

HUNGARY - SOMOGY

Bio gas Plant in Kaposzekcső: producing agricultural manure to produce bio-energy

1. Project details¹

Nature of the project

Purpose: The project aimed at making better use of agricultural by-products in bioenergy production, through building a biogas plant primarily based on solid and liquid manure. This will be complemented by the setting-up of a bioethanol plant in the second phase (however, this second stage is not part of the EU-financed project).

Content: In the framework of the project a Biogas plant was built in the Kaposzekcsői Business Park, in an area of 1.7 hectares. The promoter company (Kaposzekcsői Mg. Zrt) is growing some 400 cattle and 400 sows. Biogas is produced in three fermentors (2500 cm each) from solid and liquid animal manure. The power-generation capacity of the biogas plant is 0.83 megawatt that is taken over by E.ON. Adjacent to the Biogas Plant, Agrár-Béta Agricultural Company is planning to set up a bioethanol plant. The by-product of bioethanol production will be used as a raw material for biogas production. Furthermore, the bioethanol plant would not only provide the raw material for the biogas plant, but will also use the waste heat from the biogas plant. Additional heat required for the operation of the bioethanol plant will be generated by a furnace that uses energy willow as its raw material.

Inspiration: The project promoter, Kaposzekcsői Mg. Zrt. wanted to orient its activities towards a new area and they were actively searching for new opportunities that can complement their existing activities in livestock farming. This has become especially eminent in the light of sales difficulties in the animal husbandry sector. For instance milk (one of the main agricultural produces of the company) could only been sold with a loss in recent years, and as a result the financial viability of the farm was at risk. After participating in a number of information events, they decided to apply for funding under Axis 1 ('Modernisation of animal husbandry agricultural holdings' measure).

The promoters got inspiration from the visits to similar plants in Hungary, Germany and the Czech Republic. The neighbouring agricultural Agrár-Béta holding (and partner) also encouraged the project.

Policy coherence: The project is fully in line with the country-wide (and EU-wide) aspiration of making better use of agricultural products in bioenergy production. This has been a stated aim of

¹ The project has been selected in relation to the Somogy Count case study, although the project is located in Tolna county. Kaposzekcső, the location of the project promoter is at the very border of Somogy county.

the New Rural Development Plan of Hungary, and a commitment is made of buying bioenergy from producers at a fixed price.

Links between agriculture and the rest of the economy

Main agricultural sub-sectors involved: Livestock farming (cattle and pigs), bioethanol production, bioenergy production.

Description of these links: The main link established through the project is between animal husbandry and bioenergy production (energy industry). Furthermore, these sectors will also be linked to bioethanol production. However, the project also provides indirect links to other sectors. The new plant contributes to the financial viability of animal husbandry, and hence contributes to the sustainability of local food processing. The beneficiary primarily sells its products to a local food processing firm (Tolna Tej) and to local markets in Pécs.

Scale of the project

Size: The total investment of the project is over 1 billion HUF (approximately 3.7 million EUR).

Time scale: The project has been approved in May 2008, and the building of the plant started in Aug 2009. The opening ceremony took place in March 2010.

Coverage: Local; the beneficiary provides the raw material for the plant (and both are based locally).

Beneficiaries and supporters

Beneficiary: Kaposszekcső Mg. Zrt, an agricultural company in the field of animal husbandry.

Supporters: Other than the EU and national funding support, the project's partner company (but not direct beneficiary of the funds) is Agrár-Béta Agricultural Company, who is planning to set up the bioethanol plant adjacent to the biogas plant. There are a number of other supporters, such as the German Biogas-Weser GmbH, who provided the technology (as well as a guarantee for this technology) and is involved in the operation of the plant (through the central computerised system) and one of the Hungarian banks who provided a loan for the investment.

Finance

Funding: The total investment of the project is 1,063,815,000 HUF, out of which 54.9% (583,560,450 HUF) is provided from public funding. 75% of public funding is coming from EU funds and further 25% from national public support. Their own funding amounts to 17% of total funding. The other part is provided through a bank loan. The project is supported under the heading "Modernisation of agricultural holdings (livestock farms) " (measure 121).

Budget: See above.

Results

Direct results: Results are as expected. Biogas plant started operation in April 2010. Building of a bioethanol plant is further planned.

Main target: Primarily, the agricultural holding supported, who is dealing with animal husbandry. The wider community also benefits from the alternative energy sources, and improved environment.

Wider benefits: The project promotes the enhancement of the use of alternative energy sources, and its success raises awareness about the advantages of bioenergy production. The opening of the biogas plant (and its preparations) was widely covered in the public media, and the Minister of Agriculture and Rural Development was present at the opening ceremony, which further contributes to the wider promotion of alternative energy production.

2. Relevance of case study experiences for others

Problems: Bioenergy production has been a new field of activity for the project promoter, and therefore it had to learn on the way how a plant can be planned, set up and operated. It has been a long process to get informed and select the right technology (imported from Germany). "We were inexperienced in many ways, and did not have sufficient knowledge" – admits Nándor Papp, head of Kaposzsekcső Mg. Zrt – "I have to say in our defense that we have been pioneers in this area, and our biogas plant is the first one built in the South Transdanubian Region." Furthermore, it was also the first such assignment for the contractor responsible for setting up the plant. Therefore, the initial preparation for the project took longer than expected.

b) Most of the difficulties that the promoter was facing were related to licensing. A large number of various licenses had to be obtained before the biogas plant could go into operation, and this was a rather time-consuming process. For instance, it took a long time to get permission to get access to the high-voltage power line.

c) Difficulties were related to financing. The decision to set up the plan was taken before the economic crisis. However, due to the crises loans that were to finance part of the projects budget, became more expensive and raised unexpected costs. Another part of unexpected costs relate to the extensive licensing.

Transferability and mainstreaming potential: Bioenergy production and the related technology are widely known in Europe and these are getting more and more common in Hungary (a number of further plants are currently being built). It is certainly transferable to other areas where the relevant base material is given in sufficient quantities. In fact, exchange of experience about the relevant technologies is very important. The promoters made a number of visits to similar plants in Hungary, Germany and the Czech Republic. It is expected that they can further transfer their own experience and knowledge to other plants that are being built or will be built in Hungary and elsewhere.

Innovation: The project has been innovative in the local context, as it is the first biogas plant in the South-Transdanubian Region (comprising Somogy, Tolna and Baranya counties). The promoters were inexperienced in the field of bioenergy production, and started the project with

an entrepreneurial spirit, hoping to find new income sources for their agricultural company. The project contributes to the financial survival of the livestock farm (providing the beneficiary with some 180 million HUF extra revenue each year, the precise costs being yet unknown).

“Twenty years ago, when someone came up to me with the idea to set up a similar plant, I straight said „no”. – says József Gál, financial manager of the company – However, we have been facing difficulties in the animal husbandry sector in the past years and the land here is not of the best quality, so we cannot switch to arable farming. We had to make a move and be receptive to new ideas if we want to survive.”

Institutional aspects: The promoter is the Kaposszekcsői Mg. Zrt. However, another partner (Agrár-Béta Agricultural Company) is also directly involved in the project, through the setting up of a bio-ethanol plant. The cooperation of the two companies was established long ago. For instance, the Kaposszekcsői Mg. Zrt. provided Agrár-Béta with storage space before.

The two plants will be operated as an organic whole. The bio-ethanol provides raw material for the biogas production, whereas the bio-ethanol uses the waste heat generated in the biogas plant. Other products of the ethanol plant will be partly used as animal feed.

Social aspects: The biogas plant will help the financial survival of the company, and therefore will help to sustain the jobs of some 50 people working in the animal husbandry sector within the company. The biogas plant will employ some additional 2 to 4 people; and the planned bio-ethanol plant some further 12-14 people. Furthermore, the planting and caring of the energy willow (that is used as raw material in the bio-ethanol plant) will contribute to the employment of some further 15-20 people. The project will help to keep alive the fast declining animal husbandry sector (mostly cattle and pigs) in the region, and therefore contributes to sustaining the diversity of agricultural activities.

Environmental aspects (for projects that are not strictly environmental): The project has positive impact on the environment. For instance, by holding back and using the methane gas from the manure, it reduces the emission level of harmful substances. The beneficiary was in a good position as it already processed the site within a Business Park suitable for setting up the plant. This site is also sufficiently distant from inhabited areas.

Sustainability: It is still early to judge the long-term financial viability of the project. According to current legislation E.ON is obliged to take over the energy produced from the company at a fixed price, which provides some kind of guarantee for the operation of the plant. In the case of the Kaposszekcsői Biogas Plant this obligation lasts for at least 6 years and 9 months. This is because the plant also received national support. (In case a plant does not receive such support, the obligation is for 15 years.)

Lessons to pass on: The project provides positive lessons with regard to the use of alternative energy sources. The entrepreneurial spirit of the beneficiary with regard to investing into a new activity is exemplary. The project development process has been „learning-by-doing”, as the beneficiary and its contractor had no previous experience in the field. Exchange of experience and visits to similar sites came useful in this learning process. The project has been innovative in

the regional context and can serve as a good example for the establishment of further biogas plants. It also provided a good example on how to search and invest in new methods in order to sustain other valuable agricultural activities.