

# Processing Facility (TK-50) on production of alternative fuels

## Executive summary

Creation of a technological complex for processing the biomass of vegetative waste into alternative fuels

### Contact

#### Information

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### Industry

Energy  
Agricultural

### Development stage

startup

### Year founded

2011

### Funding Opportunity

EUR 5,000,000

### Use of Fund

80% Equipment

8% Development of technical documentation

10% Production costs

2% Marketing and sales

### Revenue

EUR 2,968,363.63 annually

### Existing Debt

EUR 0

### Existing Investors

N/a

## PROBLEM / OPPORTUNITY

Ukraine does not have enough of its own energy resources and is forced to buy fuel, gas and petroleum products in other countries. At the same time in Ukraine have a large amount of carbon-containing waste: biomass crop residues in agricultural production, food waste, municipal solid and industrial waste. These wastes have much energy potential. They are not recycled and discharged to illegal dumps and landfills, or burned in the fields.

Today, the energy has a lot of problems, among which the most important are:

- discrepancy between the ever-increasing energy demand and the capacity to satisfy it;
- limited supplies of the highest quality and convenience of fossil fuels, as oil and natural gas ;
- the careful expenditure of energy ;
- pollution of the environment.

And as a consequence of these problems - a gradual increase in the cost of energy services.

Use of renewable energy sources has always been an important issue of the energy, both in our country and abroad. From the viewpoint of reducing the environmental load of fuel and energy complex, substitution of exhaustible mineral resources, improving living conditions of future generations - unconventional energy (renewable) sources (biomass, solar, wind, geothermal) are a strategic resource in the energy sector. In a world of more than 13% of energy produced from renewable sources, while in Ukraine they are 1%. And this despite the fact that Ukraine does not have enough of fossil fuels.

## SOLUTION / PRODUCT

The project is proposed: conversion of biomass plant waste, if necessary, solid waste, sewage sludge, through a new clean technology to low-temperature fast pyrolysis to produce energy (biogas, electricity, heat).

Installation will be located in the village Radcha Narodichy district, Zhitomir region of Ukraine.

Conducted the laboratory studies showed that 50 tons of dry organic material contains approximately 80% of organic compounds, and the rest of the moisture and ash. With the rapid low-temperature pyrolysis of 40 tons of organics in the liquid fraction (pyrolytic fuel, crude oil) goes 70 - 80% it is an average of 28 tons, pyrolysis gas, we obtain 15% of dry organic matter, it is 6 tons, about the same solid carbon residue. Next step - 28 tons of liquid fraction separated by the technology of low-temperature cracking in three components: high-octane gasoline (20 - 25)% - 5.6 tons, diesel fuel - (50 - 55)% - 15.4 tons and the remainder tar - (25 - 30) % - 7 tons.

Tar remainder can be sold for the builders or sent to the reactor for reprocessing.

Total motor fuel (gasoline + diesel) per day - 21.0 tonnes

In the year of motor fuel will be produced about 7,560 tons.

Carbon material - it will be for the year up to 2 000 tons, it is using in paint, metal printing industry.

Pyrolysis gas - in 7800 cubic meters per day. It's enough to ensure the job 6 units of electrogenerators (ELTAG 100/130) with a total capacity of 600 kW. That power and heat energy will be sufficient to ensure the operation of the complex of TK-50.

## POTENTIAL RETURN

Initial investments can be fully returned within 4 years.

## COMPETITION

Currently in Ukraine there are small-scale installations for processing of rubber products (tires), working periodically, and they emit harmful compounds. Installation of low-temperature pyrolysis are still pre-production models.

## EXECUTION PLAN

First step: the development of design and technological documentation.

Second stage: building the facility for the installation of the TK-50 and commissioning of the complex as a whole.

Third step: putting into operation.

The project already has:

- land 2,000 hectares to accommodate the installation and providing raw materials;
- experimental setup;
- contract development technical documentation and equipment delivery, on favorable terms.

## TEAM

Aleksandr Malis, 42 years old. Director of investment consulting company "Maximum IPIC».

Experience in the State company to promote foreign investment.

Dmitry Kostryukov, 26 years old. A developer of projects: development of automation systems and accounting systems, water purification; energy-efficient technologies for the production of electricity from alternative renewable sources of raw materials (biomass). Participated in the development of pyrolysis reactor.

## FINANCE

The project requires an investment of: EUR 5 million. For equipment purchases: EUR 4,000,000 (80%); development of technical documentation: EUR 400 000 (8%); production costs: EUR 500,000 (10%); marketing and sales organization: EUR 100 000 (2%).

### The expenditure part

- First year: installation of the complex of TK-50 - EUR 4,400,000;
- Second year: production costs, marketing costs and marketing of products - EUR 600,000;
- Third year: production costs, marketing costs and organization of sales - EUR 600,000;
- Fourth year: production costs, marketing costs and marketing of products - EUR 600,000.

Total cost: EUR 6,200,000

### The revenue part

with the price for the sales of finished products:

- high-octane gasoline EUR 554,5 per ton;
- diesel EUR 527,3 per ton;
- tar residue EUR 45,5 per ton.
- First year: 0000 Euros.
- Second year: EUR 2,968,363.63.
- Third year: EUR 2,968,363.63.
- Forth year: EUR 2,968,363.63

Revenue over four years: EUR 8,905,090,89

The investor is invited to be co-founded the company with a share of 50% -1 share, and shall have priority to payback of their investment until the end of investment agreement. Also, it is possible additional agreement on the joint continuation of this project.