

Construction the biogas station in the El Mollo industrial park (Mora La Nova, Catalonia, Spain)
for the production of biomethane - CH_4 , carbon dioxide - CO_2 and bio-coal pellets



BUSINESS PLAN

OF CONSTRUCTION THE BIOGAS STATION IN THE EL MOLLO INDUSTRIAL PARK
(MORA LA NOVA, CATALONIA, SPAIN) FOR THE PRODUCTION
OF BIOMETHANE - CH_4 , CARBON DIOXIDE - CO_2 AND BIO-COAL PELLETS



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All data, estimates, plans, proposals and conclusions regarding costs, sales volumes, sources of financing and profitability of the project, provided in this document, are relevant in the absence of force majeure circumstances and are based on the agreed opinions of the authors of the business plan.

Table 1.1. - The financial indicators of the Project

Article title	Size	Unit of measurement
Specifications		
Number of working hours per year	8 064	Hour
Total amount of raw materials received for processing	110 000	Ton/Year
Annual volume of solid waste processing	80 000	Ton/Year
Annual volume of straw processing	30 000	Ton/Year
Available volume of biogas	19 146 600	m³/year
Biogas produced from solid waste	24	%
Biogas produced from Straw	76	%
Annual volume of biomethane-CH₄ for sale	12 445 290	m³/year
Annual volume of carbon dioxide-CO₂ for sale	6 701 310	m³/year
Annual volume of CO ₂ Certificates for sale	-	Ton/Year
Annual volume of bio-coal pellets for sale	9 485	Ton/Year
Annual volume of metal waste for sale	2 000	Ton/Year
Annual volume of waste glass for sale	5 920	Ton/Year
Annual volume of waste papers for sale	14 480	Ton/Year
Annual volume of screenings for sale	4 784	Ton/Year
Annual volume of waste polymers for sale	18 512	Ton/Year
Operating income	30 782 795	Euro/Year
Income from sales of biomethane-CH ₄ , per year	20 266 360	Euro/Year
Income from the sale of carbon dioxide-CO ₂ , per year	3 205 810	Euro/Year
Income from the sale of CO ₂ Certificates, per year	-	Euro/Year
Income from the sale of bio-coal pellets	4 590 740	Euro/Year
Income from the sale of Metal waste, per year	605 000	Euro/Year
Income from the sale of waste Glass, per year	286 528	Euro/Year
Income from the sale of paper waste, per year	700 832	Euro/Year
Income from sales of dropouts, per year	231 546	Euro/Year
Income from the sale of polymer waste, per year	895 981	Euro/Year
Operating expenses	13 840 600	Euro/Year
Depreciation	2 623 090	Euro/Year
VAT	5 606 011	Euro/Year
Income tax	5 381 015	Euro/Year
Financial result of operating activities	19 565 287	Euro/Year

Continuation Table 1.1 - The resulting indicators of the project

Required Investments in the Project - TOTAL	31 739 395	Euro
Cost of waste processing complex	31 739 395	Euro
Working capital	-	Euro
Equity	-	Euro
Credit funds	31 739 395	Euro
Working capital required for project implementation	-	Euro
Working capital for interest payments	-	Euro
Working capital to pay off the loan body	-	Euro
Financing terms		
Equity	0	%
Loan for replenishment of working capital	-	Euro
Loan for construction of BGS	31 739 395	Euro
Annual interest rate on loan	4,5	%
Loan terms	5,0	Years
Grace period	1,5	Years
Loan interest	4 582 375	Euro
Cost of the project including interest on the loan	36 321 770	Euro
Key project performance indicators		
Financial result at the End of the period (6 years)	57 477 059	Euro
Net Present Value NPV	43 265 598	Euro
Internal rate of return IRR (6 years)	50,55	%
Simple payback period PBP	2,92	Years
Discounted payback period DPP	3,00	Years

CHAPTER 1. PROJECT SUMMARY

Project name:

THE PROJECT OF CONSTRUCTION THE BIOGAS STATION IN THE EL MOLLO INDUSTRIAL PARK (MORA LA NOVA, CATALONIA, SPAIN) FOR THE PRODUCTION OF BIOMETHANE – CH₄, CARBON DIOXIDE – CO₂ BIO-COAL PELLETS

As part of the Project, it is planned to build a Biogas Station (BGS) with a production capacity of 19 146 600 m³ of biogas per year.

As raw materials, food waste contained in solid household waste (MSW) entering the BGS in unsorted form, expired products intended for disposal, as well as straw (cereals, legumes and corn), from which biogas will be produced using the patented fermentation method of WABIO (Germany). The resulting biogas will be divided into biomethane - CH₄ and carbon dioxide - CO₂ for further sale to consumers. Biogas consists of biomethane - CH₄ (65%) and carbon dioxide - CO₂ (35%).

The annual production volume will be:

12 445 290 m³ of biomethane - CH₄,

6 701 310 m³ of carbon dioxide - CO₂,

9 485 tons of bio-coal pellets,

as well as secondary inorganic raw materials (paper, cardboard, metal, glass, polymers, screening (quantities are shown in the table below)).

The total volume of organic and inorganic waste received for processing at the BGS will amount to 110 000 tons. It includes 30 000 tons of straw (cereals, legumes, corn), 29 280 tons of food and gardening waste and 50 720 tons of inorganic waste sorted from 80 000 tons of solid waste.

The volume of organic raw materials required for the production of biogas is 59 280 tons per year. It, in turn, consists of 29 280 tons of food and garden waste sorted from 80 000 tons of solid waste entering the BGS in unsorted form and 30 000 tons of straw (cereals, legumes, corn).

The total cost of the project is 31 739 395 Euro and is expected to consist of borrowed funds. 100% required. The required loan amount is 31 739 395 Euro. The funding will be used for the following purposes: acquisition of land (4 hectares); obtaining all necessary permits; execution of design and engineering work; issuance of land documentation; costs of purchasing and managing equipment.

Financing of 100% of the Project cost is expected to be provided by a commercial bank. Financing alternative energy is part of the government's sustainable energy strategy, aimed at combating climate change and improving and stabilizing Spain's energy efficiency.

CHAPTER 2. MARKETING PLAN

2.1. MARKET ANALYSIS, COMPETITIVENESS

The current situation in the world and the rising price of energy carriers encourage the Spain authorities to encourage energy producers using alternative energy sources.

The main prerequisites for the implementation of the Project:

- Rising cost of natural gas;
- 100% guarantee of sales of produced biomethane - CH₄ and carbon dioxide - CO₂ in the Spain and European markets;
- Shortage of natural gas in Europe and Spain;
- Environmental impact: CO₂ minimization, organic waste recycling;
- Sale of the carbon CO₂-certificates;
- Social component - increase of the number of jobs;
- Huge untapped reserves of organic raw materials in Spain for biogas production.

The main fuel in Spain is natural gas. Of the 2,5 billion cubic meters of gas consumed by Spain in 2020, more than half was used in the sectors financed by the state, municipal institutions, and the population for the production of thermal energy. The market for the sale of biomethane in Spain is huge.

The advantages of using biomass are that it is a renewable energy source and it's much cheaper in compared to traditional energy sources. The cost of producing biogas from biomass is many times less than the cost of natural gas.

The WABIO technology does not require any new resources or land to grow silage corn or other energy crops for biomethane production. WABIO only uses existing organic waste and residues.

Thanks to its technology, WABIO is able to use fermentation residues from biogas plants operating in Spain as raw materials for the operation of its BGS. From the fermentation residues of these biogas plants, using the WABIO technology, it is possible to produce again an additional 70% of the volume of biomethane previously produced by these plants. It also solves the problem of spreading liquid fermentation residues that contaminate groundwater with nitrates. The required volumes of "green biomethane" and organic fertilizers can only be obtained through the use of these fermentation residues and straw left after harvest.

With its technology, WABIO can separate the organic part from MSW (the so-called wet fraction) and use it to produce biomethane, while the sorted dry inorganic part of household waste (RDF) will be sold to thermal power plants and cement plants. Such use of organic matter to generate biogas doubles the total energy yield from municipal household waste. At the same time, the energy efficiency of thermal power plants and cement plants is significantly increased if only dry household waste (RDF) is used, which also reduces the toxicity of flue gases.

To produce the "green" biomethane, WABIO also uses excess sludge from municipal wastewater treatment plants, which can significantly reduce the high costs of its disposal. These measures alone are more than enough to replace Spain imports of natural gas. At the same time, it allows to avoid environmental pollution, because only existing organic waste is processed.

The Spain energy associations see the huge potential of the "green" biogas. For Spain alone, it will be possible to produce the equivalent of 100 terawatt-hours (TWh) of electricity per year from the biogas by 2030, and the Spain Biogas Association (AEBIG, <https://aebig.org>).

According to the report of Mr. Eric Schweitzer, the owner and CEO of the Berlin-based ALBA Group, one of the leading suppliers of environmental services and raw materials in Europe with an annual turnover of around 1.3 billion Euros and 5,400 employees:

"An alternative to biogas from corn is organic waste from MSW, which is practically not used today. Biogenic raw materials currently come from three sources: industrial organic waste, landscaping waste and organic waste from MSW. Garden and park waste is the largest share - almost 6,000,000 tons. Approximately 4,500,000 tons of organic waste annually comes from brown trash cans, which are green in some municipalities. In addition, there are about 4,000,000 tons of commercial organic waste such as food waste and expired food. From this amount alone, it would be possible to generate more than 1000 gigawatt-hours of "green" electricity per year, that is, one terawatt-hour."

ADDITIONAL EFFECTS FOR SPAIN

- Independence from Russian/foreign gas imports;
- Significantly faster achievement of climate protection goals;
- Independence from wind and sun, generation Non-Stop 24/7/365;
- Annual savings on the purchase of natural gas;
- Operating costs for biomethane production remain in Spain in the form of labor, material and service costs;
- New jobs.

BENEFITS OF THE WABIO TECHNOLOGY

WABIO has been dealing with the disposal of organic waste, including from MSW, for 30 years. WABIO has numerous patents and know-how for the recycling of organic waste. Therefore, WABIO can process organic waste from MSW, as well as other organic waste that conventional biogas plants cannot process at all or can, but at significant cost and with a much lower biogas yield.

WABIO has already implemented all of its developments in numerous biogas plants operating around the world.

Below is the photo of the WABIO biogas plant built in China with a capacity of 30 MW/h of electric energy, operating only on corn and rice straw only. This is the world's largest biogas plant, the raw material for which is exclusively straw. WABIO is currently designing and constructing four more similar BGSs in China, with the goal of independence from natural gas imports.

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2.2. GAS MARKET

As a biogas producer, we will be able to sell the biomethane and carbon dioxide produced by us on the Spain and European markets, both to wholesalers and end users.

The cost of methane in the business plan = 135 Euro per 1 MWh.

1 m³ of methane = 10 kW/h, 1000 m³=10 MW/h, cost of 1000 m³ = 1350 Euro (10 MW/h *135 Euro).

2.3. RAW MATERIAL BASE

The technology allows you to work on almost any organic (biodegradable) waste. The Project plans to process organic waste from MSW, expired food products and straw that remains after harvesting grains, legumes and corn.

The suppliers of raw materials for biogas production can be large enterprises, generating a large amount of liquid and dry organic waste, which can be used as raw materials. Preliminary agreements have been reached on the supply of food waste by large Spain companies involved in the collection and disposal of solid waste. Also, there are a large number of offers for the sale of straw from agricultural producers.

2.4. SWOT ANALYSIS

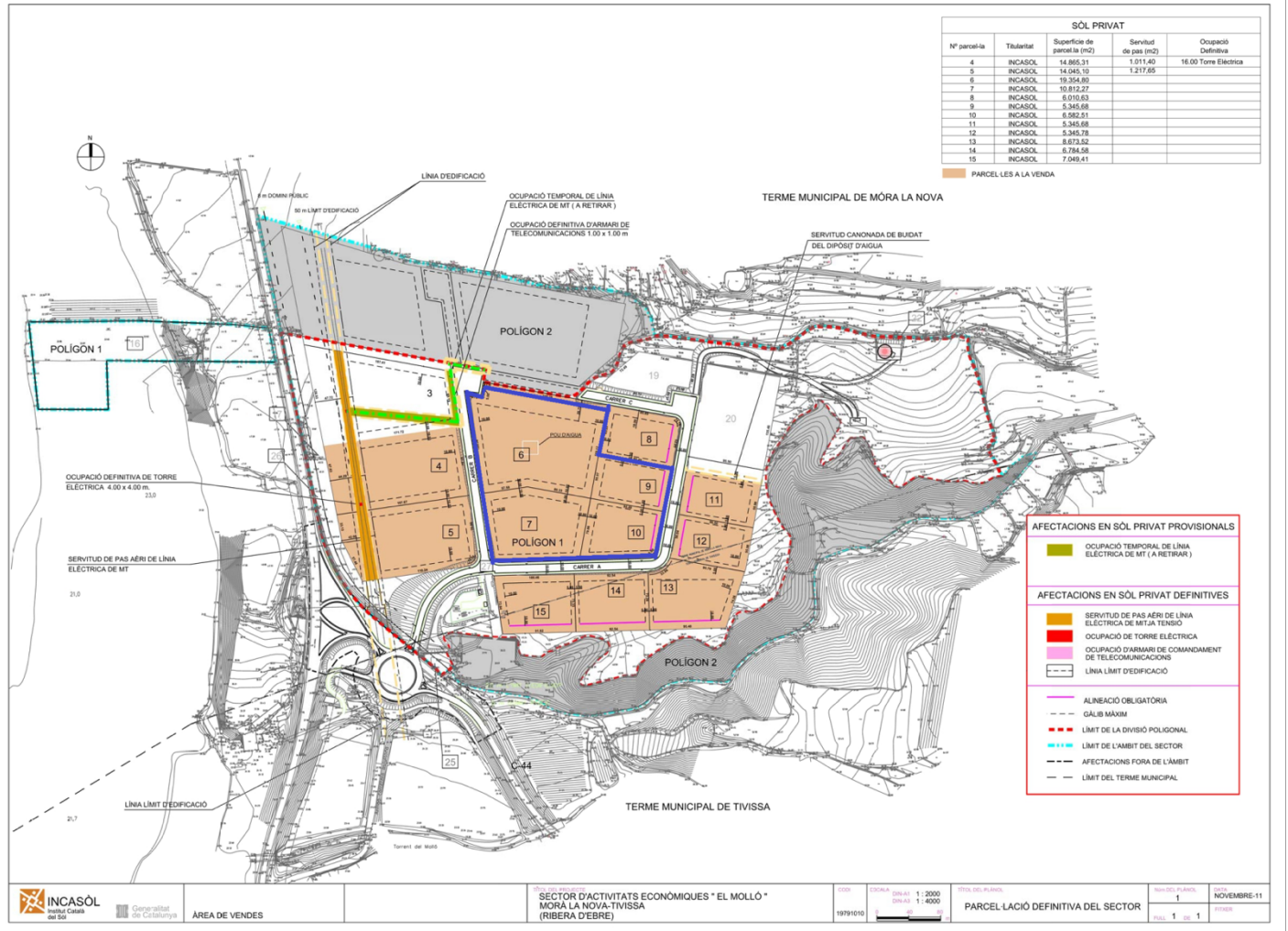
Strengths	Weaknesses
<ul style="list-style-type: none"> • Favorable geographical position, benefits of location of the enterprise on the territory of the industrial park "El Mollo". • Investment cost subsidies up to 50%. • Low interest loans from federal and state governments with equity and guarantees. • Technology reliability. • Full provision of raw materials, the BGS can operate on virtually any dry and liquid waste, any organic raw material. • The waste disposal is partially payable (part of the raw materials has a negative cost). • The high cost of biomethane. Biomethane is a complete analogue of natural gas, the market is not limited. • The incoming raw material can be replaced to another one without changing the equipment, the station is "omnivorous". • Compliance of the Project with environmental conditions and government priorities. • Availability of qualified personnel. 	<ul style="list-style-type: none"> • Relatively high construction costs. • Possible delay in construction.
Capabilities	Threats
<ul style="list-style-type: none"> • Absence of problems associated with the sale of products. • Absence of problems associated with raw materials, the technology can work with almost any organic raw material, it can be mixed. • The ability to produce electricity and heat from biogas, depending on what is currently more profitable. 	<ul style="list-style-type: none"> • Decreasing of the methane prices. • Rising prices for such raw material as straw.

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CHAPTER 3. PROJECT IMPLEMENTATION PLAN

3.1. LOCATION OF THE PROJECT

The Industrial Park "El Mollo" (Mora La Nova, Catalonia, Spain)



The Mora la Nova "EL MOLLO" Industrial Park is located in the province of Tarragona, between Tarragona Lleida and Reus.

Here, on the Costa Bravo, where the historical markets of the West and the growing markets of Eastern Europe merge companies and investors will find the best framework conditions.

Located in the Province of Tarragona, the El Mollo Industrial Park offers all the advantages of being located in the heart of Spain, namely:

- close proximity to the highways connecting the industrial park with Tarragona (57 km), Reus (45 km) and Lleida (76 km). During the EU's eastern enlargement, motorways had already widened significantly;
- within a radius of 150 km there are several international airports;
- the technical infrastructure meets the most modern requirements.

This dynamic development was only possible thanks to co-financing from the Government of Spain and the Free State of Catalonia, as well as the municipalities of Tarragona.

A total of € 130,000,000 was invested between 2002 and 2014 in electricity and gas networks, water supply and wastewater treatment, road construction and advertising.

Ideal basic conditions

The Industrial Park is focused on the needs of industrial companies and offers the potential for sustainable development to further expand local and regional value chains. The total area is about 12 hectares, which are currently for sale and available for immediate use. Another advantage of the industrial park is lower operating costs and the availability of qualified personnel.

In the El Molo Industrial Park, investors receive the most favorable conditions for the implementation of their projects – from personal consultations to individual subsidy programs and subsidies for investment expenses.

MORA LA NOVA particularly offers the support with following issues:

- The subsidies of up to 50% of investment costs;
- Reduction of operating costs.

3.2. PROJECT PROGRESS DESCRIPTION

For the implementation of the Project of construction of BGS, has all the necessary conditions, namely:

- Availability of infrastructure and engineering networks;
- Connection to electric, gas networks, water supply and sewerage;
- Suppliers of raw materials are selected;
- Availability of the qualified personnel.

At the first stage of the Project works it's planned to purchase a Project site, to develop the Project documentation, to obtain the necessary building permits and to pay for the necessary technological equipment. At the second stage, it is planned to carry out the pre-construction works. The active stage of the Project implementation will begin in March 2024, accordingly, in September 2025 It is planned to start production and commence commercial operations.

Straw, food and garden waste will be used as organic raw materials for BGS. Organic and inorganic raw materials will be supplied to the facility in the amount of 110 000 tons, including 30 000 tons of straw (cereals, legumes, corn), 29 280 tons of food and gardening waste and 50 720 tons of inorganic waste sorted from 80 000 tons of solid waste. The main mode of transport for the delivery of raw materials will be motor transport.

Both packaged and unpackaged organic waste from the food industry and gastronomy are going to be processed. The unpacking system allows to accept packaged waste, spoiled and expired products. It separates packaged waste into usable biomass and foreign matter. While organic components are used to produce biogas, inorganic waste is separated into metals, inert materials and plastics.

After processing and storage, biomass suitable for use is sanitized. To destroy potential pathogens, the biomass is heated to a temperature of 70 °C for at least one hour.

After homogenization, the biomass enters the main fermenter, where most of the organic material is decomposed into biogas at a temperature of about 42 °C. After that, the resulting biogas is sent to a gas storage tank, which is located on top of the post-digester. The biogas is then desulfurized and dried.

After passing through the activated carbon filter, the biogas enters the gas tank, then goes to the post-treatment. After post-treatment, the biogas is separated into biomethane-CH₄ and carbon dioxide-CO₂. Biomethane is transported via gas networks to consumers or liquefied, while carbon dioxide CO₂ is liquefied and delivered to consumers by road.

Solid and liquid fermentation residues are used as organic fertilizers in agriculture. Pollution water is purified at the ultrafiltration unit and discharged into the sewer. CO₂ certificates are sold to "polluting companies".

In result of the processing, the following products will be produced in the BGS:

- Biomethane-CH₄;
- Carbon dioxide-CO₂;
- CO₂-certificates;
- Bio-coal pellets;
- Metal waste;
- Broken glass;
- Screening (gravel, sand, small stones, crushed construction debris);
- Polymer waste.

The list of the BGS machines and equipment:

The BGS complex includes all the necessary turnkey technological equipment, all technical documentation for equipment, buildings and structures. The term of the warranty for equipment, materials and work is 24 months from the date of commissioning of the BGS.

Table 3.1. - Calendar plan for Project implementation, thousand EUR excluding VAT

Article title	1 month	2 month	3 month	4 month	5 month	6 month	7 month	8 month	9 month	10 month	11 month	12 month	1 year
Purchase of land for construction			€ 1 370,90										€ 1 370,90
Plant design		€ 400,00	€ 400,00	€ 400,00	€ 400,00	€ 400,00							€ 2 000,00
Permitting documentation						€ 500,00							€ 500,00
Construction							€ 550,00	€ 550,00	€ 550,00	€ 550,00	€ 550,00	€ 550,00	€ 3 300,00
Network connection		€ 500,00											€ 500,00
Unexpected expenses	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00	€ 50,00			€ 500,00
Cost of work/services	€ 50,00	€ 950,00	€ 1 820,90	€ 450,00	€ 450,00	€ 950,00	€ 600,00	€ 600,00	€ 600,00	€ 600,00	€ 550,00	€ 550,00	
Equipment for sorting raw materials							€ 2 800,00						€ 2 800,00
Biogas production equipment							€ 6 000,00						€ 6 000,00
Biogas cleaning and drying equipment								€ 1 400,00					€ 1 400,00
Equipment for separating Biogas into Methane-CH ₄ and CO ₂									€ 1 300,00				€ 1 300,00
Liquefaction equipment - CH ₄ and CO ₂										€ 314,00			€ 314,00
Equipment for bio-coal pellets								€ 1 500,00	€ 1 500,00	€ 146,00			€ 3 146,00
Equipment for storing finished products										€ 900,00			€ 900,00
Cost of equipment	€ -	€ -	€ -	€ -	€ -	€ -	€ 8 800,00	€ 2 900,00	€ 2 800,00	€ 1 360,00	€ -	€ -	
Customs duty													
VAT	€ 10,50	€ 199,50	€ 382,39	€ 94,50	€ 94,50	€ 199,50	€ 1 974,00	€ 735,00	€ 714,00	€ 411,60	€ 115,50	€ 115,50	€ 5 046,49
TOTAL thousand EUR	€ 60,50	€ 1 149,50	€ 2 203,29	€ 544,50	€ 544,50	€ 1 149,50	€ 11 374,00	€ 4 235,00	€ 4 114,00	€ 2 371,60	€ 665,50	€ 665,50	€ 29 077,39

Article title	1 month	2 month	3 month	4 month	5 month	6 month	7 month	8 month	9 month	10 month	11 month	12 month	2nd year	Total
Purchase of land for construction													€ -	€ 1 370,90
Plant design													€ -	€ 2 000,00
Permitting documentation													€ -	€ 500,00
Construction	€ 550,00	€ 550,00	€ 550,00	€ 550,00									€ 2 200,00	€ 5 500,00
Network connection													€ -	€ 500,00
Unexpected expenses													€ -	€ 500,00
Cost of work/services	€ 550,00	€ 550,00	€ 550,00	€ 550,00	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -		
Equipment for sorting raw materials													€ -	€ 2 800,00
Biogas production equipment													€ -	€ 6 000,00
Biogas cleaning and drying equipment													€ -	€ 1 400,00
Equipment for separating Biogas into Methane-CH ₄ and CO ₂													€ -	€ 1 300,00
Liquefaction equipment - CH ₄ and CO ₂														€ 314,00
Equipment for bio-coal pellets														€ 3 146,00
Equipment for storing finished products													€ -	€ 900,00
Cost of equipment	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -		
Customs duty														
VAT	€ 115,50	€ 115,50	€ 115,50	€ 115,50	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ 462,00	€ 5 508,49
TOTAL thousand EUR	€ 665,50	€ 665,50	€ 665,50	€ 665,50	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ 2 662,00	€ 31 739,39

3.3. PLANT STAFF PLAN

Table 3.2.

Structural subdivision	Job title	Pers.	Salary, Euro	Total, Euro
Administrative staff				
Management	Director	1	6.071,00€	6.071,00€
	Plant manager	1	5.357,00 €	5.357,00 €
Accounting	Accountant/Consultant	1	3.571,00 €	3.571,00 €
Total administrative staff		3		14.999,00 €
Production personnel				
Production and technical department	Operator, electrician	2	2.857,00 €	5.714,00 €
	Chemical engineer	2	3.928,00€	7.856,00€
Maintenance service and repair of equipment and buildings	Electrician-repairer	1	2.857,00€	2.857,00€
	Operator, mechanic	2	3.392,00 €	6.784,00 €
	Instrumentation fitter and control (I&C)	1	3.107,00€	3.107,00€
Fuel tank	Raw materials operator	6	2.250,00 €	13.500,00 €
Production personnel	Shift manager	3	2.678,00€	8.034,00€
	Raw material loader	3	2.250,00€	6.750,00€
	Laboratory assistant	2	1.928,00 €	3.856,00€
	Operator	8	1.928,00 €	15.424,00 €
Biocarbon production	Operator	6	1.928,00 €	11.568,00€
Total production staff		36		85.450,00 €
TOGETHER AROUND THE STATION		39		100.449,00 €
Taxes on salaries of administrative staff				4.000,00 €
Taxes on payroll of production personnel				28.800,00 €
TAXES TOTAL				32.800,00 €
TOTAL - wages with taxes for the enterprise				133.249,00 €

3.4. ENVIRONMENTAL ASSESSMENT

An important aspect is the impact of the BGS on the environment. The environmental assessment of the project is carried out by the Spain specialized state bodies. The operation of the facility is permitted in case of compliance with the requirements of environmental legislation.

CHAPTER 4. FINANCIAL PLAN

4.1. PROJECT PERFORMANCE

Table 4.1.

Article title	Meaning	Unit of measurement
The main indicators of the project:		
The total amount of raw materials entering processing	110 000	Tons per year
Share of MSW waste	80 000	Tons per year
Straw share	30 000	Tons per year
Available amount of biogas	19 146 600	m³/year
Biogas produced from food waste	24,09	%
Biogas produced from straw	75,91	%
Biomethane-CH ₄ content in biogas	65	%
Available amount of biomethane CH ₄	12 445 290	m ³ /year
Calorific value of the biomethane produced (1m ³ CH ₄)	9,969	kW/m ³
Calorific value of the available biomethane CH₄	124 067	MW per year
Content of carbon dioxide-CO ₂ in biogas	35	%
Available amount of carbon dioxide CO ₂	6 701 310	m ³ /year
Specific gravity coefficient of CO ₂	1,98	kg/m ³
Mass of carbon dioxide produced - CO₂	13 247	Tons per year
Annual volume of solid household waste	80 000	Tons per year
Sort line parameters:		
Sorting line performance	96 768	Tons per year
Number of working hours per year	8 064	Hours per year
Sorting line performance	12 000	Kg per Hour
Maintenance and repair costs:		
Spare parts for sorting line	84 000,00	Euro/Year
Sorting line maintenance	5 000,00	Euro/Year

Table continuation 4.1.

Article title	Meaning	Unit of measurement
Solid waste morphology:		
The proportion of food waste	35,5	%
The proportion of paper in waste	18,1	%
The proportion of metal in the waste	2,5	%
The proportion of polymer packaging in waste	12,5	%
The proportion of multi-layer packaging in waste	4,1	%
The proportion of wood in the waste	1,1	%
The proportion of textiles in waste	5,1	%
The proportion of glass in waste	7,4	%
The proportion of leather, rubber in the waste	1,4	%
The proportion of stones in the waste	2,5	%
The proportion of bones in the waste	3,2	%
The proportion of seven in the waste	3,1	%
The proportion of hazardous waste	0,6	%
The proportion of construction waste in the waste	2,9	%
Secondary raw materials are sorted:		
Quantity of metal (for sale)	0,248	Tons per Hour
Quantity of glass (for sale)	0,734	Tons per Hour
Quantity of paper (for sale)	1,796	Tons per Hour
Dropout quantity (for sale)	0,593	Tons per Hour
Quantity of polymers (for sale)	2,296	Tons per Hour
Amount of organic matter (for processing)	3,631	Tons per Hour

Table continuation 4.1.

Article title	Meaning	Unit of measurement
Annual volume of organic waste processing	59 280,00	tons per year
BGS parameters		
Number of working hours per year	8 064	Hours per year
Annual consumption of organic raw materials	59 280	Tons per year
Planned BGS capacity for biogas	19 146 600	m³ / year
Available amount of biomethane CH ₄	12 445 290	m ³ / year
Calorific value of biomethane-CH ₄ for sale	124 067	Megawatts per year
Available amount of carbon dioxide CO ₂	6 701 310	m ³ / year
Amount of carbon dioxide CO ₂ for sale	13 247	Tons per year
Amount of bio-coal pellets for sale	9 485	Tons per year

Amount of sorted food waste	29 280	tons per year
Available amount of the original feedstock (OS)	29 280	t / year
Dry matter content (TS)	350	kg/ton OS
Available dry matter TS	10 248	t / year
Water goes hand in hand with DS	19 032	t / year
Organic DS	75	% DS
Available biogenic organic content	7 686	t / year
Average gas yield from WABIO fermentation	0,6	m ³ / kg DM
Available amount of biogas	4 611 600	m³ / year
Average residence time in the fermenter	40	Day
Average CH ₄ content in biogas	65	%

Straw	30 000	tons per year
Available amount of the original feedstock (OS)	30 000	t / year
Dry matter content (TS)	850	kg/ton OS
Available dry matter TS	25 500	t / year
Water goes hand in hand with DS	4 500	t / year
Organic DS	95	% DS
Available biogenic organic content	24 225	t / year
Average gas yield from WABIO fermentation	0,60	m ³ / kg DM
Available amount of biogas	14 535 000	m³ / year
Average residence time in the fermenter	51	Day
Average CH ₄ content in biogas	65	%

Table continuation 4.1.

Article title	Meaning	Unit of measurement
Material costs		
NPK fertilizer for desulfurization	3 000,00	Euro/year
Diesel fuel	30 000,00	Euro/year
Personal safety equipment	5 000,00	Euro/year
Maintenance and repair costs		
Pump spare parts	50 000,00	Euro/year
Agitator spare parts	50 000,00	Euro/year
External repair work	100 000,00	Euro/year
Energy costs per process – preparation – separation – purification of methane CH ₄ and CO ₂	618 038,08	Euro per year
Expenses for other needs		
Insurance	150 000,00	Euro per year
Lease	-	Euro per month
Office/overhead costs	10 000,00	Euro per month
Management company	15 000,00	Euro per month
Tariffs and prices		
Fee for accepting waste	-50,00	Euro per 1 ton
Selling price of biomethane-CH ₄ €/MWh	135,00	Euro per MWh
Selling price of carbon dioxide CO ₂	200,00	Euro per 1 ton
Compensation for carbon dioxide CO ₂	-	Euro per year
Straw price	50,00	Euro per 1 ton
Price of waste metal (on the secondary market)	250,00	Euro per 1 ton
Price of glass waste (on the secondary market)	40,00	Euro per 1 ton
Price of waste paper (on the secondary market)	50,00	Euro per 1 ton
Dropout price (on the secondary market)	25,00	Euro per 1 ton
Price of waste polymers (in the secondary market)	100,00	Euro per 1 ton
Price of bio-coal pellets	400,00	Euro / ton
Diesel price	1,50	Euro / litre
Return on investment	-	%
Return on investment	-	Euro
Taxes and Fees		
VAT	21	%
Tariff rate	-	%
Income tax	25	%

Table continuation 4.1.

Article title	Meaning	Unit of measurement
Financing conditions		
Credit TOTAL	31 739 395	Thousand euro
Annual interest rate	4,5	%
Loan term	5	Year
Payment deadline	1,5	Year
Discount rate	5	%
Investments in the construction of the complex		
Acquisition of land for construction, without VAT	1 370,90	Thousand euro
Plant design	2 000,00	Thousand euro
Permitting documentation	500,00	Thousand euro
Construction	5 500,00	Thousand euro
Network connection	500,00	Thousand euro
Unexpected expenses	500,00	Thousand euro
Cost of work/services	10 370,90	Thousand euro
Equipment for sorting raw materials	2 800,00	Thousand euro
Biogas production equipment	6 000,00	Thousand euro
Biogas cleaning and drying equipment	1 400,00	Thousand euro
Equipment for separating Biogas into Methane-CH ₄ and CO ₂	1 300,00	Thousand euro
Liquefaction equipment - CH ₄ and CO ₂	314,00	Thousand euro
Equipment for bio-coal pellets	3 146,00	Thousand euro
Equipment for storing finished products	900,00	Thousand euro
Cost of equipment	15 860,00	Thousand euro
Customs duty	-	Thousand euro
VAT	5 508,49	Thousand euro
Investing together	31 739,39	Thousand euro

4.2. TOTAL PROJECT COST, SOURCES AND TERMS OF FINANCING**Table 4.2. - Investment loan, thousand EUR****Investment loan, thousand EUR****Credit rate 4,5 %**

Article title	1 year	2 year	3 year	4 year	5 year	TOTAL
Loan for construction of BGS	€ 31 739,39	€ -	€ -	€ -	€ -	€ 31 739,39
Paying off the loan body	€ -	€ 4 534,20	€ 9 068,40	€ 9 068,40	€ 9 068,40	€ 31 739,39
Loan balance	€ 31 739,39	€ 27 205,20	€ 18 136,80	€ 9 068,40	-€ 0,00	-€ 0,00
Interest accrued	€ 1 428,27	€ 1 368,76	€ 1 003,19	€ 595,11	€ 187,04	€ 4 582,38
Interest accrued (credit holidays)	€ -	€ 289,06	€ 578,11	€ 578,11	€ 578,11	€ 2 023,39
Interest paid	€ -	€ 960,68	€ 1 615,31	€ 1 207,23	€ 799,15	€ 4 582,38

4.3. INCOME AND EXPENDITURE PLAN FOR THE PROJECT

The main revenues are planned from September 2025, after the launch of the BGS into operation. These data are reflected in the income and expenditure calculations for the project.

Project profit is formed from:

- Sales of biomethane-CH₄;
- Sales of carbon dioxide-CO₂;
- Implementation of CO₂-certificates;
- Sales of Bio-coal pellets;
- Sales of ferrous and non-ferrous metals;
- Sales of screening implementations (gravel, sand, small stones, crushed construction debris);
- Sales of polymeric waste;
- Sales of paper and cardboard.

The calculation of production volumes and gross profit from sales is given in table 4.3.

Table 4.3. - The calculation of production volumes and gross profit from sales**Planned work schedule**

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
Working days of the biogas plant		168	336	336	336	336	1 512
Biogas plant opening hours		4 032	8 064	8 064	8 064	8 064	36 288

Production plan

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
Accepted MSW, tons		40 000	80 000	80 000	80 000	80 000	360 000
Straw accepted, tons		15 000	30 000	30 000	30 000	30 000	135 000
Biogas produced, 1000 m ³		9 573	19 147	19 147	19 147	19 147	86 160
Biomethane-CH ₄ for sale, MW		62 034	124 067	124 067	124 067	124 067	558 302
Carbon dioxide-CO ₂ for sale, tons		6 624	13 247	13 247	13 247	13 247	59 612
Bio-coal pellets for sale, tons		4 743	9 485	9 485	9 485	9 485	42 683
Sorted Metal for sale, tons		1 000	2 000	2 000	2 000	2 000	9 000
Sorted Glass for sale, tons		2 960	5 920	5 920	5 920	5 920	26 640
Sorted Paper for sale, tons		7 240	14 480	14 480	14 480	14 480	65 160
Sorted Dropout for sale, tons		2 392	4 784	4 784	4 784	4 784	21 528
Sorted Polymers for sale, tons		9 256	18 512	18 512	18 512	18 512	83 304

Raw material costs, including VAT

Thousand EUR

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
Food waste		-€ 2 420,00	-€ 4 840,00	-€ 4 840,00	-€ 4 840,00	-€ 4 840,00	-€ 21 780,00
Straw		€ 907,50	€ 1 815,00	€ 1 815,00	€ 1 815,00	€ 1 815,00	€ 8 167,50
Total, thousand EUR		-€ 1 512,50	-€ 3 025,00	-€ 3 025,00	-€ 3 025,00	-€ 3 025,00	-€ 13 612,50

Continuation of Table 4.3. - Plan of income and expenses for the project, with VAT (Thousand EUR)

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
GROSS INCOME		€ 15 391,40	€ 30 782,80	€ 30 782,80	€ 30 782,80	€ 30 782,80	€ 138 522,59
Income from the sale of biomethane-CH ₄ , including VAT		€ 10 133,18	€ 20 266,36	€ 20 266,36	€ 20 266,36	€ 20 266,36	€ 91 198,62
Income from the sale of Carbon dioxide-CO ₂ , including VAT		€ 1 602,91	€ 3 205,81	€ 3 205,81	€ 3 205,81	€ 3 205,81	€ 14 426,15
Income from the sale of CO ₂ -Certificates, including VAT		€ -	€ -	€ -	€ -	€ -	€ -
Income from the sale of Bio-coal pellets, including VAT		€ 2 295,37	€ 4 590,74	€ 4 590,74	€ 4 590,74	€ 4 590,74	€ 20 658,33
Income from the sale of waste Metal, including VAT		€ 302,50	€ 605,00	€ 605,00	€ 605,00	€ 605,00	€ 2 722,50
Income from the sale of glass waste, including VAT		€ 143,26	€ 286,53	€ 286,53	€ 286,53	€ 286,53	€ 1 289,38
Income from the sale of paper waste, including VAT		€ 350,42	€ 700,83	€ 700,83	€ 700,83	€ 700,83	€ 3 153,74
Income from the sale of Dropout, including VAT		€ 115,77	€ 231,55	€ 231,55	€ 231,55	€ 231,55	€ 1 041,96
Income from the sale of polymer waste, including VAT		€ 447,99	€ 895,98	€ 895,98	€ 895,98	€ 895,98	€ 4 031,91
GROSS EXPENDITURE		€ 196,35	-€ 230,48	-€ 230,48	-€ 230,48	-€ 230,48	-€ 725,58
Production costs		€ 827,00	€ 1 654,00	€ 1 654,00	€ 1 654,00	€ 1 654,00	€ 7 443,00
Rent of the land plot, without VAT		€ -	€ -	€ -	€ -	€ -	€ -
Production staff salary		-€ 512,70	-€ 1 025,40	-€ 1 025,40	-€ 1 025,40	-€ 1 025,40	-€ 4 614,30
Taxes on payroll of production personnel		-€ 172,80	-€ 345,60	-€ 345,60	-€ 345,60	-€ 345,60	-€ 1 555,20
Cost of Food Waste, including VAT		€ 2 420,00	€ 4 840,00	€ 4 840,00	€ 4 840,00	€ 4 840,00	€ 21 780,00
Straw cost, with VAT		-€ 907,50	-€ 1 815,00	-€ 1 815,00	-€ 1 815,00	-€ 1 815,00	-€ 8 167,50
Sorting line		-€ 53,85	-€ 107,69	-€ 107,69	-€ 107,69	-€ 107,69	-€ 484,61
Spare parts for sorting line, with VAT		-€ 50,82	-€ 101,64	-€ 101,64	-€ 101,64	-€ 101,64	-€ 457,38
Maintenance of the sorting line, with VAT		-€ 3,03	-€ 6,05	-€ 6,05	-€ 6,05	-€ 6,05	-€ 27,23
BGS on organic waste		-€ 206,31	-€ 1 035,81	-€ 1 035,81	-€ 1 035,81	-€ 1 035,81	-€ 4 349,53
Spare parts for the pump, with VAT		-€ 30,25	-€ 60,50	-€ 60,50	-€ 60,50	-€ 60,50	-€ 272,25
Spare parts for agitator, with VAT		-€ 30,25	-€ 60,50	-€ 60,50	-€ 60,50	-€ 60,50	-€ 272,25
External repairs, with VAT		-€ 60,50	-€ 121,00	-€ 121,00	-€ 121,00	-€ 121,00	-€ 544,50
NPK fertilizer for desulfurization, with VAT		-€ 1,82	-€ 3,63	-€ 3,63	-€ 3,63	-€ 3,63	-€ 16,34
Diesel fuel with VAT		-€ 18,15	-€ 36,30	-€ 36,30	-€ 36,30	-€ 36,30	-€ 163,35
Personnel safety equipment, VAT incl.		-€ 3,03	-€ 6,05	-€ 6,05	-€ 6,05	-€ 6,05	-€ 27,23
Energy costs for the process-preparation-separation-purification of biomethane-CH ₄ and CO ₂ , with VAT		-€ 373,91	-€ 747,83	-€ 747,83	-€ 747,83	-€ 747,83	-€ 3 365,22
Administrative expenses		-€ 370,49	-€ 740,99	-€ 740,99	-€ 740,99	-€ 740,99	-€ 3 334,45
Insurance, without VAT		-€ 75,00	-€ 150,00	-€ 150,00	-€ 150,00	-€ 150,00	-€ 675,00
Cost of office / overhead expenses, including VAT		-€ 72,60	-€ 145,20	-€ 145,20	-€ 145,20	-€ 145,20	-€ 653,40
Administrative staff salary		-€ 89,99	-€ 179,99	-€ 179,99	-€ 179,99	-€ 179,99	-€ 809,95
Taxes on salaries of administrative staff		-€ 24,00	-€ 48,00	-€ 48,00	-€ 48,00	-€ 48,00	-€ 216,00
Management company, with VAT		-€ 108,90	-€ 217,80	-€ 217,80	-€ 217,80	-€ 217,80	-€ 980,10
TOTAL		€ 15 587,75	€ 30 552,31	€ 30 552,31	€ 30 552,31	€ 30 552,31	€ 137 797,00

4.4. PROJECT CASH FLOW PLAN

Table 4.4. - PROJECT CASH FLOW PLAN

	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
OPERATING ACTIVITIES							
Operating income		15 391,40 €	30 782,80 €	30 782,80 €	30 782,80 €	30 782,80 €	138 522,59 €
Income from the sale of biomethane-CH ₄ , including VAT		10 133,18 €	20 266,36 €	20 266,36 €	20 266,36 €	20 266,36 €	91 198,62 €
Income from the sale of Carbon dioxide-CO ₂ , including VAT		1 602,91 €	3 205,81 €	3 205,81 €	3 205,81 €	3 205,81 €	14 426,15 €
Income from the sale of CO ₂ -Certificates, including VAT							
Income from the sale of Bio-coal pellets, including VAT		2 295,37 €	4 590,74 €	4 590,74 €	4 590,74 €	4 590,74 €	20 658,33 €
Income from the sale of waste Metal, including VAT		302,50 €	605,00 €	605,00 €	605,00 €	605,00 €	2 722,50 €
Income from the sale of glass waste, including VAT		143,26 €	286,53 €	286,53 €	286,53 €	286,53 €	1 289,38 €
Income from the sale of paper waste, including VAT		350,42 €	700,83 €	700,83 €	700,83 €	700,83 €	3 153,74 €
Income from the sale of Dropout, including VAT		115,77 €	231,55 €	231,55 €	231,55 €	231,55 €	1 041,96 €
Income from the sale of polymer waste, including VAT		447,99 €	895,98 €	895,98 €	895,98 €	895,98 €	4 031,91 €
Operating expenses	4 930,99 €	-6 202,52 €	-13 636,56 €	-13 738,58 €	-13 840,60 €	-14 040,39 €	-56 527,66 €
Rent of land, excluding VAT							
Salary of production personnel		-512,70 €	-1 025,40 €	-1 025,40 €	-1 025,40 €	-1 025,40 €	-4 614,30 €
Salary taxes for production personnel		-172,80 €	-345,60 €	-345,60 €	-345,60 €	-345,60 €	-1 555,20 €
Cost of solid waste, including VAT		2 420,00 €	4 840,00 €	4 840,00 €	4 840,00 €	4 840,00 €	21 780,00 €
Cost of Straw, including VAT		-907,50 €	-1 815,00 €	-1 815,00 €	-1 815,00 €	-1 815,00 €	-8 167,50 €
Spare parts for sorting line, including VAT		-50,82 €	-101,64 €	-101,64 €	-101,64 €	-101,64 €	-457,38 €
Maintenance of the sorting line, including VAT		-3,03 €	-6,05 €	-6,05 €	-6,05 €	-6,05 €	-27,23 €
Spare parts for the pump, including VAT		-30,25 €	-60,50 €	-60,50 €	-60,50 €	-60,50 €	-272,25 €
Spare parts for mixer, including VAT		-30,25 €	-60,50 €	-60,50 €	-60,50 €	-60,50 €	-272,25 €
External repair work, including VAT		-60,50 €	-121,00 €	-121,00 €	-121,00 €	-121,00 €	-544,50 €
NPK fertilizer for desulfurization, with VAT		-1,82 €	-3,63 €	-3,63 €	-3,63 €	-3,63 €	-16,34 €
Diesel fuel with VAT		-18,15 €	-36,30 €	-36,30 €	-36,30 €	-36,30 €	-163,35 €
Personnel safety equipment, including VAT		-3,03 €	-6,05 €	-6,05 €	-6,05 €	-6,05 €	-27,23 €
Energy consumption for the process - preparation - separation - purification of biomethane-CH ₄ and CO ₂ , including VAT		-373,91 €	-747,83 €	-747,83 €	-747,83 €	-747,83 €	-3 365,22 €
Insurance, excluding VAT		-75,00 €	-150,00 €	-150,00 €	-150,00 €	-150,00 €	-675,00 €
Cost of office/overhead expenses, including VAT		-72,60 €	-145,20 €	-145,20 €	-145,20 €	-145,20 €	-653,40 €
Administrative staff salaries		-89,99 €	-179,99 €	-179,99 €	-179,99 €	-179,99 €	-809,95 €
Salary taxes for administrative personnel		-24,00 €	-48,00 €	-48,00 €	-48,00 €	-48,00 €	-216,00 €
Management company, with VAT		-108,90 €	-217,80 €	-217,80 €	-217,80 €	-217,80 €	-980,10 €
Depreciation		-1 311,55 €	-2 623,09 €	-2 623,09 €	-2 623,09 €	-2 623,09 €	-11 803,91 €
VAT	4 930,99 €	-2 225,51 €	-5 606,01 €	-5 606,01 €	-5 606,01 €	-5 606,01 €	-19 718,56 €
Income tax		-2 550,23 €	-5 176,98 €	-5 279,00 €	-5 381,01 €	-5 580,80 €	-23 968,02 €
Financial result of operating activities	4 930,99 €	10 500,42 €	19 769,33 €	19 667,31 €	19 565,29 €	19 365,50 €	93 798,83 €

Continuation of Table 4.4

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
INVESTMENT ACTIVITIES							
Income from investment activities							
Own funds to purchase a plot for construction							
Own funds to pay for design							
Own funds to pay for permits							
Own funds to pay for connection to the network							
Own funds to pay for construction							
Own funds for operating activities							
Own funds to pay for equipment							
Own funds for paying VAT							
Own funds for unexpected expenses							
Working capital for interest payments							
Working capital to pay off the loan body							
Return on investment							
Investment activity expenses	-29 077,39 €	-2 662,00 €					-31 739,39 €
Acquisition of land for construction	-1 370,90 €						-1 370,90 €
Plant design	-2 000,00 €						-2 000,00 €
Permitting documentation	-500,00 €						-500,00 €
Construction	-3 300,00 €	-2 200,00 €					-5 500,00 €
Network connection	-500,00 €						-500,00 €
Unexpected expenses	-500,00 €						-500,00 €
Equipment for sorting raw materials	-2 800,00 €						-2 800,00 €
Biogas production equipment	-6 000,00 €						-6 000,00 €
Biogas cleaning and drying equipment	-1 400,00 €						-1 400,00 €
Equipment for separating Biogas into Methane-CH ₄ and CO ₂	-1 300,00 €						-1 300,00 €
Liquefaction equipment - CH ₄ and CO ₂	-314,00 €						-314,00 €
Equipment for bio-coal pellets	-3 146,00 €						-3 146,00 €
Equipment for storing finished products	-900,00 €						-900,00 €
Customs duty							
VAT	-5 046,49 €	-462,00 €					-5 508,49 €
Financial result of investment activities	-29 077,39 €	-2 662,00 €					-31 739,39 €

Continuation of Table 4.4

Article title	1 month	2 month	3 month	4 month	5 month	6 month	7 month	8 month	9 month	10 month	11 month	12 month	1 year
FINANCIAL ACTIVITIES													
Income from financial activities	60,50 €	1 149,50 €	2 203,29 €	544,50 €	544,50 €	1 149,50 €	11 374,00 €	4 235,00 €	4 114,00 €	2 371,60 €	665,50 €	665,50 €	29 077,39 €
Getting a loan	60,50 €	1 149,50 €	2 203,29 €	544,50 €	544,50 €	1 149,50 €	11 374,00 €	4 235,00 €	4 114,00 €	2 371,60 €	665,50 €	665,50 €	29 077,39 €
Financial activity expenses													
Paying off the loan body													
Payment of interest on the loan													
Financial result of financial activities	60,50 €	1 149,50 €	2 203,29 €	544,50 €	544,50 €	1 149,50 €	11 374,00 €	4 235,00 €	4 114,00 €	2 371,60 €	665,50 €	665,50 €	29 077,39 €
Total Cash Flow		10,50 €	199,50 €	382,39 €	94,50 €	94,50 €	199,50 €	1 974,00 €	735,00 €	714,00 €	411,60 €	115,50 €	4 930,99 €
Total cash flow accumulated		10,50 €	210,00 €	592,39 €	686,89 €	781,39 €	980,89 €	2 954,89 €	3 689,89 €	4 403,89 €	4 815,49 €	4 930,99 €	4 930,99 €

VAT (income-expenses) Thousand EUR

Article title	1 month	2 month	3 month	4 month	5 month	6 month	7 month	8 month	9 month	10 month	11 month	12 month	1 year
VAT on investments	-10,50 €	-199,50 €	-382,39 €	-94,50 €	-94,50 €	-199,50 €	-1 974,00 €	-735,00 €	-714,00 €	-411,60 €	-115,50 €	-115,50 €	-5 046,49 €
VAT (income-expenses)													
VAT accumulated	-10,50 €	-199,50 €	-382,39 €	-94,50 €	-94,50 €	-199,50 €	-1 974,00 €	-735,00 €	-714,00 €	-411,60 €	-115,50 €	-115,50 €	-5 046,49 €
VAT payable													
VAT recoverable		10,50 €	199,50 €	382,39 €	94,50 €	94,50 €	199,50 €	1 974,00 €	735,00 €	714,00 €	411,60 €	115,50 €	4 930,99 €

Continuation of Table 4.4

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
Income from financial activities	29 077,39 €	2 662,00 €					31 739,39 €
Getting a loan	29 077,39 €	2 662,00 €					31 739,39 €
Financial activity expenses		-5 494,88 €	-10 683,71 €	-10 275,63 €	-9 867,55 €	0,00 €	-36 321,77 €
Paying off the loan body		-4 534,20 €	-9 068,40 €	-9 068,40 €	-9 068,40 €		-31 739,39 €
Payment of interest on the loan		-960,68 €	-1 615,31 €	-1 207,23 €	-799,15 €	0,00 €	-4 582,38 €
Financial result of financial activities	29 077,39 €	-2 832,88 €	-10 683,71 €	-10 275,63 €	-9 867,55 €	0,00 €	-4 582,38 €
Total Cash Flow	4 930,99 €	5 005,54 €	9 085,62 €	9 391,68 €	9 697,74 €	19 365,50 €	57 477,06 €
Total cash flow accumulated	4 930,99 €	9 936,53 €	19 022,15 €	28 413,82 €	38 111,56 €	57 477,06 €	157 892,11 €

VAT (income-expenses)

Thousand EUR

Article title	1 year	2 year	3 year	4 year	5 year	6 year	TOTAL
VAT on investments	-5 046,49 €	-462,00 €					-5 508,49 €
VAT (income-expenses)		2 803,01 €	5 606,01 €	5 606,01 €	5 606,01 €	5 606,01 €	25 227,05 €
VAT accumulated	-5 046,49 €						-5 046,49 €
VAT payable		2 803,01 €	5 606,01 €	5 606,01 €	5 606,01 €	5 606,01 €	25 227,05 €
VAT recoverable	4 930,99 €	577,50 €					5 508,49 €

CHAPTER 5. PROJECT PERFORMANCE EVALUATION

Definition of the indicators of project effectiveness

DR – Discount Rate

Means the interest rate applied against future payments to take into account risk factors and uncertainties over time. A high rate indicates a high level of project risk.

$$DR = \frac{R - t}{1 + t}$$

where **R** is the accepted rate of return, **t** - average annual inflation.

PV – Present Value

The present value of future receipts decreases over time, taking into account the discount rate:

$$PV = \sum_{i=0}^n \frac{CF_i}{(1 + DR)^i}$$

where **CF_i** is the cash flow of the i-th period (year);

DR - discount rate;

i = 0...15 - periods;

n = 15 - project implementation period (years).

NPV – Net Present Value

Means the present value of the future cash flows from the project minus the initial investment in the project.

$$NPV = PV - I,$$

where **PV** is the present cost of the project,

I - is the amount of initial investment.

If NPV>0, then the project can be recommended for implementation.

The payback period of an **PBP** - is the period that is required to return the initial investment by accumulating net real money flows received from the project.

IRR – Internal Rate of Return

Means the discount rate at which the present value of future flows equals the investment.

Table 5.1.

Project efficiency assessment 5%

Article title	1 year	2 year	3 year	4 year	5 year	6 year	IRR
Total cash flow	-24 146,40 €	6 877,74 €	18 154,02 €	18 460,08 €	18 766,13 €	19 365,50 €	
Cumulative total cash flow	-24 146,40 €	-17 268,67 €	885,35 €	19 345,43 €	38 111,56 €	57 477,06 €	
Discounted Cash Flow	-22 996,58 €	6 238,31 €	15 682,12 €	15 187,15 €	14 703,76 €	14 450,83 €	
Cumulative discounted cash flow	-22 996,58 €	-16 758,27 €	-1 076,14 €	14 111,01 €	28 814,76 €	43 265,60 €	NPV

CHAPTER 6. RISKS AND MITIGATION MEASURES

During the implementation of the project, various risks may arise that will affect the economic efficiency of the Project.

This Project can be affected by the following types of risks:

- The risk of reducing of the natural gas prices;
- The risk of delay in obtaining the necessary construction permits.

A decrease in the natural gas prices is not expected; in the contrary, all forecasts indicate an increase in the prices. The state continues to stimulate producers of biomethane from alternative sources. Even if the price of natural gas decreases, the cost of Biogas production will make it possible to profit from the sale of biomethane and carbon dioxide under direct contracts. In the coming months, an increase in the price of energy carriers in Spain is expected. Delays in obtaining permits is not expected as well, because the construction works are planned on the territory of the industrial park, which has the most favorable conditions for obtaining the necessary permits, the management company will provide maximum assistance in the implementation of the project.

Raw Material risk

The risk is minimized. WABIO technology makes it possible to work on almost any biomass, the amount of available raw materials many times exceeds the amount required for the operation of the enterprise.

Technological risk

WABIO technology is very reliable and time-tested, the company has vast experience in completed projects. A similar plant was built back in 2010 in Germany, in the city of Bad Köstritz, the enterprise is currently operating perfectly. The Project will use equipment from leading world manufacturers. Equipment is purchased under contracts, with a guarantee and after-sales service.

Financial risk

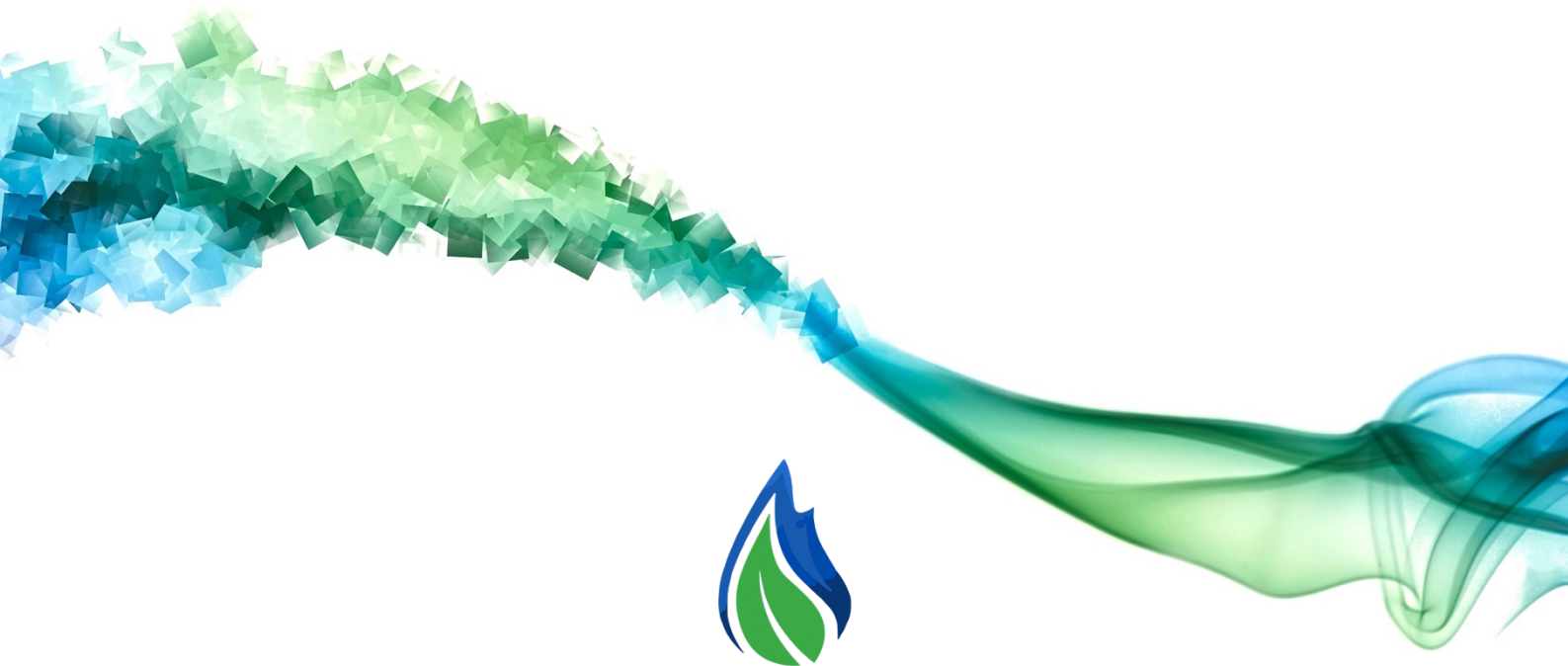
The risk is associated with attracting of debt instruments to finance the project. The loan is 100% of the Project costs.

The financial indicators of the project show that the company generates sufficient profit to repay the loan, which is several times greater than the payments on the loan. If necessary, early repayment of loan obligations is possible.

Environmental risks

These are the threats of loss of resources by business entities due to their destructive impact on the environment: the risk of air pollution, the risk of water pollution, the risk of soil pollution. To minimize this type of risk, specialized expertise will be carried out and environmental protection measures will be implemented. WABIO's advanced patented technology is as environmentally friendly as possible and meets all necessary environmental requirements.

Construction the biogas station in the El Mollo industrial park (Mora La Nova, Catalonia, Spain)
for the production of biomethane - CH₄, carbon dioxide - CO₂ and bio-coal pellets



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WABIO

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Automation

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Exkl. Repräsentant der RBS wave für GUS, Europa und Brasilien (EnBW)