PRODUCTION OF BIOENERGY UNDER EAFRD SUPPORT IN LATVIA

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Historically Latvia has been developed as a country of agricultural production. There is a low economical activity in rural areas, the level of rural households income is almost by third lower than in town households. It was a great opportunity for rural areas in Latvia, when the Funds became available from European Union (EU). Research aim: to analyze EU support utilization for production of bioenergy in rural areas of Latvia. Research methods: theoretical discussion, statistical data analyses, analyses and syntheses, expert interviews. Research results: For the EU planning period 2007–2013 the Rural Development plan, worked out by Ministry of Agriculture, has four axes, where the third axe is Promotion of rural life quality and its diversification financed by European Agricultural Fund for Rural Development (EAFRD). One of the subactivities is to support production of renewable energy from by-products of agricultural production.

Key words: rural areas, non-agricultural activities, biomass, EU support.
JEL codes: Q180, Q200.

Introduction

Agricultural and rural development is one of the key policy areas. Food and Agriculture Organization of the United Nations (FAO) has focused special attention on developing rural areas, where most of world's poor and hungry people are living, in order to carry its mandate to “raise the levels of nutrition, to improve agricultural productivity and to increase the living conditions of rural populations.” In many FAO documents rural areas and rural development are associated with areas where there is agricultural activity and a relevant percentage of total population is employed in the sector. The terms of rural and agricultural are considered interchangeable (Pizzoli, 2007).

Non-agricultural entrepreneurship should be developed in Latvia. As more persons will create new work places, as smaller burden for agricultural subsidies will be, as well as for state budget in total. The same idea comes from M. Leščevica (2005), that rural entrepreneurship is related to create and maintain such environment what provides work places, lasting income for inhabitants, support to local or rural entrepreneurs, effective use of (land) property, optimization of farms to reach the level of entrepreneurship – not to reproduce but to produce to get profit and understanding that agricultural production may be as a style of living, but in this case farmer cannot claim for status of entrepreneur, cohesion of entrepreneurs, to reach common aims and not to be afraid of changing directions of activities.

Research object – EARDF support for production of bioenergy in Latvia.
Research aim: to analyze EU support utilization for production of bioenergy in rural areas of Latvia.
Research tasks:
to observe EU support to develop non-agricultural activities in Latvia;
• to analyze EARDF provided opportunities to finance production of bioenergy in Latvia;
• to assess the benefits from biogas production in Latvia.

**Research methods:** theoretical discussion, statistical data analyses, analyses and syntheses, expert interviews.

1. EU Support to Diversify Rural Activities in Latvia

When it drew up its Financial Perspectives for 2000–2006 (under Agenda 2000), the EU was concerned about the situation in the candidate countries, especially those from Central and Eastern Europe. This resulted in the creation of two pre-accession funds, (ISPA and SAPARD), and the setting-up of a EUR 40 billion reserve for anticipated Structural Fund expenditure following accession. SAPARD enables the EU to assist the restructuring of the farm and rural sectors of the candidate countries in Central and Eastern Europe in the run-up to accession (EC, 2003)

To provide availability of EU instruments to promote development of agriculture and rural areas in Latvia, there are planning documents worked out in Latvia: SAPARD – Development program of agriculture and rural areas in Latvia; Single Programming Document (SPD) and Rural Development Plan for year 2004–2006; National Strategic Reference Framework (NSRF) and Rural Development Plan (RDP) for 2007–2013.

To ensure the sustainable development of rural areas the new regulation focuses on three policy objectives: competitiveness of agriculture and forestry, land management and environment and quality of life and diversification of economic activities (EC, 2006).

The aim of Latvian Rural Development Plan 2007–2013 is set to support agricultural and rural development. For that reason four axes are formed:

• improvement of agricultural and forestry competitiveness (40% co-financing of EAFRD)
• improvement of environment and rural landscape (42% of EAFRD)
• promotion of rural life quality and its diversification (18% of EAFRD)
• implementation of Leader approach (reserved 2.5% of EAFRD from other axes).

Activity Support for foundation and development of enterprises (including diversification of activities not related to agriculture) supports foundation and development of non-agricultural entrepreneurship in micro enterprises, especially in economies, where agricultural production is changed for another kind of production, prior supporting non-agricultural entrepreneurship in rural areas. There are subactivities supported:

• support for creation and development of micro enterprises;
• diversification of non-agricultural activities in agricultural enterprises;
• production of energy from biomass of non-agricultural and non-forestry origination.
Table 1. Expected Results of the Activity

<table>
<thead>
<tr>
<th>Subactivity name</th>
<th>Supported Enterprises</th>
<th>Created or preserved Enterprises</th>
<th>Average per enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support for creation and development of micro enterprises</td>
<td>2300</td>
<td>5000</td>
<td>2.17</td>
</tr>
<tr>
<td>2. Diversification of non-agricultural activities in agricultural enterprises</td>
<td>720</td>
<td>3700</td>
<td>5.14</td>
</tr>
<tr>
<td>3. Production of energy from biomass of non-agricultural and non-forestry origination</td>
<td>55</td>
<td>120</td>
<td>2.18</td>
</tr>
<tr>
<td>Total</td>
<td>3075</td>
<td>8820</td>
<td>2.86</td>
</tr>
</tbody>
</table>

Source: Latvijas lauku attīstības..., 2010 and authors calculations

There was *ex-ante* evaluation done to plan what would be the gains from investing in activities mentioned before. From the table 1, we may see that the biggest number of supported subactivity will be the 1st. The smallest is for 3rd subactivity what will create or maintain 2.18 work places per enterprise.

2. EARDF opportunities to finance production of bioenergy in Latvia

As the agricultural production is developing, there are byproducts created, what would be economically useful to reproduce in energy. Furthermore it would solve environmental and energy problems. Latvia has signed number of EU documents to support and implement activities related to environmental protection and renewable (bio) energy production. Both political frames and the development of more efficient energy production processes will decide how fast the ratio of renewable energy production will increase in the future.

By promoting production of energy from renewable resources, there will be increased potential of energy power as in transmission, as in distribution system.

Not only biogas is a fuel for producing green energy, but it has many other advantages both for the producer, and for society as a whole. Biogas production offers an alternate use for food by-products. Instead of food by-products taking up costly space at land fill sites, they can be used to further boost the biogas production from manure (House, 2007).

The biggest potential for development of biogas production in Latvia is related to agricultural sector, by processing products and by-products: manure and green fodder (preserved or row). In different regulations for use of renewable energy the mentioned potential of biogas production is 121–174 mln. m³ per year. There is a forecast for the biogas output structure from: manure – 53%, biodegradable household waste – 13%, sewage mud – 6%, animal origination by-products – 6%, food processing waste – 13% and green fodder – 9%. Attaining biogas in amount of 200 mln m³, it would be equivalent to about 120 mln. m³ biogas. It means that this amount could replace only 7% of natural gas consumption.
Electrical energy production from renewable resources in 2009 comparing to 2005, has increased by 4.1%. Prime renewable energy resource is water in Latvia, where the produced energy was the biggest part – 97.2% in 2009 from renewable energy. Production from biogas power stations formed only 1.2%, what shows that there is a potential for new stations to be developed (Atjaunojamā …, 2011).

Due to the placement of the feedstock for anaerobic digestion process, centralized biogas plants are located in the countryside, whereas the natural gas network is developed in the areas with increased inhabitant density (Holm-Nielsen, 2007).

The aim of the subactivity financed by EARDF is to support enterprises what are creating production – energy production from biomass, what is non-agricultural or non-forestry origination and its utilization is planned for use mainly outside the farms. Support is meant for investing in new equipment and constructions to provide energy production from biomass of non-agricultural and non-forestry origination and to get thermal and electro energy. All activities to be implemented should take place in rural areas. Support intensity is 40%; extra support can be increased up to 45% for the activities in less favorable areas. Amount of support should not exceed 8,5 mln. Euro per one beneficiary per planning period (Latvijas lauku…, 2010).

In total the plan was to approve 55 projects in amount of 45050916 Euro. For two tenders there were received 75 project applications in amount of 96559561 Euro. At the end of tender, there were 53 project applications approved with the total amount of 68150745 Euro from EARDER finances (in average 1 285 863 Euro/applicant). This amount overreached the planned amount for this subactivity. There is a probability that some projects will fail during the implementation or some other subactivities will not be so popular to apply for EARDF support, so the rest of finances would be redirected to the subactivity what is in luck of it (ELFLA finansējuma…, 2011).

For the activity Support for foundation and development of enterprises surplus (unused amount) by 1st of March, 2011 is 42 104375 Euro.

In the next table there are selected companies producing biogas only in rural areas with a support from EARDF.

Ministry of Economics from 1st December 2010 has assigned amount of electrical energy obligatory purchase for 56 companies with 56 MW power and 425890 MWh per year (Ekonomikas ministrija, 2010). From table 2 data we see that 13 companies what are producing or planning to produce electrical energy from biogas, the total amount of obligatory purchase power is 12 MW and 103986 MWh per year. According to that it makes 21% from total power and 24% of obligatory purchase power per year. 12 out of 13 projects have received EARDER finances in amount of 8.9 mln Euro (average per project – 743 ths Euro) in 2009–2010. Still it has to be mentioned that for projects not implemented completely, part of finances are not disbursed, as the implementation is in a process.
Table 2. EARDF Payments in 2009–2010 for Implemented Projects by 07.03.2011 and Biogas Production Power and Amount of Obligatory Purchase

| Name of company | EARDF, EUR | | | | |
|-----------------|------------|--|--|--|-----------|------|
|                 | 2009       | 2010 | Total | Approved power, MW | Amount of obligatory purchase per year, MWh | EARDF finances for 1 MWh per year, EUR |
| SRF Vecauce     | 0          | 0    | 712250* | 0.260             | 2080                     | 342* |
| Farm Līgo       | 530595     | 630856 | 1161451 | 0.5              | 4000                     | 290 |
| MC bio Ltd.     | 589813     | 393209 | 983022 | 0.996            | 7986                     | 122 |
| Conatus BIOenergy Ltd. | 0 | 1487868 | 1487868 | 1.96 | 15680 | 95 |
| Zemturi Ltd.    | 0          | 75203 | 75203 | 0.7          | 5600                     | 13  |
| **Companies started biogas production in 2008–2010** | | | | | | |
| Bio ziedi Ltd.  | 0          | 1199673 | 1199673 | 1.998        | 15984                     | 53  |
| RZS Energo Ltd. | 0          | 393369 | 393369 | 0.472        | 3776                     | 73  |
| Going Green Ltd. | 114658 | 0       | 114658 | 1         | 8000                     | 10  |
| Bio Energy VB Ltd. | 178548 | 0       | 178548 | 1         | 8000                     | 16  |
| Agro Iecava Ltd. | 0          | 870951 | 870951 | **          | **                       | **  |
| **Other companies** | | | | | | |
| NOPA LTD Ltd.   | 0          | 243589 | 243589 | 0.25        | 2000                     | 86  |
| Biodegviela Ltd. | 0          | 2735042 | 2735042 | 1         | 15200                    | 126 |
| Bioenerģija-08 Ltd. | 333333 | 347222 | 680555 | 1.96 | 15680 | 30 |
| **Total**       | 1746947    | 8376982 | 10836179 | 12.096    | 103986                    | 65  |

*state subsidies before EARDF support was planned
**no quota approved


The EARDF finances for 1 MWh fluctuate from 12.8 – 290 Euros. Fluctuations are explained by the stages of project implementation and different amount of received EARDF finances, as the total public finances are disbursed only after the project implementation is finished.

3. Assessment of Benefits from Establishment of Biogas Production in Latvia

In assessment of gains from starting biogas production, we should consider German’s experience about cooperation of the energy sector and agriculture (Boese, 2010), that effects on farm income and rural economy are as follows:

- farmers can diversify their income sources. In several regions within Germany an estimated 5–10% of farm income generates from biogas production already.
- biogas production provides/stabilises employment to local farmers, services providers and construction companies.
- in Germany the Biogas industry itself currently employs about 11,000 people mainly in rural areas.
• biogas plants allow for an environmental friendly use of agricultural manure and bio waste from industry and households.

Within an interview farmers involved in biogas production has a possibility to assess the gains from production. They could asses possibilities mentioned:
• company has stable income from selling electrical energy and income from thermal surplus sale outside the farm, as well as submission of previous purchase of fossil fuels;
• decreased consumption and import of fossil fuels;
• diversification of income sources, diversification of agricultural activities;
• creation of new work places and increase of tax payments to governmental and municipal budget;
• promotion of removed or decentralized economic activity, regional development;
• incurred ecological effects in sphere of environmental protection, by reducing greenhouse effect gases – carbon dioxide (CO₂), methane (CH₄) and the accompanying gas emissions;
• beneficial effect in agriculture using agricultural fertilization substrates, thus reducing the necessary resources for fertilizer purchase, improvement of crop rotation, by helping to avoid monoculture (Kalniņš, 2009);
• an opportunity to use agricultural production waste fully (poor quality or defective feed, manure, etc.)

Six experts from those received EARDF financing for biogas production plant (Table 2), had to range the possibilities by awarding points from 8 (to highest gains) to 1 point (lowest). The results of the survey are summarized in Picture.

As the biggest gain from biogas production farmers assessed the first possibility – company has stable income from selling electrical energy (average points – 6.33), next were 7th and 3rd possibility: beneficial effect in agriculture – 6.17 and diversification of income sources – 5.83, as well they mentioned that there is a possibility to use agricultural production waste – 5.67 points. Most nonessential experts recognised 2nd
and 4th possibility - decreased consumption and import of fossil fuels- 2 pints and creation of new work places – 2.5 points.

Conclusions

1. There is a small activity for production of energy from biomass of non-agricultural and non-forestry origination within the 3rd axe of EARDF to promote farmers diversify production and income, as well as fully obtain agricultural production waste.

2. Production from biogas power stations formed only 1.2%, what shows that there is a potential for new stations to be developed in Latvia. This can be observed by activity of farmers applying for EARDF financing for biogas production plants (for first two tenders 55 projects have been approved in amount of 45 mln. Euro.

3. 12 companies already has started creation of biogas production plants and have received fully or partly EARDF finances in amount of 10.1 mln. Euro. Four companies has started production, five are planning to start in 2011.

4. Interviewed experts mention stable income from selling electrical energy, beneficial effect in agriculture and diversification of income sources as a main gains from the project results implemented, as well they mentioned that there is a possibility to use agricultural production waste.

References

11. Lauku atbalsta dienests. Lauku atbalsta dienesta maksājumu saņēmēji. (2011). – https://eps.lad.gov.lv/payment_recipients/search?eps_payment%5Btax_payer_name%5D=&eps_payment%5Btax_payer_number%5D=&eps_payment%5Bdepartment%5D=&eps_payment%5Bdistrict...
EAFRD POVEIKIS BIOENERGIJOS GAMYBAI LATVIJOJE

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