



Brief description of the project on production of biogas, synthetic fuel and electricity-based economy in Ovruch

## **BIO-FUEL POWER COMPANY**

### **CONTENTS**

1. Aim of the project
2. Technologies which introduce into practice
3. Brief description of Profitability
4. Carried out work on this project to life

### **Aim of the project**

1. Getting of biogas from renewable raw material (green mass, straw, silage, meal, etc.) with subsequent transfer to the boiler of thermal energy for space heating of communal areas, kindergartens, educational institutions and housing residents.
2. Recycle waste timber production areas (chips, pinch) followed by biogas.
3. Getting electricity through the ignition of biogas cogeneration plants with the subsequent transfer of electric energy in the country's main electric grid, and its use for private purposes.
4. Undertake disposal of carbon dioxide by growing algae in the Bioreactor and enrich the atmosphere of oxygen.
5. Receipt of synthetic fuel (biodiesel and biogazoline) from renewable raw materials (algae), grown in the Bioreactor in the land of farms and small amount of oil.
6. Get biofuel for farm land to enrich natural harmless minerals and nutrients.

### **Technologies which introduce into practice**

At the time, many technologies are developed for biogas from various raw materials. In order to get the biogas in Ovruch city (Zhytomyr region) it's more likely to use the technology for biogas from green mass of waste and recycling timber (sawdust). This technology developed by scientists from Germany and introduced into practice in many countries, particularly in Ukraine and in Great Krupil village, Kyiv region, the company "Sorge", which is a business partner of BIOPEK.

Electricity and heat we can get direct combustion of biogas cogeneration plants. For synthetic fuel from plant materials, will use technology to grow algae company BIODYZELDNIPRO "those her know-how - the catalyst that allows for a few minutes to convert algae biomass to synthetic oil, that its structure is identical oil from depths of the earth, except heavy metals in the structure. Thus, the algae growing for company technology BIODYZELDNIPRO "enables us to receive biogazolin, diesel and fuel oil, and recycle carbon dioxide, formed as a result of ignition of cogeneration plants that produce electricity and heat.



## Brief description of Profitability

### 1. Expenditure:

For construction of the station for biogas production needs 2.47 million, 00 euros. The station will produce 21.3 million m<sup>3</sup>

For the construction of cogeneration station 5MVt needs 3900,000.00 euros, for a cogeneration plant at 1 MIT needs 785 000 euros, respectively receive electrical energy in the first variant -132 000 000 kW \* h / h, the second 26.4 million kW \* h / h

For equipment for growing algae needs 1 000 000.00 euros, followed by biomass of \$ 3.75 million kg / year

Capital cost for biomass to synthetic fuel are: from 380 to 790 000,00 euros 000,00 euros - the rectification column and consumables (including catalyst) for the year -230 000,00 euros.

Costs associated with the organization of production of green mass and unexpected situations - 150,000.00 euros

Together on the project: 8540 000.00 euros.

### 2. Revenue from product sales:

Electricity 132 000 000 chVt \* h / \* h . = 0.68 USD 89 760 000,00 / hr = 8976 000.00 Euro / h

Diesel: 3750t \* 0.75 = 2812.5 t \* 5500hrn/tonna 750hrn/hod = 15 468 = 1,546,875 euros / hr

Gasoline: 3750t \* 0.17 = 637.5 tons 6300hrn/tonna \* = 4,016,250 USD / h = 401 625 Euro / h

TOTAL per year: 10,924,440, 00 euros

Thus the project pays off in less than 12 months.

The construction project took 11 months.

## Carried out work on this project to life

In city Ovruch, Zhitomir region, there is prepared base total area of 4.3 hectares for the construction of the plant for the manufacture of synthetic fuel from algae. Based located warehouse liquid products to 900 tons, has its own rail spur, and liquid drain mounted devices for rail transport and transport to JSC, began construction of a gasoline station. There is office space as well as trained and qualified personnel.

Also there is prepared land for construction of biogas plants, the total area of 4 hectares. There are prepared for installation of lagoon area (storage biofuel) and silage pits.

The work with the population on the leasing of land shares to conduct agricultural activities in order to obtain green fodder. Estimated area, which may take on lease is at least 1500 hectares. Ground units are located in a convenient place near the land for the construction of biogas plant.