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| Title of the measure: | LV 18 Investments to Produce Energy from Biomass of Agriculture and Forestry Origin (2007-2013 EU Funds programming period) |
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General description

In 2007-2013 EU Funds' programming period the financial support were provided within the framework of the sub-measure 312/311(3) "Production of energy from biomass which is of agricultural or forestry origin" of the national Rural Development Programme [1], financially supported by European Agricultural Fund for Rural Development. Responsible ministry for implementation of the measure - the Ministry of Agriculture, the responsible institution supervising implementation – state administration institution Rural Support Service (*Lauku atbalsta dienests*), [2]).

With the development of agricultural production, various by-products are obtained in the production processes, and it would be economically justified to process them into energy. According [3], in 2010 there were 21 large scale pig farms (more than 5000 heads each) and 60 cattle farms (more than 500 heads each) having large amount of manure which must be utilised in accordance with environmental requirements and standards. Moreover, large areas were taken up by plant biomass which had to be handled in order to maintain the soil in good agricultural and environmental condition.

The objective of the measure was to provide financial support for the business entities (holdings) which produce electricity in combined heat-power (CHP) production process by utilising biogas fermented in anaerobic processes from biomass of an agricultural or forestry origin [4,5]. The additional requirement were introduced by the amendments adopted in August 2011 (relate to the 3rd tender), namely at least 30% of raw products for fermentation should be provided by the by-products of animal origin and derived products (according EU Regulation 1069/2009).

The projects could not be implemented in regional and district towns as well as (for applications submitted after 01.01.2009) in towns with more than 5000 inhabitants. **The beneficiaries might be**

- (i) business entities and agriculture services cooperatives which produce agriculture production,
- (ii) share company, if at least 51% of shares are owned by legal entity which produce agriculture production, or by agriculture cooperative members of which are producers of agriculture production¹.

The assets, in which investments had been done, shall be property of beneficiary for the 5 years period after project completion. The applicant should submit a business plan at least for 3 years, including market analysis.

Financing.

The 3 open tenders had been announced from November 2008 to December 2011, the total financial support from Rural Development Programme was 78.7 MEUR [6].

For the 1st tender, the maximum total eligible costs for one beneficiary were stated 8537 thsd EUR [4]. This maximum was decreased by the (i) Governmental Regulations adopted in 2010 [5] - down to 5691 thsd EUR and (ii) the Regulations' Amendments adopted in August 2011 - down to 2134 thsd EUR. The total eligible costs per 1 kW_{el} of installed electrical capacity should not exceed 4269 EUR / 1 kW_{el} for capacity up to 500 kW_{el} and 3557 EUR / 1 kW_{el} for capacity above 500 kW_{el} (in the basic version [4], the overall threshold limit of 4980 thsd EUR/ 1 kW_{el} had been stated). The Amendments, adopted in August 2011 (applicable for the 3rd tender) stated the limit for the project's maximal installed electrical capacity - 500 kW_{el}.

¹ The financial support could not be awarded to the business entities which were under the insolvency procedure or had lost more than a half of their equity capital and 25% of this equity capital was lost during last 12 months, the later did not relate to micro, small and medium size entities which were registered less than 3 years before the project submission data.

The financial support was not higher in general than 40% of total eligible costs of the project (for projects implemented in less developed areas – 45%). To implement the project the beneficiary should provide at least 25% co-financing of total eligible costs of the project, this 25% co-financing could not be covered by financial support received within the framework of other public financing programmes and public financial instruments. The rest part of beneficiary's co-financing might be covered by financial sources received from other public financing programmes and public financial instruments, including *de minimis* support, taking into account that total financial support, received by beneficiary summing up support received from all public financial sources, shall not exceed 50% of total eligible costs of the project.

The beneficiary provide that

- (i) the basic version of the Governmental Regulations, adopted 2010 [5], stated that at least 50% of raw materials, necessary for energy production, shall be produced by beneficiary's own agriculture and forestry production. The amendments adopted in August 2011 (a) raised this threshold up to 70%; and (b) required that beneficiary must have in its property at least 1.4 animal units for each of 10 kW planned electrical capacity
- (ii) at least 51% of electricity produced shall be sold (utilized outside the beneficiary's own production premises), contract agreement with power system operator shall be submitted.

To qualify for application, the applicant – business entity – should fulfil three criteria for a year before project submission:

- (i) ratio of own capital to total assets is 0.20 and higher,
- (ii) current liquid assets equal or exceed short-term credits (in calculation of short term credits support from public state and EU programmes are not included), and (
- (iii) $\text{neto profit} + \text{depreciation} * 50\% \geq 0$.

After the implementation of the project at least one of these criteria shall be improved at least by coefficient 0.05. The applicant – share company – shall prove positive financial flow starting from a year of project's submission up to a year after project's completion.

The eligible costs were the purchase and installation of new equipment and construction/reconstruction works, if they were necessary for energy production, including construction of auxiliary premises and supply systems (outer and inner water supply and sewage system, electric power supply, ventilation, heating system, biomass storage). The investments should met the Community standards applicable to the particular investment. The costs of construction works related to auxiliary premises (administrative premises, attendant staff premises, video surveillance, asphalt paving, grass plots, outside lighting, fencing) should not increase 30% of total project's eligible costs. Also investments in non-material assets (patents and licenses) were eligible (no more than 4% of total project's eligible costs for beneficiaries corresponding the Article 2.8 and 8% - for beneficiaries corresponding Annex I of the EC Regulations 800/2008). For business entities, corresponding to the criteria defined in the Annex 1 of EC Regulation No.800/2008, consultations costs (no more than 8% of total project's eligible costs) were eligible as well.

Non-eligible activities within the given framework were: investments in agriculture production equipment and technologies; investments related to preparation of raw material for energy production; investments in heat boiler houses producing heat energy for district heating networks; investments in combined heat-power production units other than utilizing biogas.

The project beneficiary should fulfil: (i) to meet the project goal, and (ii) to meet at least one of the following requirements – creation of new job places, maintaining of existing job places, development and broadening of its business activities.

The criteria applied for projects' quality evaluation are presented in the following Table 1.

Table 1. Layout of projects' selection criteria [4,5].

| | Maximum score for criteria [4] | Maximum score for criteria [5] |
|--|---|--|
| 1. territory of project's implementation | 30 <i>(scoring of 30, 15 or 0 points depending on the territory development index)</i> | 20 <i>(20 points for territories with development index below 0; no points – for other territories)</i> |
| 2. preparadness of project application: accepted construction project is submitted <i>(yes – maximum points, no submitted – 0 points)</i> | 15 | 20 |
| 3. project applicant has ownership of livestock, corresponding to at least 70 livestock equivalent units <i>(yes – maximum points, no – 0 points)</i> | 25 | 25 |
| 4. co-financing provided by beneficiary, compared with minimum requirement. <i>For each of 1% increase of beneficiary provided co-financing 1 additional point is scored</i> | 20 | not applicable |

Impact evaluation (methods and results)

In 2015 and 2016, 49 biogas plants, utilising agriculture sector raw materials, with total electric capacity of ~50MW_{el} had been under operation in Latvia². These stations had sold, within the procedure of mandatory procurement and preferential feed-in tariffs to the national grid:

- (i) in 2015 ~317 GWh (1.14 PJ) renewable electricity [7],
- (ii) in 2016 ~ 322 GWh (1.16 PJ) renewable electricity [11].

The average annual operation figure is 6517 hours. If assuming 85% load, the amount of produced electricity might reach 368 GWh (1.326 PJ).

Regarding all biogas stations producing electricity in Latvia (in total 56 plants), the Central Statistical Bureau indicates production of 387 GWh (1.393 PJ) electric energy and 0.891 PJ heat energy in 2015, and of 396 GWh (1.426 PJ) electric energy and 0.952 PJ heat energy in 2016 [8], no particular data regarding heat energy production in agriculture sector CHP are available. However, one can see the agriculture sector biogas plants has the dominating share.

In 2015 the national gross final consumption of electricity was ~ 6.9 TWh (~ 24.9 PJ) [9]. Thus, the contribution of described measure in the development of Latvia power sector is substantial.

In 2015 the final energy consumption of Latvia agriculture & forestry sector were 6.567 PJ [8]. Thus, the heat energy produced by biogas plants had contributed significantly in the final consumption of the agriculture sector.

The Latvia national standard emission factor for consumed electricity – 0.109 tons CO₂/1 MWh_{el} [10] – might be applied to calculate CO₂ savings resulting from new renewable electricity. Thus it might be calculated ~ 35 thsd tons of CO₂ savings (gross³) resulting from new renewable biogas electricity in 2016.

² before 2009, only one biogas plant, utilising agriculture sector raw materials, was operated in Latvia by the Latvia Agriculture University [7].

³ the CO₂ emissions from fossil energy consumption due to production of raw materials and biogas are not taken into account.

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