture

Reducing the cost of mining of precious, rare earth, non-ferrous metals and oxides

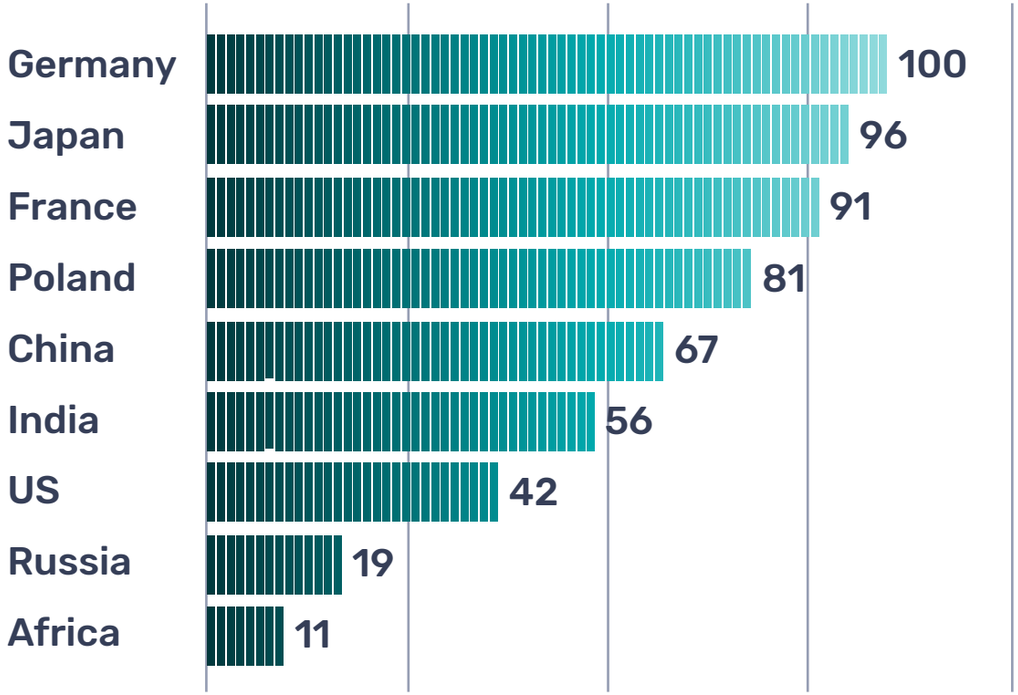
Motivation

For B2B customers - revenue growth, cost reduction, business development.
In England, Germany, Italy, France, for example, there are privileges for businesses that use ash, and bans on the use of other, more expensive building materials such as soil and sand.

There are no strong incentives that would force Russian energy specialists to deal with the problem of the implementation of ash. So, in European countries, ash dumps of coal-fired power plants are generally prohibited, or the penalty for each ton of ash sent to the ash dump is from 60 Euro (Finland) to 248 Euros in the Czech Republic.
In Russia, this penalty is 11.5 rubles per ton (0.2 euros).

Market size

Level of industrial waste processing by countries,%



Source: SibADI research data

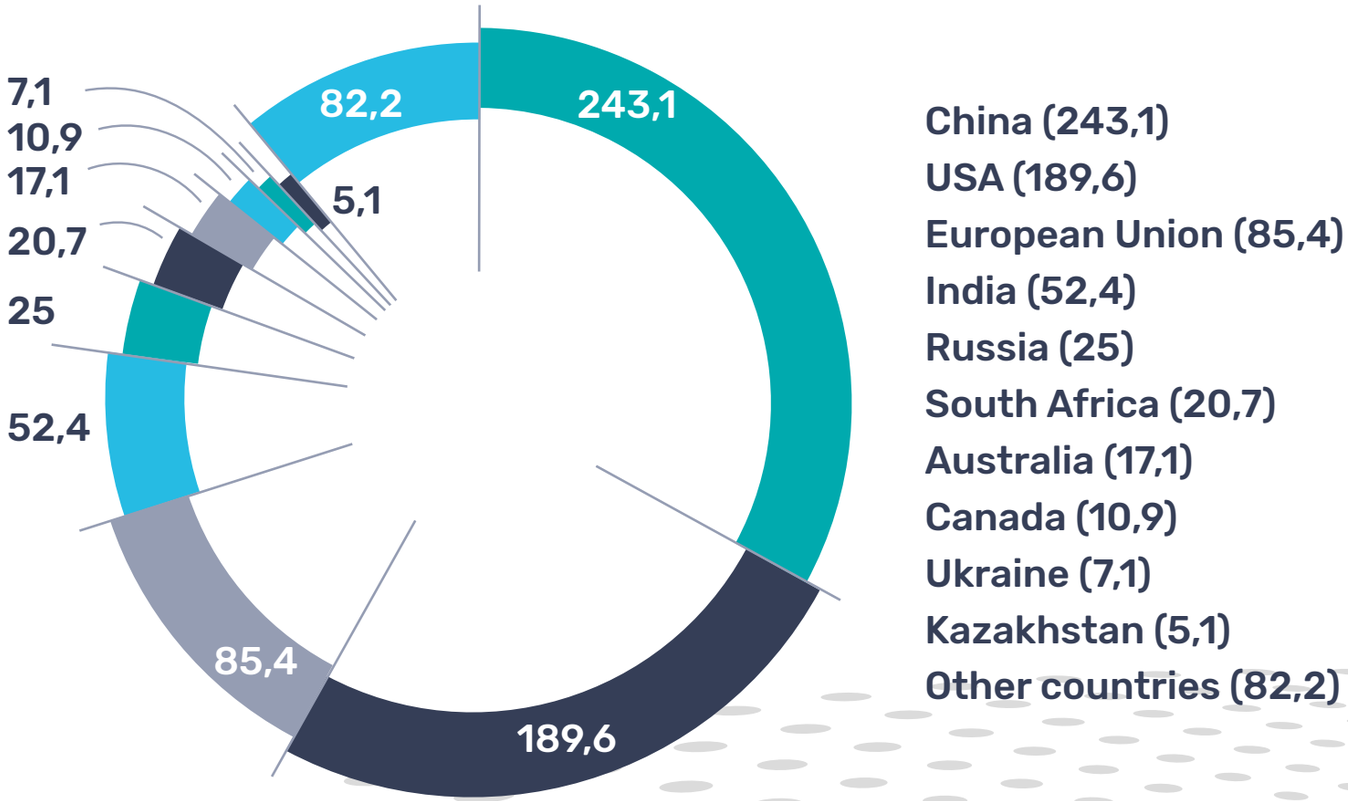
The world production of ash and slag wastes is about 739 million tons.
In industrially developed countries, such as Germany, Japan and France, most industrial waste (from 60 to 100%) is processed, as a rule, into inert materials widely used in construction.

In Russia and Africa, processing comes only to 10-20% of ash and slag waste.

Geographical distribution

The largest producers of ash and slag wastes are China, India, USA, Korea, Japan.

Production of ash and slag wastes in the world in million tons



China (243,1)
USA (189,6)
European Union (85,4)
India (52,4)
Russia (25)
South Africa (20,7)
Australia (17,1)
Canada (10,9)
Ukraine (7,1)
Kazakhstan (5,1)
Other countries (82,2)

Source: http://masters.donntu.org/2014/feht/aleksandrova/library/article6.htm

Pyrite cinders

In Russia, there have been accumulated about 50 million tons of pyrite waste generated during the processing of sulfuric and copper pyrites.

Pyrite cinders, being waste products of former sulfuric acid production, are currently concentrated in 4 largest storage facilities with a volume of more than 1 million tons each: OJSC Ammofos (Cherepovets) - 8 million tons, Meleuz Plant of Mineral Fertilizers - 5 million tons, The Kirovgrad field is 7 million tons, the PGHO OJSC (Krasnokamensk) is 5 million tons, that is, 25 million tons in total.

The consumer of pyritic cinders is currently only cement industry, where the ferruginous component is used for the formation of astringent calcium alumoferrite during clinker burning.

Taking into account domestic innovative developments and foreign technological experience in the processing of pyrite and pyritic cinder, it is possible to count not only on their processing at storage sites, but also on organization of their export- for example, from the Urals, Transbaikalia and the Far East — to China, Japan, Australia.

Competition

Dozens of companies dealing with the processing of man-made waste are represented on the world market. Basically, those are physical and mechanical methods, characterized by high toxicity, energy intensity and low profitability up to 10-20%, as well as inert utilization – the use of waste as additives in building materials and backfilling in road embankments.

However, there are no technologies of chemical processing of ash-and-slag wastes on the world market.
In connection with the lack of technologies for processing of ash the market lacks corresponding equipment.

Decision

Creation of processing facilities in places of large accumulation of ash and pyritic cinders with a total capacity of 500 thousand tons per year (250 thousand tons of ash and 250 thousand tons of pyrite cinders), with the possibility of extracting non-ferrous and precious metals from them.

The possibility of processing various types of household, municipal and industrial waste is considered.

The formation of a positive public opinion concerning the processing of industrial and domestic waste: it is possible to do culturally, aesthetically, effectively, environmentally.

Uniqueness of the project

Environmental friendliness

Aesthetics

Economy

Scalability

Efficiency

Universality

Uniqueness of the product

- environmental friendliness (does not pollute the environment)
- 4th and 5th groups of waste: non-toxic and not requiring additional permits for the functional
- possibility of processing of ash obtained after MSW incineration
- scalability (production can be replicated and deployed anywhere in the world)
- unique technology of chemical processing of ash and pyritic cinders, extraction of precious metals from them using "smart" sorbents of own production
- there is a working model of the production plant
- import substitution of raw materials, materials and equipment
- low cost of raw materials (ash, fly ash, pyritic cinders)
- wide range of end products - from iron oxide and silicon - to aluminum, gold and other noble and rare-earth metals
- acceptable market prices in the exchange ranges
- wide scope of application of final products
- great market growth potential in different countries
- quick payback of the project - 1 year 8 months. after launch
- high market value of the final product
- does not require a license for subsoil use in the extraction of precious metals: the resulting concentrate of precious metals is surrendered for refining
- ready business "on a turn-key basis"

Efficiency

Key Performance Criteria

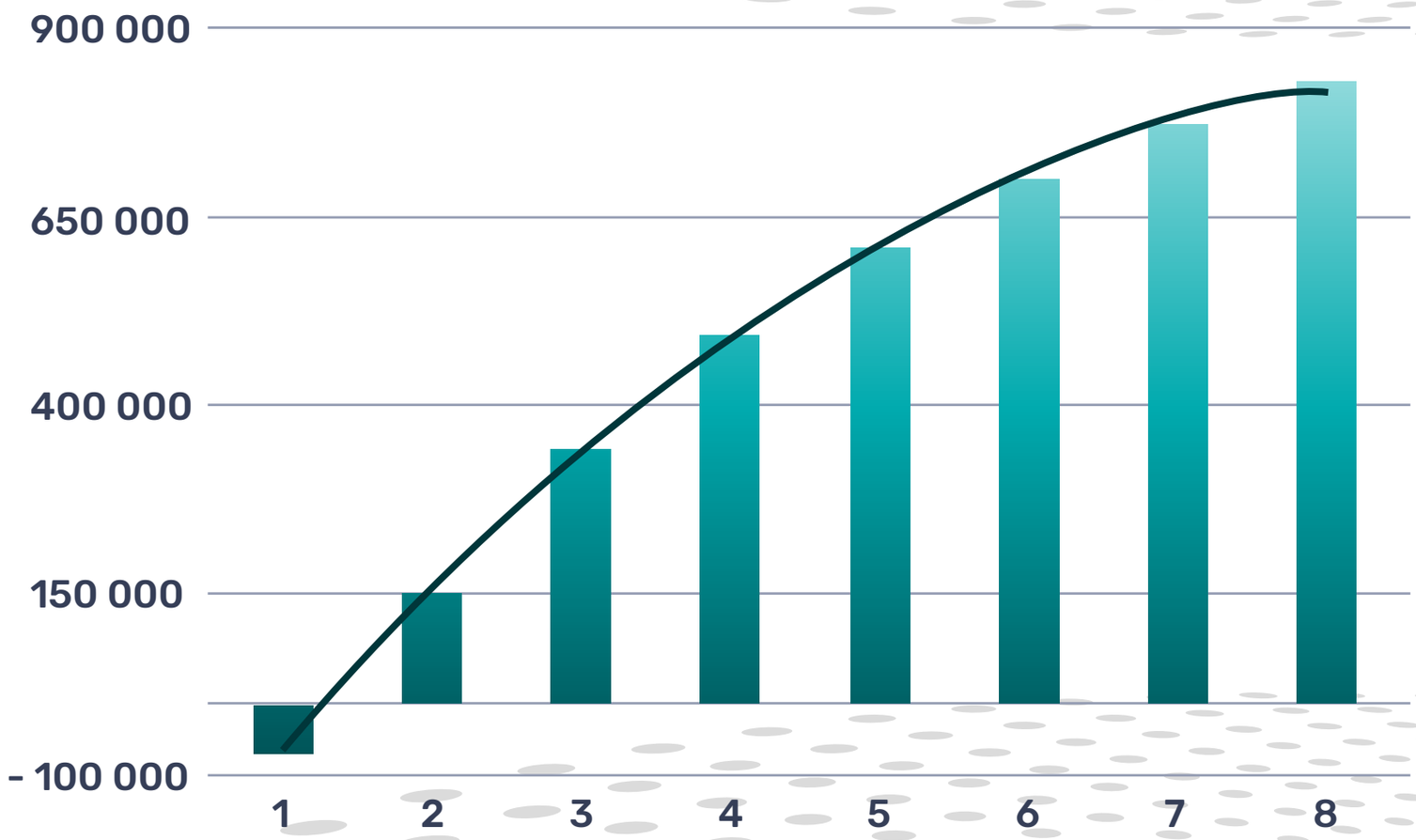
Indicators	Unit of measurement	Value
Payback period	years	1 year 8 months.
Maximum negative cash	Thousend USD	$87 233
Net present value of the project	Thousend USD	$831 101
IRR	% per year	733%

- planned processing capacity: 250 thousand tons per year of ash + 250 thousand tons per year pyrite cinders
- high market value of final products
- return on the project for 1 year 8 months since the launch
- the volume of investments will be from 20 to 100 million US dollars
- the share of gold in the sales volume of the ash processing products will be 3%, pyrite cinders - 13%

In natural deposits, the gold content is in average of 1.5 g / t, but new sources are characterized by low content of gold and platinum group metals (less than 1.3 g / t), small sizes (less than 1 micron) and complex mineralogical bonds. In pyritic cinders, the gold content is of 2 g / t and higher.

The production of those elements from the waste is from 5 to 15 times cheaper than from the deposit.
At complex extraction of other chemical elements and connections the profitability of the project increases many times.

Dynamics of the current cost of the project by years (thousand $)



Pricing

Prices for final products are adequate to the market, to the composition of raw materials used and to the technical and economic parameters of the project.

The cost of the end products of processing of 1 ton of ash

Name	Price		Exit	
	Value	Unit. mesure	Weight	Cost, $
Ash	10,00	$/tons		
Silica	1 760,00	$/tons	0,60	1 056,00
Aluminium oxide	445,00	$/tons	0,15	66,75
Oxide of iron	1000,00	$/tons	0,08	80,00
Gold	42,12	$/gr	1,00	42,12
Silver	0,53	$/gr	2,00	1,06
			Total	**1 245,93**

The cost of the final production of 1 t of pyrite cinders

Material	Price		Exit	
	Value	Unit. mesure	Weight	Cost, $
Pyrite cinders	10,83	$/tons		
Gold * (average content of 3.2 g/gr)	42,12	$/gr	3,20	134,78
Silver* (average content 125 r/gr)	0,53	$/gr	25,00	13,25
Silicon dioxide (average content 10.2%)	1 760,00	$/tons	0,102	179,52
Iron oxide (average content 70.2%)	1 000,00	$/tons	0,702	702,00
			Total	**1 029,55**

Aesthetics

A successful architectural solution of the project will help to win a positive attitude of local residents, authorities and investors.

Russia

Italy

Japan

Austria

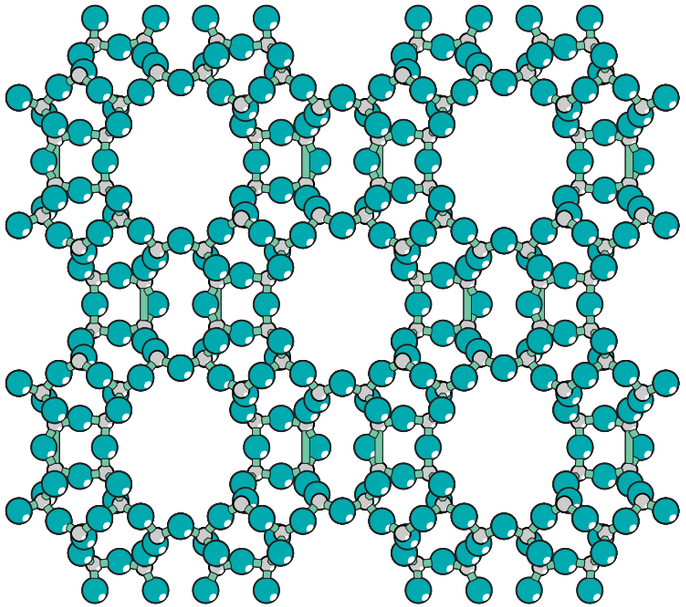
Economical

- renewal and reuse of the main reagents during processing of ash and pyrite cinders
- the cost of sorbent is tens of times lower than that of the competitors
- import substitution of raw materials and equipment - saving on customs duties, exchange rate differences, transport and storage costs
- significant cost reduction for the processing of waste for the state

Environmental friendliness

- does not pollute the environment (atmosphere, water, soil) 100% decomposition of ash into the components - they are the final products
- When ash is processed, only 2 reagents are used: ammonium fluoride and ammonia, which are completely renewed in a closed process with minimal losses
- While processing pyritic cinders, the technology of closed cycle with recycling of the main reagent - ammonium chloride – is used
- the 4th and the 5th groups of waste: are non-toxic that don't require additional permits for the functional
- It is possible to integrate the facility into the existing ecosystem, including the recycling of industrial and domestic waste, as well as the use of by-products for crop production and livestock

"Smart" sorbent



- has an organic basis
- extracts from solution with high selectivity up to 95% of the entire spectrum of noble and rare metals: GOLD, PLATINUM, SILVER, PALLADIUM, IRIDIUM, RUTHENIUM, RODY, OSMY. The price of this sorbent is from 10 times lower than that of foreign analogues
- when 1 g is used, it extracts up to 0.7 g of iridium, 1.2 g of platinum, the remaining rare metals - from 3 g to 5 g
- imported sorbents are individual for each rare metal, only 1 g of rare metal is recovered, while 5 g of sorbent are used
- different import sorbents are needed to extract different rare metal
- the sorbent used in the project is of its own design and production and is universal, i.e. it can extract any rare metal
- thus, the cost of sorbent is ten times lower than that of the competitors

The possibility of recycling waste from the incineration of solid domestic waste

At least 15% of the total volume of solid domestic and municipal waste after burning also requires subsequent processing due to their increased toxicity.

	Morphological composition of MSW	
	Components of MSW	Content (% by mass)
1	Paper, cardboard etc.	25-30
2	Food waste	30-38
3	Scrap metal	3.0
4	Non-ferrous scrap metal	0.5
5	Textile	4.0-7.0
6	Recycled glass	5.0-8.0
7	leather, rubber	2.0-4.0
8	Stone	1.0-3.0
9	Plastic	2.0-5.0
10	Municipal solid waste	1.5-3.0
11	Wood	0.5-2.0
12	Construction waste	1.0-2.0
13	So on anything	
14	Drop-out rate (-15mm)	7.0-13

Source: Commission of the Scientific Council of the Russian Academy of Sciences on Ecology and Emergency Situations

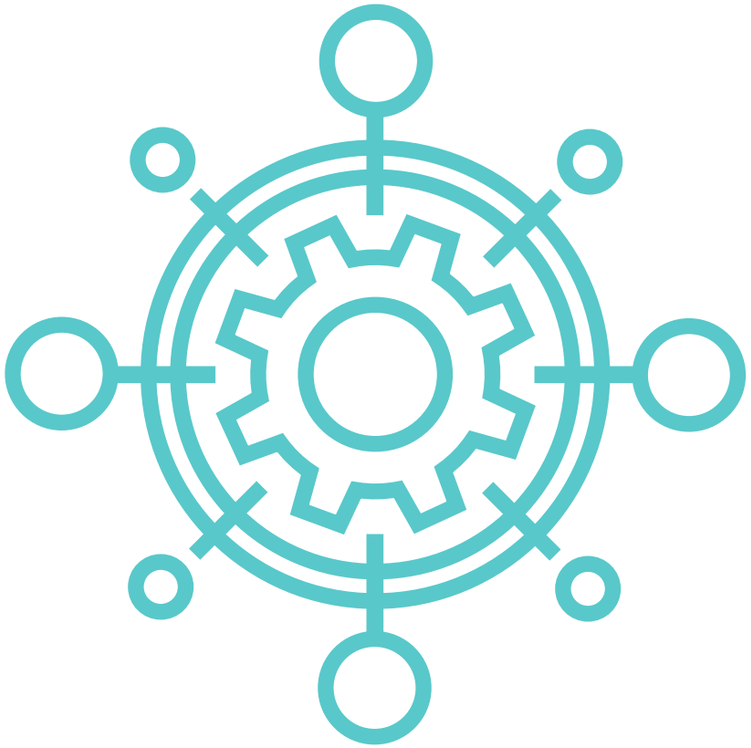
Possibility of processing electronic scrap

Accepting electronic products for disposal, companies carry out their thorough analysis. Maximum resources are extracted (plastic, metals, radio electronic components), which are crushed, followed by the extraction of copper, aluminum, BRM.

From one ton of old mobile phones one can get up to 150 grams of gold.

Source: Tambov State Technical University

Scalability of production



- accommodation and production replication in any country and region of the world
- ready solutions with a capacity from 5000 to 1,000,000 tons per year for the processing of ash and pyrite cinders
- adaptation of technologies for various types of waste (SDW, TCO, etc.)
- highly qualified service
- technical and legal support
- training
- franchise
- ready-made business "on a turn-key basis"

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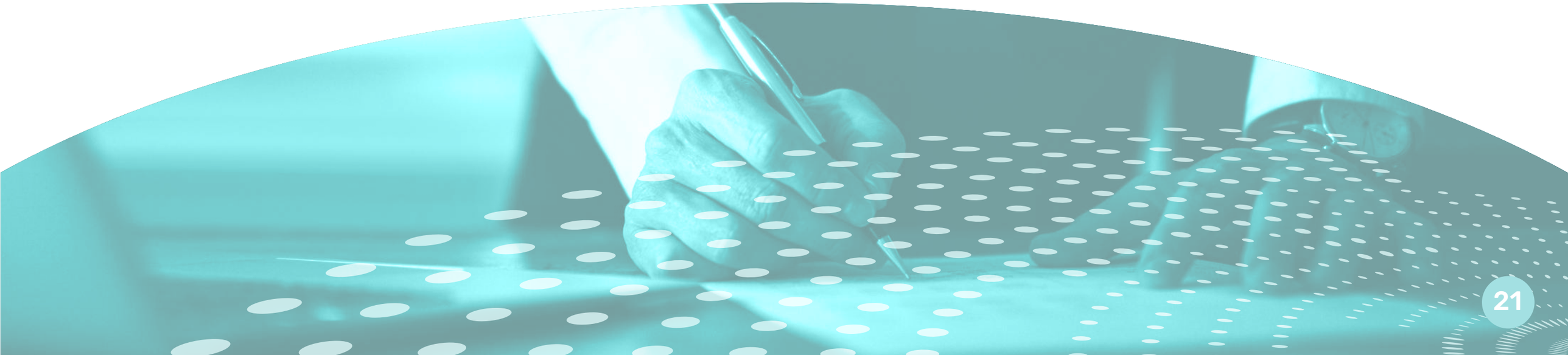
Legal issues

- compliance with local legislation
- compliance of production with modern environmental standards
- obtaining patents and licenses for applied technologies
- franchise
- trademark protection
- certification of final products
- does not require licenses for subsoil use: the resulting concentrate of precious metals is passed over for being refined
- the 4th and the 5th groups of waste: non-toxic and not requiring additional permits for the functional

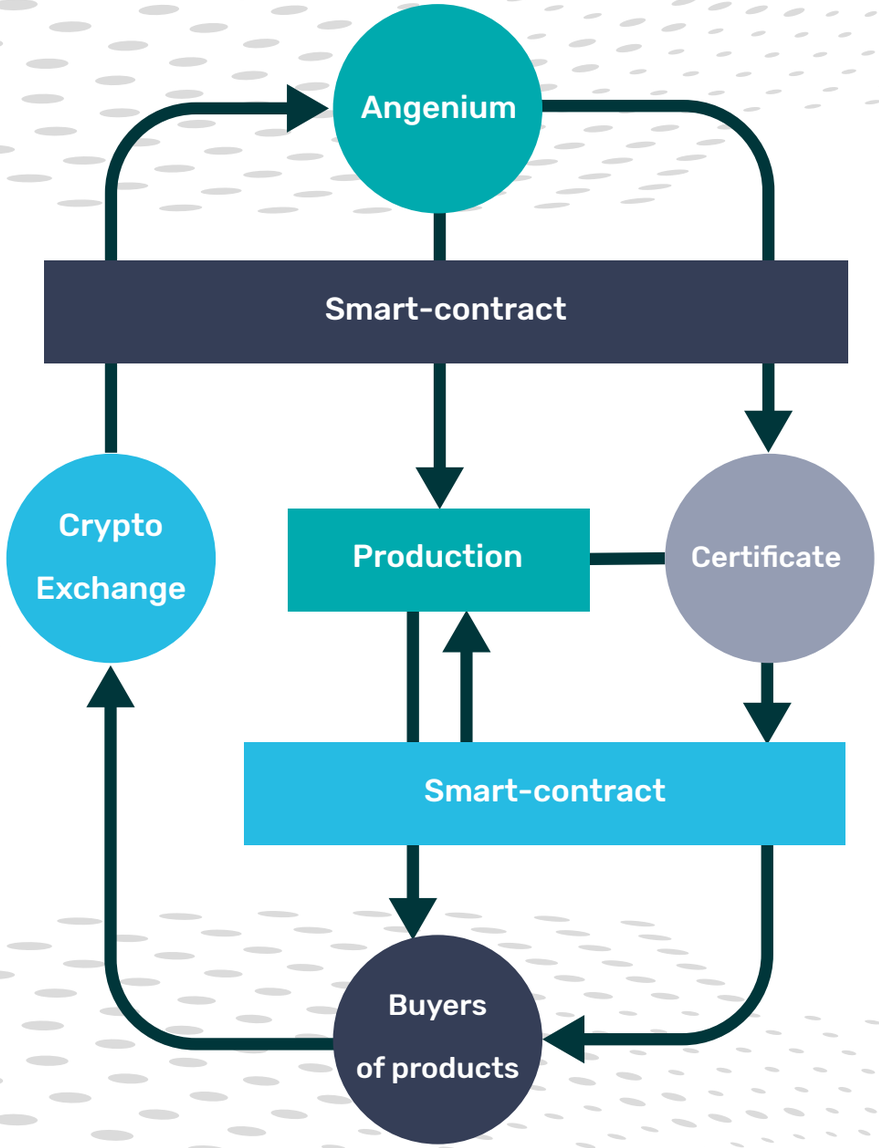


The Blockchain technology

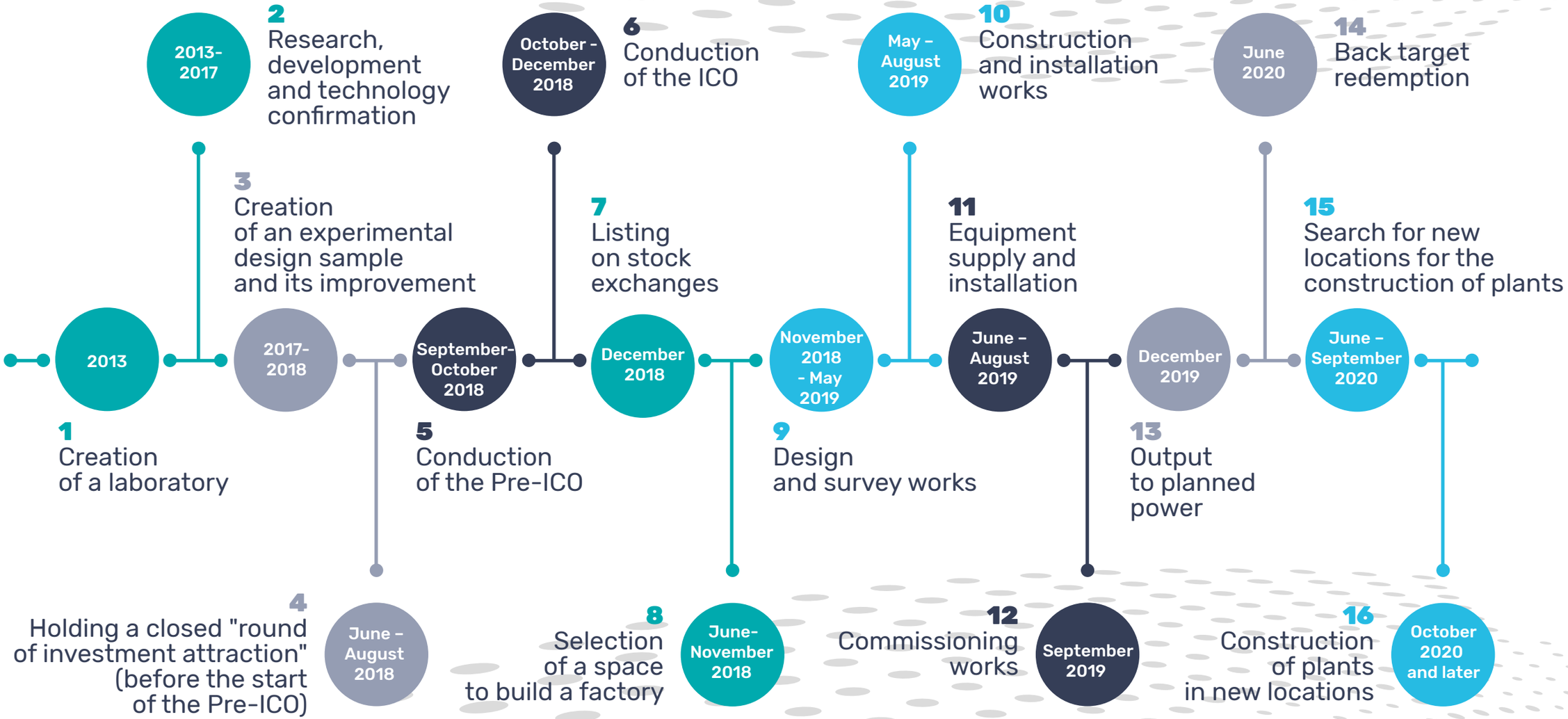
All the enterprises included in the project will use tokens for internal settlements.

On the basis of the blockchain, a register will be created to certify the goods of the plant with the history of transactions related to them.

While purchasing the products of the project for tokens for each batch of goods to the buyer a certificate will be assigned which, together with the record of the transaction, will be stored in the network
of the blockchain.



Road map


2013
1
Creation
of a laboratory
2013-
2017
2
Research,
development
and technology
confirmation
2017-
2018
3
Creation
of an experimental
design sample
and its improvement
June –
August
2018
4
Holding a closed "round
of investment attraction"
(before the start
of the Pre-ICO)
September-
October
2018
5
Conduction
of the Pre-ICO
October -
December
2018
6
Conduction
of the ICO
December
2018
7
Listing
on stock
exchanges
June-
November
2018
8
Selection
of a space
to build a factory
November
2018
- May
2019
9
Design
and survey works
May –
August
2019
10
Construction
and installation
works
June –
August
2019
11
Equipment
supply and
installation
September
2019
12
Commissioning
works
December
2019
13
Output
to planned
power
June
2020
14
Back target
redemption
June –
September
2020
15
Search for new
locations for the
construction of plants
October
2020
and later
16
Construction
of plants
in new locations

Issue of project tokens

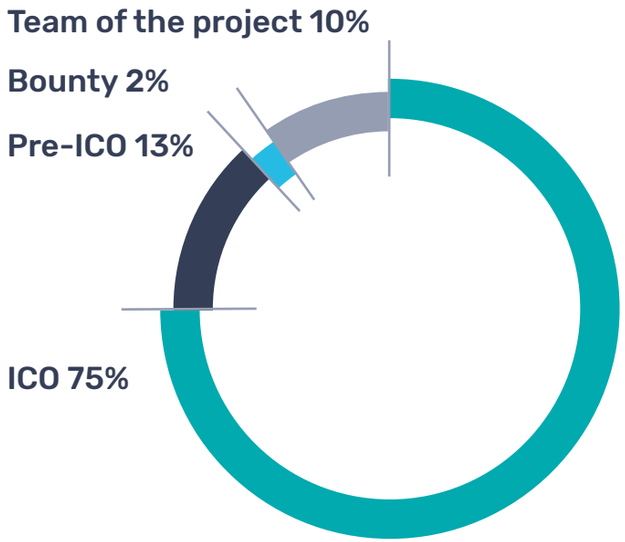
The tokens of the project (Angenium Coin, abbreviated ANG_Coin) will be launched in the Ethereum block system in the form of ERC20 tokens. A total of 138,000,000 tokens will be issued, 121,440,000 of them will be distributed during the initial offer within the established time limits.
The remaining 16,560,000 tokens will be distributed free of charge among the project team and as an incentive (Bounty), including among the third-party outsourcers.

The required minimum of the investment (softcap) is of 18,509,400 US dollars, the maximum bar (hardcup) is of 91,224,900 US dollars.
The nominal value of 1 Angenium Coin is $ 1.
The price of one token will be determined taking into account the discounts, depending on the stage of its sale.

All unsold tokens will be removed from circulation.
In case revenue from the sale of tokens is lower than of $18,509,400, and the amount received will not be enough to start the project, all the funds raised will be returned to investors.

The tokens held by the investors will be repaid according to the plan chosen during their purchase (see section "Redemption of Tokens").

Distribution of tokens of the project



Distribution of tokens

Number of tokens

Direction	SoftCap	HardCap
Closed sales	840 000	4 140 000
Pre-ICO	2 800 000	13 800 000
ICO	21 000 000	103 500 000
Team of the project	2 800 000	13 800 000
Bounty	560 000	2 760 000
TOTAL	**28 000 000**	**138 000 000**

Discounts for project tokens

Direction	Discount
Closed sales	50%
Pre-ICO	31%
ICO	12%
Team of the project	100%
Bounty	100%

Discounts for tokens for weeks of Pre-ICO and ICO

TOTAL: 31%

TOTAL: 12%

Repayment of tokens

The project involves raising funds from private investors within the ICO. The investors' funds will be attracted for a certain period of time. In this case, the investor can choose at the time of purchase one of two options for calculating for tokens:

At the end of the second year from the project's implementation, he passes the tokens to the project company and receives a one-time payment guaranteeing the receipt of income at 100% per annum, regardless of the results of the project.

During the first 5 years of the project implementation, investors receive dividends at a rate of 40% of the net profit (67% per annum according to the business plan) received by the project company, and at the end of the 6th year from the beginning of the project implementation (i.e. after that, as the investor received dividends for 5 years) tokens are redeemed by the project company at par value.

Recomendations

- The first option guarantees the investor a high profitability with minimal risks.
- The second option provides an annual profitability lower than the first, if we calculate the income of the investor in accordance with the business plan. However, the business plan is conservative, and if the specific project location chosen by the project company is significantly better than the average for the current business plan, the investor can get substantially higher profits, but at the same time shares with the company all the risks of the project.

Consultants and project team

Andrey Zotov, Russia

CEO

Experience in the financial and development areas (BIP company group) in managerial positions for more than 20 years.

Alexey Rakov, Russia

Director for Scientific Research

Co-founder and CEO of a number of commercial firms involved in the design, construction, development. Work experience and research activity for more than 25 years.

Igor Tertyshny, Russia

Senior Researcher

Candidate of Technical Sciences in the Moscow Institute of Chemical Engineering.
Has 34 patents for inventions and 28 scientific and technical publications, engaged in research and development, developing technologies for extracting noble metals from slimes, pyritic cinders, phosphorus-containing ore materials within commercial and non-commercial organizations.

Yuri Gorbunov, Russia

Technical Director

Work experience: 34 years at the Moscow radio factory "Temp" in management positions, where he had 8000 people in the subordination. Under his leadership 6 plants were built.

Shelestov Maxim, Russia

Development Director

He has an experience in deliveries of complex technical, technological, laboratory, computer, sports equipment,software. Experience in attracting investments.

Valentin Moiseenko, Russia

Academician of the Russian Academy of Sciences (1997), Doctor of Geological and Mineralogical Sciences. A scientist, specialist in the field of ore formation, mineralogy and metamorphism of gold.

Igor Pugin, Russia

The developer of 35 state standards for Microelectronics.
Chief designer of the industry for micro assemblies.
Chief specialist of JSC Avangard.
Projects: 1. Developer of micro assemblies for S-400. 2. Development and implementation of the Union State program on Microsystems.

Eduard Rakov, Russia

Doctor of Chemical Sciences, Professor. Head of the Department of Nanotechnology and Nanomaterials; DI. Mendeleyev's.

Olga Vilkova, Russia

Author of 79 scientific articles in journals recommended by the Higher Attestation Commission, 7 patents, 72 reports at international and Russian conferences on chemistry.

Svetlana Zotova, Russia

Executive Director

Leader with 20 years of experience. Experience in the real estate market in the field of management, maintenance, rental of commercial real estate (Street Retail, restaurant business, trade, offices). Founder of companies in the field of trade and social services.

Michael Irgang, France

Adviser

20 years of experience in managerial positions and as a founder of companies in the field of energy, nuclear energy, oil and gas industry. since 2017 FREEL TECH AG www.freel.tech Co-founder and Executive Director. - New technology in the field of energy (engineering, development) from 2017.

Edmond Heraux, USA

Adviser

He has extensive experience in banking, finance, education and business. He is a member of the boards of directors of several large international manufacturing companies.

Andrea Nocentini, Italy

Adviser
20 years of experience in managerial positions. Areas of activity include bio-energy and the launch of integrated environmental protection systems.

Elena Wang, China

Adviser

Dmitry Petrovsky, Russia

Head of Economic Security Service

About 15 years of experience in the field of economic security.

Lyubov Kovalenko, Russia

Experience in senior positions in the field of the metallurgical industry - more than 35 years.

Lidia Bashkirova, Russia

Co-founder of companies for the opening, liquidation, accounting of companies with 15 years of experience.

Dmitry Lisin, Russia

Adviser in financial matters.

Experience in management positions in VTB 24 Moscow.

Sergey Gureev, Russia

IT

Experienced Head of IT Infrastructure Support Departments.

Roman Bratchenko, Russia

IT Engineer

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Thank you for your attention!