

A large yellow bulldozer is shown from a low angle, pushing a massive pile of garbage. The pile is composed of various types of waste, including plastic bags, crumpled paper, and other debris. The bulldozer has a large metal blade and a cabin with windows. The sky above is blue with scattered white clouds. The entire scene is overlaid with a semi-transparent white rectangle containing text.

INVESTMENT PROSPECT COMBUSTOR

waste utilization
technology

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1. INTRODUCTION

1.1 COMBUSTER – INTRODUCTION

PROMBIOGAZ company, Combustor project holder, is in need to attract borrowed funds for the expansion of existing production for the implementation of the project of plasma vortex utilization of municipal solid waste (hereinafter - MSW). Company was founded in 2006 under the name “CEPT” and was re-organized as PROMBIOGAZ in 2017.

We operate in waste management market worldwide, develop engineering works and roadmaps of MSW landfills, conduct studies of the morphology of the landfills, provide complex technological schemes for rehabilitation and degassing of MSW landfills, leachate treatment and development of integrated solutions for the treatment and use of landfill gas.

Our development team has designed an innovative system for utilizing solid carbon-containing waste based on the plasma vortex utilization method. The technological base of the project is the experience gained as a result of many years of work at the National Research Nuclear Institute MEPhI.

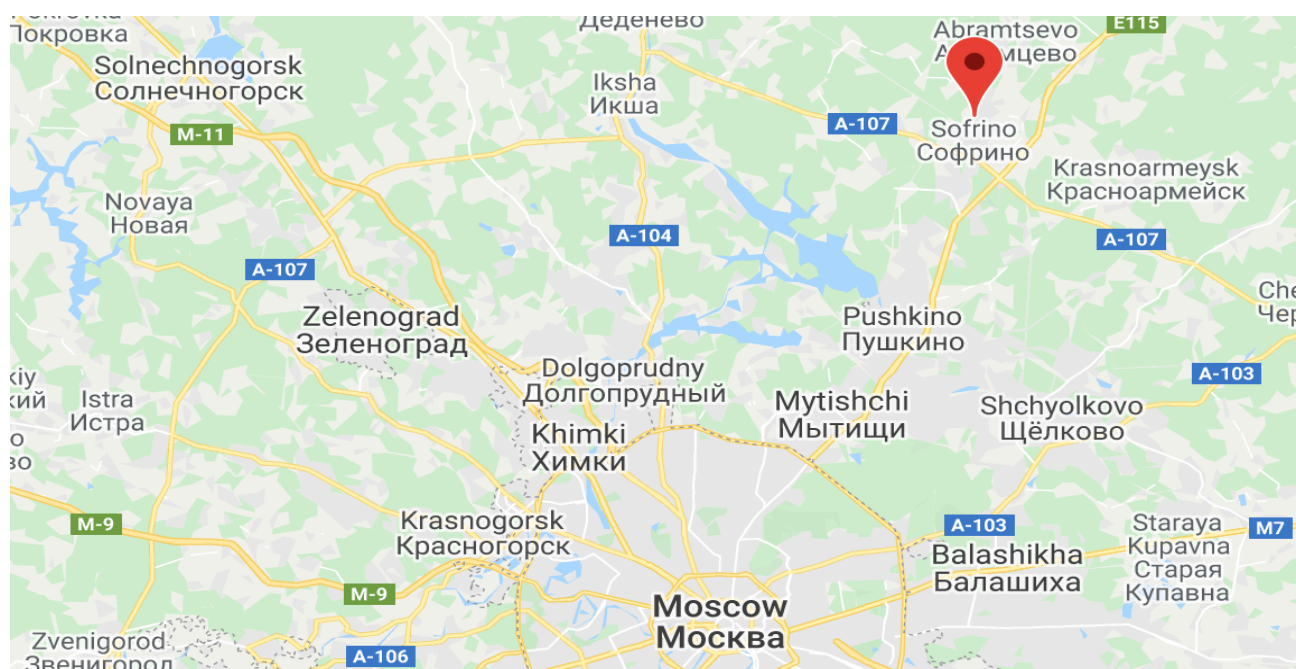
As far as company's mission is the creation, development and introduction of innovative technological solutions for the elimination of accumulated environmental damage, our goal is to expand the existing production to implement the plasma vortex utilization project. To accomplish this goal, we are attracting investments in amount of \$1 765 500, one round of investments is planned during the project implementation period of 3 years.

1.2 CURRENT STATUS

To date, company has conducted full design works for the production of 2 unit sizes, constructed and fully tested the demo unit, prepared full contract base with future customers, formed the management, production and development team. In 2018-2019, we have also conducted the first unique research of the waste management market in Russia and made conclusions, based on which the project was modified respectively the market needs.

According to the results of the modification, a business model was proved to be effective – our company has concluded 10 pre-contracts with customers for the units of different sizes and spare parts.

The production center is based in Sofrino village of Pushkinskiy area in Moscow Region, which is fully equipped and staffed. Our center has all necessary infrastructure and is easy to reach from Moscow.



All contacts and pre-contracts with suppliers of raw materials and spare parts are established and signed for the Russian and CIS market. To implement the project outside Russia, a large chain of partners and suppliers is worked out during years of work.

Business processes for commercial activity of the company are formulated and described. Financial model is developed and calculated with macro forecasts for 3 years. Road map is created for the production and commercial processes.

Company has 2 working websites: the first one is devoted to the company's main activities (<https://prombiogaz.ru>), and the second one – about the current project (<https://combustor.ru>). Social media accounts will be made and maintained according to the developed content plan, which will include company's news, articles about different technologies and innovations and materials about the ecology.

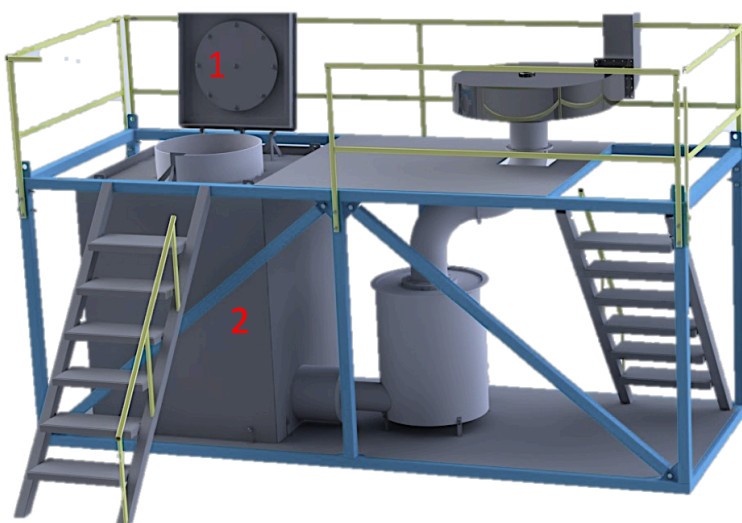
1.3 PRODUCT OVERVIEW

The technology of plasma vortex utilization is a proprietary development of the team, supported by many years of experience and competencies gained during work at All-Russian Scientific Research Institute of Chemical Technology and National Research Nuclear Institute MEPhI.

Our Combustor can be used for the disposal of MSW and any other carbon-containing wastes with final purification products (distilled water and mineral dry residue), as well as for power generation. Plasma gasification process produces a large amount of heat (2 times more than during oxidation). Flue gases are neutral and do not contain hazardous emissions. The heat flow is supplied to the recovery boiler, where energy is transferred to the working fluid. At the outlet of the recovery boiler, a cyclon with a capacity of 6000 m³ will be installed, the fan of which will ensure the separation of the dry fraction. The recovery boiler provides a dual function: on the one hand, it provides cooling of flue gases to a safe temperature of 150 degrees, and on the other hand, it produces low-pressure steam for use in heating.

The Combustor constructively represents a special variant of a fluidized bed layer furnace, gas exhaust ducts, a special design of the vortex combustion chamber and a special vortex unit, which ensures the discharge of neutralized exhaust gas to the atmosphere. The module is mounted in a 20- or 40-ft ISO container.

For the formation of the vortex motion of gases, the Combustor consumes up to 2 kW of electricity, providing an output (depending on the composition of MSW) of about 130 kW of thermal energy for every 0.5 m³ of the working chamber volume of the Combustor.



Here is a schematic representation of the Combustor-0,5:

Waste is loaded into the utilization chamber through the upper charging port (1) and enters the reactor (2), where complex exothermic chemical reactions of MSW utilization take place in the high-temperature vortex region, accompanied by the release of large amounts of thermal energy. In this area, the breaking of chemical bonds occurs - the decomposition of chemical compounds into elements (C, O₂, H₂, etc.), the withdrawal of the gas fraction and the formation of ash sludge.

The ash sludge is sand, NaSO₄, CaSO₄ and FeS₂ due to plasma-chemical reactions of sulfur binding occurring in the reactor. Phosphorus compounds are restored to the so-called "black phosphorus", which is a black substance with a metallic luster and with no solubility in water or organic solvents.

The important features of the Combustor include:

- Fuel - various carbon-containing unsorted waste (MSW) with humidity up to 50%.
- Emission reduction:
 - CO up to 200 ppm;
 - NO up to 200 ppm;
 - No SO₂.
- Heat loss with chemical and mechanical underburning at the exit of the Combustor is not more than 10%.
- Perfect organization of the burning process - fuel utilization is carried out with small excesses of air; the composition of exhaust gases contains from 10 to 16% of oxygen.
- The thermal voltage of the Combustor chamber is 0.2 MW/m³.
- Total mineral insoluble residue - no more than 6% of the total amount of recyclable waste.

The Combustor implements a wide range of oxidative plasma-chemical catalytic reactions in a wide temperature range from 600°C to 1600 °C, occurring in carbon-containing fuel, including MSW, known as oxidation, carbonization (LHC), gasification of various types, etc.

The predominant processes and their combination for various types of carbon-containing fuel is chosen experimentally.

Due to the high temperature achieved as a result of the formation of plasma, the utilization of carbon-containing waste to simple elements, but not simple burning happens. As a result of the work, furans, dioxins and other hazardous gases are not formed, as, for example, after incineration of waste in waste incineration plants, and the volume of the residue does not exceed 6% of completely neutral mineral salts.

TECHNICAL SPECIFICATIONS

Combustors were designed for various needs and of different capacity:

- C-0.5 m³ for disposal of medical waste, sanction products, expired products of retail chains in small quantities;
- C-5 m³ for disposal of MSW of small settlements;
- C-50 m³ for disposal at landfills and gradual elimination of deposited waste.

Combustors with a capacity of 0.5 m³ and 5 m³ are mobile and transported in standard ISO containers, and a processing complex with a capacity of 50 m³ is built into the current infrastructure of the landfill and replaces all additional treatment facilities.

With this technology it is possible to achieve the complete elimination of existing MSW landfills, re-cultivate and free the land for other purposes.

At present, the design work of the units with a capacity of 0.5 m³ and 5 m³ has been completed, their technical specifications are given below:

Loading chamber volume	0,5 m ³	5 m ³
Productivity	5 t/day	50 t/day
Dimensions	6 x 2,4 x 2,4 m	4,8 x 6 x 5,8 m
Maximum total power consumption	3 kW	6 kW
Peak power consumption at startup	6 kW	12 kW
Service staff	1 person/shift	1 person/shift
Instant peak temperature of plasma chemical conversion	not less than 2000 °C	not less than 2000 °C

Thus, it can be concluded, that there are no harmful emissions into the atmosphere as a result of the work of the unit. The technology is an absolutely ecological way of solving the problem of accumulating MSW.

1.4 COMPANY APPROACH

The waste management industry in Russia is not only short of complex vision of the problem and its complex solution, but also multi-skilled specialists with great field experience. Practically all decisions on the introduction of new technologies in this sphere are made without thorough analyses or with the attraction of experts with misconceptions or narrow experience and knowledge.

Our company became the professional participant of the waste management market more than 15 years ago and since that time was collecting knowledge and global experience in order to understand all the pitfalls and challenges of the industry. We understand that Russian practice of blind adoption of foreign experience and technologies is at least illogical due to Russian reality. Our experience, in its turn, is both positive and negative, and as a result we can estimate the real conditions and make intelligent decisions.

Our team possesses multiple skills and knowledge, each team member is responsible for the whole result. Thus, we have developed such a complex system, which will be easy to operate, which does not require any high-skilled actions and is absolutely environmentally friendly. The unit is mobile, so it can be transported and installed even in hard-to-reach areas; it does not require any fuel except the utilized waste, and it generates a huge amount of power. While Russian energy is rather cheap, at the same time the market is monopolized, so any alternative energy technologies are potentially a threat for national energetic giants, and that's why our project can be promoted fully only with the attraction of borrowed funds, but not as a part of a national program.

1.5 OBJECTIVES AND VISION

The profile of our company is the development and implementation of an innovative system for the purification of solid carbon-containing waste, based on the method of plasma utilization. Our core objective is an expansion of existing production to realize the project. However, during the preparation works, our team set the list of objectives for the future of our company and for the industry as well:

Objectives of the company:

- 1) Attract investments in amount of \$1 765 500 to expand the production and start the R&D works on the units to work out the regimes and bring the technical schemes to a perfection;
- 2) Upgrade the production center and switch to small-scale production of C-0,5 and C-5;
- 3) Continue the design and R&D works for the processing center with the daily capacity of 50 m³ to switch the pre-production stage;
- 4) Continue R&D works of the unit which is capable of processing the liquid carbon-containing waste such as landfill leachate and landfill leachate concentrate. To date, the project for liquids is finalized, all documents are prepared, all design works are completed;
- 5) Attract investments in amount of \$5 070 000 to complete the second stage of the project of plasma vortex utilization;
- 6) Conduct an IPO and become a public company.

All the above mentioned steps cannot be fulfilled without taking the objectives of the industry into consideration. As far as our company mostly deals with the consumption waste from the population, some of our initiatives, in our opinion, should be funded by the government. Our team has developed an education program for young engineers and physicists and for MSW landfill workers. The program will not only include service regulations of our units, but also basics of operating the landfills, systems of degassing, leachate treatment, flares and so one. The intelligent service of a landfill cannot exist without proper understanding of it as a vivid body, so additionally we will open the courses of proper waste management for the servicemen.

2. MARKETING PLAN

2.1 MARKET ANALYSIS

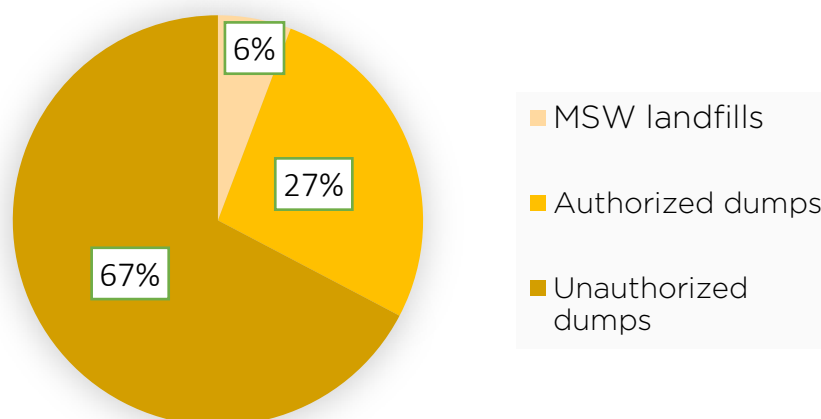
2.1.1 MARKET OVERVIEW

Today in Russia, the current situation in the field of municipal solid waste management leads to environmental pollution and creates a real threat to public health.

Every year, about 65 million tons of MSW are generated in Russia only from the population, which is about 10% of all annually generated wastes. At the same time, MSW is formed from small and medium-sized businesses, non-residential funds, large-scale enterprises, etc., so the real figure is much higher. According to Rosprirodnadzor, the volume of production and consumption waste accumulated by 2016 (last survey) is 40 billion tons.

Practically all the amount of generated MSW is deposited at landfills, authorized and unauthorized dumps; only 4-5% of this amount is recycled. In total, there are about 1,500 MSW landfills in the whole country, more than 7,000 authorized dumps, and about 17,500 unauthorized dumps; all together it should be regarded as accumulated environmental damage. All the specified objects of MSW placement occupy an area of about 50.0 thousand hectares (47.7 thousand hectares). Most of all, the problem is felt in the Moscow region, where 20% of all MSW landfills are concentrated, and 95% of the waste is deposited. Over the past 5 years, 24 landfills were closed in this region, the remaining capacity - 2.7 million tons per year.

WASTE PLACEMENT IN RUSSIA



The real level of MSW accumulation in Russia is much bigger than in nearby European countries, so it is illogical to adopt their experience in handling waste. The main differences of Russian reality are:

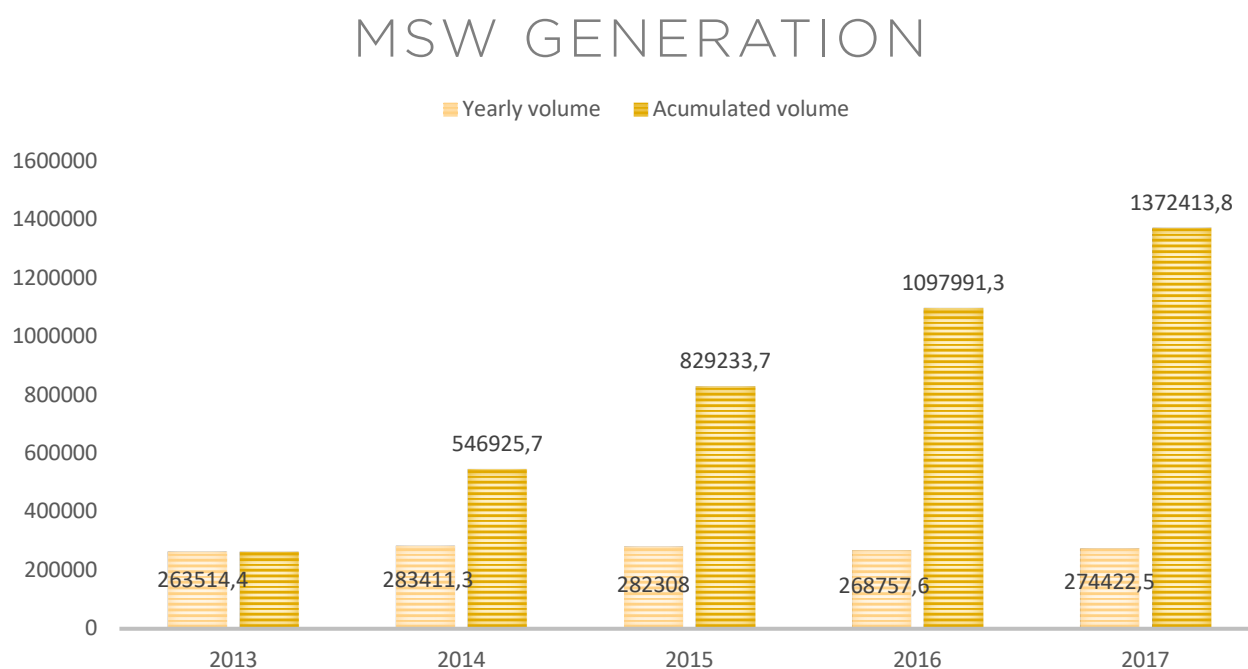
- Climatic conditions;
- Multi-million population;
- Another consumer culture;
- Multi-storey building.

Despite all the prerequisites leading to the successful practice of separate waste collection and recycling, the actual separate waste collection averages only 30% in such countries as Spain, Italy and France. The remaining waste is transported to various sorting centers, where only 5% of the received volume is separated by mechanical, biological and manual sorting, and the rest is buried in landfills. So, basing on our experience, we can conclude that the separate collection and sorting of waste is not the only correct and accurate solution to the "junk" problem.

With an average yearly volume of only household waste of 370 kg per capita, it is illogical to be limited to only one method of waste disposal. The construction of large waste incineration complexes is not suitable for small remote settlements, as well as the construction of landfills - for cities distant from each other. A necessary solution to the problem of accumulating MSW in Russia is a comprehensive and structured approach to the whole waste management industry.

2.1.2 MULTIPLE INDUSTRY ANALYSIS

The market volume is constantly growing, as the mass of stored MSW increases, which is on average 275 million m³ annually. Consumption volumes from which waste is generated also increase every year. The dynamics of MSW generation (the volume of MSW removed by year) over the past 5 years in thousands of tons is indicated below:



INDUSTRY TURNOVER: according to the Ministry of Ecology and Environment of the Russian Federation, the total turnover of the waste management industry is approximately \$3 165 789 200 (200 billion rubles). It is worth adding that in the calculation of turnover only official data were used, so it is logical to assume that the real volume is several times higher. The industry refers to all market participants, including small companies engaged in the collection and disposal of waste, processing and production of certain types of non-hazardous waste (such as waste paper, plastic), as well as organizations engaged in waste management activities, namely, landfills, waste incineration plants , processing and sorting stations, etc.

MAIN MARKET SEGMENTS: the market is conditionally divided into methods of utilization of MSW, which can be regarded as segments: these are mechanical and biological sorting, treatment and further disposal of waste at landfills, mobile incinerators and incineration plants, pyrolysis utilization and thermocatalization. Companies operate in each of the market segments.

MARKET TREND (GROWTH / FALL): New Growing Deficit Market.

PRICING: pricing principles are based on tariffs for waste disposal at landfill sites. Over the next 3 years, one can predict an increase in prices due to the practice of applying investment allowances.

DEGREE OF SATURATION: a large number of companies involved in garbage collection at landfills and landfills themselves, as well as companies that provide intermediary services, but there are no companies that are able to completely solve the task.

DEGREE OF STATE REGULATION OF THE INDUSTRY: the state actively regulates the waste management market. In the germ is a single regulatory authority – the so-called regional operators, who oversee all activities in the industry. Also, for the implementation of certain activities in the industry, the company should have a license.

SPEED OF INNOVATION AND TECHNOLOGICAL CHANGES IN THE INDUSTRY: low for several reasons - outdated methods of control over the industry, not high awareness of the problem of waste management and, most importantly, the lack of scientific knowledge and competences of competitors.

DEGREE OF STATE REGULATION OF THE INDUSTRY: at the moment, the state and regulatory bodies actively regulate the market for waste management. In the bud is a single controlling body - the so-called regional operators, which oversee all activities in the waste management market. Also, to carry out certain activities in the industry, you must have a license.

BARRIERS TO ENTRY INTO THE INDUSTRY: the main barriers are administrative - for functioning in this market, personal contacts with representatives of the state apparatus and local administrations are necessary; as well as high economic barriers - the costs of organizing the production and further marketing of the product are often unbearable for startups without attracting third-party funding.

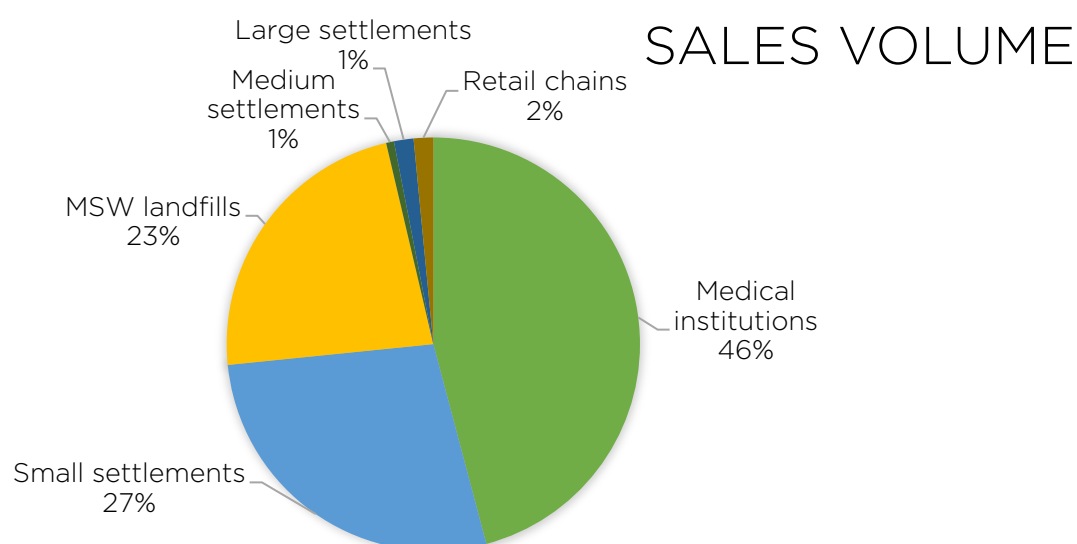
SEASONALITY OF SUPPLY AND DEMAND: the seasonal factor does not significantly affect the organization of activities.

INDUSTRY TRENDS: close attention to the problem of environmental damage caused by the negligent activities of MSW landfills and regulatory bodies. The growing progression of acute and chronic allergic diseases aged among children between 14 and 18 years (in recent years, the number has reached 40%).

2.1.3 AVAILABLE MARKET OVERVIEW

The volume of the available market is enormous and is not amenable to accurate calculation due to non-transparent control over the industry and daily changes in related industries, such as the medical waste market. For example, all retailers do not disclose data on the volume of expired products, and also do not properly monitor the presence of expired goods on the shelves in supermarkets, which are thrown away by inattentive buyers. Also, unfortunately, most medical institutions, both remote and located in large regional centers, often do not mark their waste for economy and “throw out” everything as a non-hazardous category B - there are many such examples of irresponsible attitude to sorting and recycling. Despite the impossibility of rendering available, we are actively working, attracting customers and already have a certain number of customers for the first calendar year.

Potential volume of customers divided by segments:



Number of customers during first calendar year: 5 companies from Russia and the near abroad, who pre-ordered five 0.5 m³ Combustors and 5 Combustors of 5 m³. The increase in revenue over the entire duration of the project is 20% for each year.

Average cost per year that these customers can spend on our product during the year depends on the type of Combustor and amounts to \$52,000 for a 0.5 m³ model and \$339,000 for a 5 m³ model.

Thus, an annual market share available is \$816000, or 0,4% of the whole market.

2.1.4 CONSUMER ANALYSIS

Our clients are both individuals and legal entities: first of all, these are operating MSW landfills, who will be the main consumers of 50 m³ model with a daily capacity of 100 tons for the gradual disposal of fresh and already disposed waste, as well as 0,5 m³ models and a capacity of 5 t/day for the disposal of medical waste, expired goods and the so-called "tails" - residues after sorting and recycling in mechanical and biological plants. In addition to these professional market participants, customers also include administrations of small cities and settlements, who will be interested in 5 m³ models and a capacity of 50 to/day. These Combustors will be especially attractive for remote settlements, where waste collection is performed irregularly.

Target consumers. At present, we already have potential consumers, we rely on their profile in calculations, and therefore their description is presented below:

- Type of client: legal entities - professional and indirect participants of the waste management market.
- Average sales: \$163 000.
- Size of business: medium.
- Organization structure: LLC/ state-owned companies/public companies.
- Relationship Model: B2B, B2G.
- Customer problems: tense social environment in the field of waste management, the urgent need to carry out activities for the degassing and leachate processing.
- Processed sources of information: personal partnerships with clients; orders of the Government of the Moscow Region, the Ministry of Ecology and Nature Management of the Moscow Region; general provisions of the Ministry of Ecology and Nature Management of the Russian Federation, etc.
- Geographical location: during the first calendar year, Combustor's sales are scheduled in Russia, Lithuania and Poland.

2.2COMPETITOR ANALYSIS

2.2.1 DIRECT AND INDIRECT COMPETITORS

There are 4 main methods of MSW utilization: mechanical-biological cleaning and sorting of waste and its further burial at landfills, incineration in incineration plants and incinerators, pyrolysis, as well as highly technological, but little-studied thermo-catalytic methods of disposal. We do not take into consideration the companies involved in the removal and disposal of MSW (for example, landfills), as well as those companies that are engaged in the processing of certain factions, such as wastepaper and plastic.

Our direct competitors are companies specializing in the so-called high-temperature utilization – mobile incinerators, incineration plants and pyrolysis systems.

WASTE INCINERATION PLANTS are enterprises, which use the technology of MSW utilization through thermal decomposition in boilers or special furnaces through layer burning, pyrolysis or gasification and using fluidized bed technology. Such plants are capable of processing more waste than all other technologies, but they are extremely detrimental to the environment and the population, because when burning in any of the ways, a huge amount of sludge, ash and harmful emissions is generated - the toxins produced have a negative effect on human health, air quality and water.

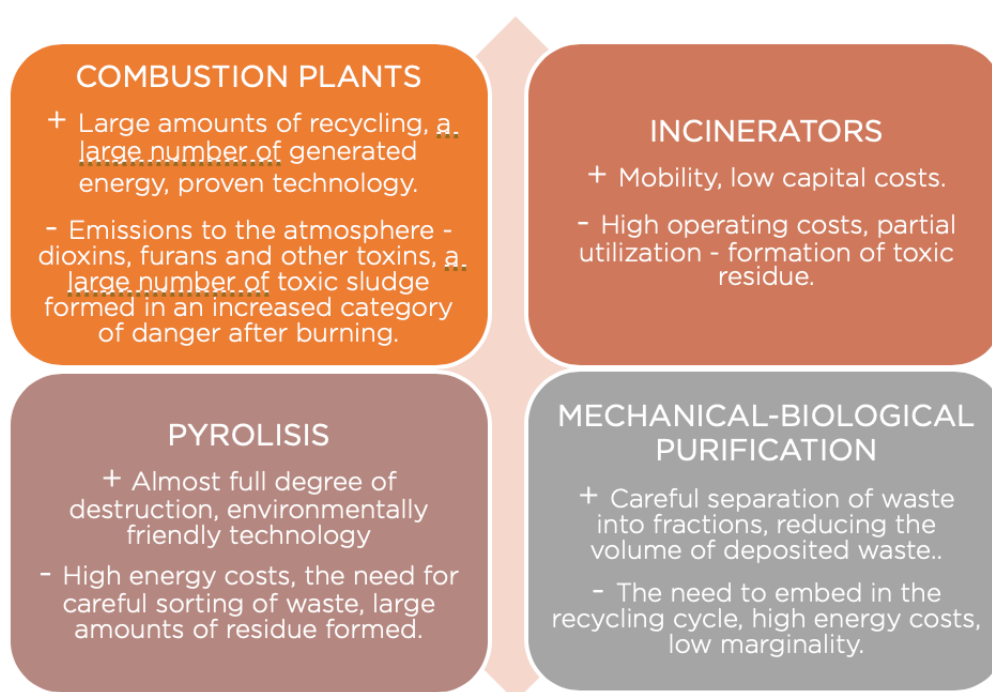
INCINERATORS are essentially mobile incineration plants that can be located in remote locations and utilize waste in small quantities. Despite the seeming similarity of the design to Combustor, the incinerator cannot completely dispose MSW and requires significant energy consumption, since the energy obtained during the combustion process cannot cover the energy needs.

PYROLYSIS is the thermal destruction of the original substance (the pyrolysis reaction implies the destruction of the normal structure of the substance using high temperature in an oxygen-free environment). When using this method, waste must be sorted by fractions. Waste enters the upper part of the reactor, where it is dried and under its own weight is moved into the middle part of the reactor, where namely the pyrolysis process takes place. In the middle oxygen-free part of the reactor, waste is coked and thermally decomposed. During this process, waste is disposed, is moved into the bottom of the reactor and is discharged from the outside. The sludge obtained as a result of this process, which is a mixture of ash and salt, is placed in containers. Pyrolysis wastes are neutral and do not pose a threat to the environment.

The main indirect competitors of the company are companies engaged in various types of mechanical and biological cleaning, sorting and processing of waste (hereinafter – **MECHANICAL-BIOLOGICAL TREATMENT PLANTS**, MBT). This group includes the MBT plants themselves, tunnels for separating the organic fraction, autoclave technology and much more. The goal of all such enterprises is to reduce the amount of deposited waste and to separate as much resources as possible for recycling and reusing. Such plants are common in the EU, as the existing European environmental directives force to minimize the amount of waste to be disposed of at landfills.

We conducted own research into this waste management practice and visited several factories in southern and central Europe. As practice shows, for efficient operation such stations should be located on the territory of the operating landfills in order to embed processing into a single production cycle and select resources for recyclables. It should be added that, although the MBT plants have no strict application time, all landfills have their own life cycles, so after their closure it is necessary either to close the plants or to transport the selected waste for depositing many hundreds of kilometers to the nearest open landfills, which undoubtedly increases the cost of maintenance and the tariff itself for recycling.

Below is a chart with strengths and weaknesses of main groups of competitors:



Based on the above analysis, we can conclude that at the moment all known and used technologies for processing MSW and other carbon-containing waste cannot provide a single solution, respectively, we can operate freely in this market segment.

2.2.2 COMPETITIVE ADVANTAGES

1. **PRODUCT:** our product outperforms its competitors, because in Russia at the moment there are no companies that specialize in the complete disposal of MSW. The company can offer unique solutions:
 - Proven, stable technology;
 - 100% disposal of MSW or any other unsorted carbon-containing wastes that cannot be divided into fractions before the utilization process;
 - Ability to recycle waste with a low content of combustible fractions;
 - No need to pre-dry the waste;
 - Exothermic process - the possibility of supplying heat waste;
 - The absence of any polluting emissions to the atmosphere after disposal of MSW: only water vapor and dry mineral residue remain at the outlet;
 - Free generation of an energy as a result of operation;
 - Low operating costs: the design of the unit involves the installation of a mobile power plant, which will provide energy for plasma utilizer itself, and other household facilities at those locations, where it will be installed;
 - No need to use chemicals and components, which allows to achieve the minimum cost of operation;
 - All components are Russian made.
2. **STAFF:** a team of engineers-physicists has a unique accumulated experience, knowledge and competencies in the development of innovative products that are far ahead of their time. The management team has 20 years of experience in bringing such high-tech projects to the market, interacting with government authorities, media representatives and the public; environmental experts have in-depth knowledge of waste management, the morphology of MSW landfills and various methods for the disposal of all types of waste.
3. **LOCATION:** production is located in the village of Sofrino of the Moscow region for several reasons: first, the location is in the Moscow region, secondly, good transport accessibility and the possibility of reducing costs when planning logistics, thirdly, the relatively low cost of rent compared to with other regions of the Moscow region, and finally, fourth, personal relations with the management of the industrial complex.
4. **OPERATIONAL PROCESSES:** PROMBIOGAZ has developed operational processes with which it can ensure low operating and capital costs for products.
 - To reduce operating costs (electricity to support the operation of the unit), all Combustors are equipped with electric generators that operate on the

gas-vapor mixture released during the disposal of MSW and other carbon-containing waste. This electricity can be used for household needs, which will significantly save energy costs.

- The factories of the companies that produce the components we need are located in the central region of Russia, i.e. the cost of delivery to the production hall is also reduced. Also, 0,5 m³ and 5 m³ Combustors are designed to fit into standardized ISO 20-ft containers, which does not require the construction of separate production facilities at landfills - for the installation of containers only a flat concrete platform is needed.

5. **INTELLECTUAL PROPERTY (IP)**: our company owns intellectual property that gives advantages over competitors. IP includes unique knowledge and experience of the development team of engineers who designed various turbines, reactors and other equipment for the disposal of waste of various levels of danger. The team's knowledge and skills were accumulated during many years of work and cooperation with All-Russian Scientific Research Institute of Chemical Technology and National Research Nuclear Institute MEPhI during the times of the Soviet Union, perestroika and in modern Russia. It can be concluded that experience, together with excellent technical background, will provide an opportunity to become industry leaders. The company also operates in the know-how mode, estimated at \$512915.
 6. **CUSTOMERS**: in its core business, we already work with important customers who do not work with competitors. These are the Ministry of Ecology and Natural Resources of the Republic of Tatarstan, the Ministry of Agriculture and Food of the Republic of Tatarstan, the Union of the Chamber of Commerce and Industry of the Republic of Tatarstan, and the INPES Company (Novosibirsk). Despite the fact that these customers operate outside the main region - the Moscow region, we plan to sell products outside Moscow. We cooperate with all clients from the Moscow region in a competitive environment, but after the release of our product, we are confident that our market positions in this region will become leading.
 7. **MARKETING**: our company works mostly in B2G area; therefore, it is impossible to use standard marketing solutions. It is planned to attract the attention of citizens to the problem of waste and the importance of environmental literacy through informational commercials and large public events.
 8. **MAJOR ACHIEVEMENTS**: today we are successfully operating in the waste management market and cooperating with many world leaders in the industry. Knowledge of the MSW landfills, team competence, together with a deep understanding of the problem and the market, will make it possible to achieve leading positions in the region in the MSW processing sector in the future.
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Our company has unique competencies that make it possible to successfully implement the plasma vortex utilization project for several reasons:

1

Unique experience in the development of high-tech projects based on the engineering school of USSR;

2

Qualified team of physicists-engineers;

3

11 patents in the field of high technology and a know-how regime;

4

High level of technical skills.

3. FINANCIAL PLAN

3.1.1 FINANCIAL SUMMARY DATA

Below is a financial summary forecasted for 3 years (lifecycle of a project):

VALUE	UNIT	1 YEAR	2 YEAR	3 YEAR
INCOME FROM SALES (NO VAT)	USD	1 914 950	2 297 939	2 757 527
OPERATIONAL MARGE (NO VAT)	USD	492 600	920 907	1 211 548
OPERATING EXPENSES (NO VAT)	USD	1 422 350	1 377 033	1 545 979
EBITDA	USD	492 600	933 495	1 224 136
NET PROFIT	USD	171 653	585 248	979 315
PROFITABILITY INDICATORS				
OPER. MARGE / INCOME		26%	40%	44%
EBITDA / INCOME		26%	41%	44%
NET PROFITS / INCOME		9%	25%	36%
CASH BALANCE	USD	885 896	(560 850)	676 747
BALANCE OF CASH AT THE END OF PERIOD	USD	885 896	(560 850)	676 747

3.1.2 NECESSARY FUNDING

The needed financing amount is \$1 765 500 for the period of 3 calendar years. The incoming funding will cover R&D costs and the production of first Combustors including work and raw materials. Our company plans to receive revenues through direct sales to customers from Russia and the near abroad during the entire period of the project, with which preliminary contracts have already been concluded. Income from first manufactured units will cover the investments, as revenue generation will start at 4th month after raising funds. On 8th month all attracted funds will be returned.

Below is a table with the distribution of incoming financial flows, both borrowed funds and the proceeds from the sale, for the entire duration of the project:

DEVELOPMENT	\$
R&D	768607
Including	
LABORATORY EQUIPMENT	115214
WORKING CAPITAL	2098676
Including	
RAW MATERIALS	2029041
MATERIALS, CONSUMABLES	69635

We will be able to start earning revenue after sales of installations to customers from Russia and the near abroad (CIS countries, Baltic countries, Eastern Europe), as well as sales of component parts for installations that need to be updated 2 times a year.

A full return on investment will occur 8 months after receiving funding. (PBP - 0.66 years). After the sale of the first installation, the company will begin to receive income and go into the phase of return of borrowed funds.

Payback period (**PBP**) and discounted payback period (**DPBP**) for the project is 8 months (0.66 and 0.67 years, respectively). Net Present Value (**NPV**) – \$2 120 090, Profitability index (**PI**) - 1.30, Internal rate of return (**IRR**) - 16.17%.

3.1.3 ANNUAL PROFIT AND LOSS STATEMENT

№	VALUE	UNIT.	1 YEAR	2 YEAR	3 YEAR
1	GROSS INCOME	USD	1 916 234	2 299 480	2 759 376
2	MATERIALS AND COMPONENTS	USD	520 390	554 369	665 250
3	GROSS PROFIT	USD	2 436 624	2 853 850	3 424 626
4	SALARY	USD	727 996	776 413	834 593
5	TOTAL EXPENSES	USD	174 902	47 174	47 174
6	DEPRECIATION	USD	-	-	-
7	TOTAL COSTS	USD	1 423 303	1 377 956	1 547 016
8	SALES PROFIT	USD	492 930	921 524	1 212 360
9	PROPERTY TAX	USD	-		
10	INTEREST PAYABLE	USD	(220 438)	(202 063)	-
11	OTHER COSTS	USD	-	-	-
12	PROFIT BEFORE TAX	USD	272 493	732 042	1 224 957
13	INCOME TAX	USD	(100 724)	(112 612)	(124 516)
14	NET PROFIT	USD	171 768	585 640	979 972
15	CUMULATIVE PROFIT	USD	171 768	585 640	979 972
	EBITDA	USD	492 930	934 121	1 224 957
	EBIT	USD	1 916 234	2 299 480	2 759 376

3.1.4 CASHFLOW STATEMENT

№	VALUE	UNIT.	1 YEAR	2 YEAR	3 YEAR
1	PROCEEDS FROM OPERATING ACTIVITIES	USD	1 916 234	2 299 480	2 759 376
2	MATERIAL COSTS	USD	(520 390)	(554 369)	(665 250)
3	SALARY	USD	(727 996)	(776 413)	(834 593)
4	TOTAL COSTS	USD	(174 902)	(47 174)	(47 174)
5	TAXES	USD	(252 008)	(414 675)	(535 160)
6	CASH FLOW FROM OPERATING ACTIVITIES	USD	240 923	506 834	677 200
7	INVESTMENTS IN BUILDINGS AND FACILITIES	USD			
8	INVESTMENT IN EQUIPMENT AND OTHER ASSETS	USD			
9	INVESTMENTS IN INTANGIBLE ASSETS	USD			
10	CASH FLOW FROM INVESTING ACTIVITIES	USD	-	-	-
11	OWN FUNDS	USD	-	-	-
12	LOAN RECEIPTS	USD	1 574 555	-	-
13	CREDIT REPAYMENT	USD	(708 550)	(866 005)	-
14	PAYMENT OF INTEREST ON LOANS	USD	(220 438)	(202 063)	-
15	CASH FLOWS FROM FINANCIAL ACTIVITIES	USD	645 568	(1 068 068)	-
16	TOTAL CASH FLOW	USD	886 490	(561 234)	677 200
17	CASH CUMULATIVE	USD	886 490	(561 234)	677 200

4. RISKS

All possible risks, that can arise during an implementation of this project, can be divided into internal and external risks. Our team has developed a risk minimization strategy, which is presented below.

Nº	NAME	CAUSES	POSSIBLE DAMAGE	PREVENTION MEASURES
1.	TECHNOLOGICAL RISK	Equipment malfunction	Stopping services	Preventive maintenance and repair, staff development
2.	FINANCIAL RISK	Unscrupulous partners	Loss of property, reduced quality of services provided	Differentiation of responsibility of the parties and fines in case of non-compliance in terms of the contract
3.	EXTERNAL ECONOMIC RISK	Exchange rate fluctuations, political and economic instability	Material losses due to changes in the size of the payment	Insurance protection, determination of the degree of reliability of international partners, a detailed study of the contract
4.	LEGAL AND REGULATORY RISKS	Violation of contract terms, change of legislation	Termination of services, imposing restrictions	Preliminary study of legal issues and review of all innovations in legislation
5.	SOCIAL RISK	Non-professionalism of workers, conflicts in the team	The need to change personnel - the cost of finding new employees, a temporary decrease in labor efficiency	Creating a clear regulation and delimiting the functions of each employee, measures to improve the working climate, a motivation system aimed at the result
6.	ORGANIZATIONAL AND MANAGEMENT RISK	Leadership mistakes	Depends on the specific mistake	Preparation of long-term and short-term development strategy, joint planning and joint decision-making with subsequent verification by independent experts
7.	RISK OF FORCE MAJEURE, ENVIRONMENTAL RISK	Fire, flooding, acts of terrorism and other natural and man-made disasters.	Financial and time costs for infrastructure rehabilitation	Creation of control regulations for employees, repairs as necessary.

5. TEAM

5.1 MANAGEMENT BOARD

Our team is formed by professionals with many years of experience. The decision to create a company to promote the technology of vortex utilization came in April 2018, when we began to actively work on the project and when the team was joined by responsible employees. Below is a list of short CVs of all the managers:



IGOR NOVIKOV

PhD. Senior Researcher of the Department of Laser Thermonuclear Fusion Physics / Institute of Laser and Plasma Technologies.

Expert of a number of councils in scientific and innovative activity (NRNU MEPhI, ANO MNTP "Technopark in Moskvorechye", FFSMP). Provides a theoretical justification of the project. He is a professor in NRNU MEPhI.

Degree in Physical and Technical Sciences, qualification - engineer-physicist. He has a diploma from the Institute of the National Research Nuclear University MEPhI (Moscow, Russia).



ALEXANDER MIRONOS

PhD in Physical and Mathematical Sciences in Quantum Radiophysics.

Senior Researcher of the Department of Laser Thermonuclear Fusion Physics / Institute of Laser and Plasma Technologies. Works in the field of LENR (low-energy nuclear reactions), incl. in a vortex gas-vapor medium. Has more than 90 scientific papers. Engaged in research in the creation of new energy sources

Degree in Physical and Technical Sciences, qualification - engineer-physicist. He has a diploma from the Institute of the National Research Nuclear University MEPhI (Moscow, Russia).



NIKOLAY CHERNOV

Initiator of the project. Expert in international relations, more than 10 successful projects in the Asian region, a profitable business for the distribution of high-tech equipment from Japan. Has extensive experience of doing business in the commercial and industrial spheres in Southeast Asia. In 1992, he established Public Joint Stock Company Velles, which is the head organization of the VELLES group of companies. The group is one of the leading suppliers of equipment for light industry in Russia, Belarus and Ukraine. Distributor of the following technological equipment: industrial sewing equipment of the trademarks FEYUE, BROTHER, KANSAI SPECIAL, GARUDAN, JUKI, YAMATA, sales of equipment under its own trademarks VELLES, LEADER.

Degree in medicine, qualification - oncologist. He has a diploma of the Pirogov Russian National Research Medical University (Moscow, Russia).



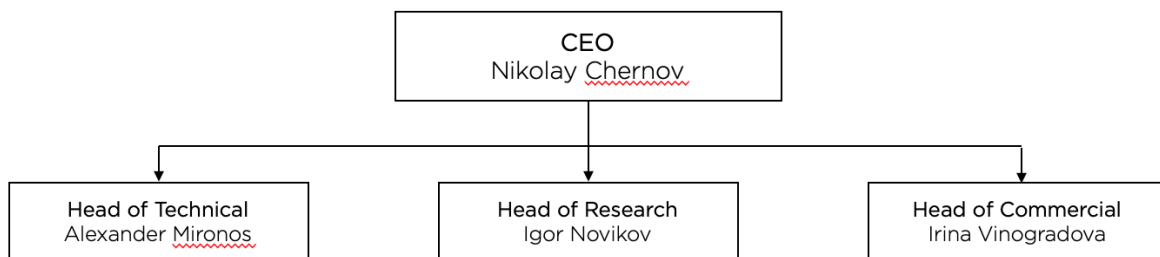
Irina Vinogradova

Expert on public relations and external communications with foreign partners. Has extensive experience in interaction with the media and representatives of the state apparatus. A large number of implemented public activities and events. She managed a media holding where she produced a glossy magazine in print and online versions, producing artists, bloggers and entrepreneurs, promoting PR actions, music tracks and video. In 2016-2017, she was involved in organizing the delivery of world celebrities to Russia to her own social events, including Gianluca Vacchi and Paris Hilton. Possession of 3 foreign languages, knowledge of which is confirmed by international certificates

Degree in Economics, qualification - financier. She has 2 University diplomas: Plekhanov Russian Economic University (Moscow, Russia) and Hogeschool van Arnhem en Nijmegen (Arnhem, the Netherlands).

ORGANIZATIONAL STRUCTURE

Our team of developers and executives are enthusiasts who want to introduce worthwhile technology to solve a number of environmental and social problems in the Russian Federation. A number of unique knowledge and accumulated experience as a result of many years of work at the All-Russian Scientific Research Institute of Chemical Technology and National Research Nuclear Institute MEPhI allowed us to invent and design a plasma utilization plant, and now proceed to the project implementation stage. Project organization structure:



6. LEGAL INFORMATION

Full name: LIMITED LIABILITY COMPANY "GUILD OF DEVELOPMENT OF PROM-BIO GAS TECHNOLOGIES"

Short name: LLC "PROMBIOGAZ"

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Mailing address: 105122, Moscow, Sirenevy boulevard, 1/1-38

TIN 7707387147

KPP 770701001

OKPO 16105830

PSRN 1177746622569

Bank details

BIC 044525225

Bank name: Sberbank PJSC

Correspondent account 30101810400000000225

Current Account 40702810838000079284

Beneficiary Name LIMITED LIABILITY COMPANY " GUILD OF DEVELOPMENT OF PROM-BIO GAS TECHNOLOGIES "

CEO Vasilyeva Julia Vladimirovna

7. CONTACTS



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