Project: BiG>East

(EIE/07/214)

WP 3.3:

Policy Roadmap for small-scale biogas implementation in Slovenia

Deliverable 3.3

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March 2009

With the support of:

Intelligent Energy Europe

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Introduction

The purpose of this report is providing insight into potential improvements on Slovenian biogas policies. Somewhat in the contrast to the other Big>East partner (addressing) countries there has been a rapid development in recent years on this field in Slovenia. The raise begun with the feed-in tariff system introduced in 2002 for the so called "qualified electricity" production for electricity from RES. It comprised also biogas production. At start was not very favourable for biogas production. After its change in 2006 things got more interesting. Due to its specifics (prize categories and duration of the support) it led to building of mainly bigger agricultural biogas plants (optimal size was just below 1MW) and leaving out smaller agricultural biogas installations. This is the sector less developed and with the biggest potential left. Therefore the roadmap focuses (as the Big>East in Slovenia in general) on this sector.

1. Biogas Potential – an Overview

Energy utilization of biogas from the anaerobic digestion sewage, manure or agricultural waste and landfill gas is present in Slovenia, but it has at this moment a negligible impact on energy balance, while the important impact is the reduction of emission of greenhouse gases. Exploiting biogas from agriculture and also from landfill gas and wastewater treatment plants is not entirely new in Slovenia, however its main development it is of more recent nature.

This means that on smaller, farmers scale there still quite some – so far unexploited potential for biogas production. In this sector there are now better conditions, especially what financing is concerned, however there is still substantial lack of knowledge and experiences and farmers are not informed enough of the possibilities.

As far as bigger installations are concerned development is rather fast and potential for the future years not very big. However there is still a lot (more in terms of number of projects than in megawatts installed) to be done. Recent study that comprised bigger farms in Slovenia on biogas potential from agriculture has shown more than 47 MWel installed power (real) potential in the most moderate scenario – without affecting food production at all. Which is still far more than official predictions are showing.

Beside in agriculture there is also a significant and so far almost untackled potential of biogas production in food processing industry and catering.

2. Biogas Benefits and Prospective

Benefits of the biogas production are quite known. The closed cycle of the biogas production forms an integrate system of resources utilisation, organic waste treatment, nutrient recycling and redistribution. Furthermore renewable energy production creates numerous other energy, environmental and agricultural benefits. Biogas can be used for electricity

and heat production and it can also be upgraded into biomethane, which can be than used as a biofuel and/or put into the natural gas grid.

Biogas plants offer additional already known advantages, such as:

- Reduced or removed odour nuisances from digested manure and other biowaste.
- The nutritive substances are more accessible to plants.
- Pathogenic bacteria, viruses and weed seeds are degraded.
- Digested residues, if not suitable for agricultural application, can be prepared as bio-solid pellets and used as secondary fuel.

Furthermore biogas production contributes to the RES energy portfolio, to the lowering of fossil energy dependence of the country, offers additional possibilities to farmers, etc.

Prospective is therefore good as it seem s to be the most natural way for farmers to deal with manure problem, low income from conventional farming etc. Prerequisites in terms of support are there and will possibly be improved further since an interest group of biogas producers already deals in favour of such development. Furthermore first experience was gathered, lessons learned and there is also an existent market of biogas know-how and equipment.

3. National Policies

The electricity production with all RES producing electricity is supported trough the feed-in tariff system. This system is foreseen for independent producers, which from which distribution companies have to buy electricity on fixed prices electricity from qualified producers of electricity (Official Gazette RS, no. 25/02) and with Decree on prices and premiums for purchase of electricity from qualified producers (Official Gazette RS, no. 75/06). The system is now changing because of the EU regulation and state aid principle.

National legislative framework is rather complicated and long lasting especially with all the necessary documentation. However, there is a feed in tariff system that is under revision. It is expected that the supporting period will be 15 years and higher prices for biogas plants, which will stimulate several investors to build a biogas plants. Here smaller, up to 500 kWe plants will be more stimulated.

This was one of the mayor complaints from the local rural sector. Since feed-in premium excluded other type of grants, this led to building of larger and larger plants and leaving out the smaller farms as investment was too much for them and pay-back period too long. The consequence was that some new planned (big) facilities actually stepped over the local sustainability boundaries and come across disapproval of the local population.

Because of the eventual lack of the input material for the (bigger) biogas plants, development of the smaller – 'farm plants' is more likely, especially as from year 2008 new funds (up to 50 % grants) are available to agricultural sector from structural funds.

4. Barriers to Biogas projects

4.1. Market Barriers

Biogas production started in Slovenia at the end of 1980-ies. First two biogas plants were for the anaerobic digestion on central wastewater treatment and big pig farm. At the beginning there was a considerable lack of providers of services and equipment in this area and it was linked exclusively to the over border companies, which many times didn't know the country specific conditions and regulation and there was a language barrier as well. At the time this was a major market hindrance.

Nevertheless, the interest has increased after the feed-in tariff system was introduced in 2002. Since then the biogas production and use is supported by higher purchase-off price of the produced electricity. Mainly the bigger farms and their investors saw an opportunity for building a biogas installations and the result is that they are planning larger plants, 1 MWel and above. Also al-most all potential biogas plants that are currently in preparation or in construction phase are larger than 1 MW. However, last year we were faced (like the whole EU) with considerable price increase of the agricultural products, especially this was true for maize. Many of the new or potential biogas plant depend on the input from the market and the economy has changed. This is problem mostly from bigger plants.

4.2. Financial Barriers

Especially at the farm level the financial barrier was long the highest one in the past. High investment cost and the lack of financial instruments was in many cases the cause for not building the biogas plants. Things improved with the structural funds and the so called measure 311 in 2008 from the Ministry of Agriculture, which gives farmers financial support in terms of up to 50% investment subsidies for the projects of RES utilization. This however reflects in lower electricity purchase price. Many of the (bigger) investors are therefore now looking at the purely commercial bank loans and many times find them more attractive.

4.3. Other Barriers

Beside these barriers there are others. One of them is for example the fact that it is rather hard to reach an agreement among neighbors to work together in building a common biogas plant. They would rather build one for each. Cooperation among farm owners and potential investors is more likely but in these cases farmers' profits are much lower.

Farmers are no longer interested in giving the manure for biogas plant for having a final output as better fertilizer. They expect getting a payment for their manure.

According to the Ministry of Environment and Spatial Planning biogas plants are bound to (depending from feedstock and its quantity, which is rather low) IPPC regulation. This means an additional permit and time needed. This is a counterproductive and unnecessary measure as it penalises the farmer who wants to improve environmental output of the farm

trough converting manure into environmentally friendlier digestate whereas his neighbour using the same amount of manure and not processing it trough the biogas plant does not have to do anything.

5. Public Policy Measures to Support Biogas

5.1. Regulatory Measures

Building and operation biogas plant requires a set of official document and confirmation for building and operation of biogas plants. Permits and license are described chronologically. It has to be emphasized that not all permit are required for specific biogas plant since this depends on several factors. When building a plant that will be use for personal needs only than only building and operating permit is needed. In case one wants to sell produced energy, also energy license for plant above 1 MW and energy permit have to be acquired. When using organic wastes for biogas production plant operator has to acquire a permit for waste processing/recovery.

5.2. Incentives

As already mentioned the main incentive is the guaranteed purchase and price for the electricity from RES. There are also some soft loans from Eco fund available and subsidies from Ministry of Agriculture. They are both seen as a form of state aid, however therefore this has an effect on the (lower) electricity purchase price.

The new feed-in tariff scheme system brings some additional incentives for biogas production. Namely in case of prevalent use of manure (30, 70% share) for smaller biogas plants additional to the purchase price bonus is given. This is also true if the heat is used outside the plant itself. This changes the picture somehow, as now also smaller installation would be economically justified.

5.3. Other Measures (e.g., Education, Awareness, R&D)

5.3.1 Awareness

Another rather important hindrance is also the lack of knowledge and information on biogas of the general public. A biogas plant in general is many times seen as an additional problem and threat for the local community rather than a good – sustainable way of waste use and energy production from RES. This is also partially the blame to the past mistakes, the lack of public participation in project development and the “only-good-news-is-bad-news” style in the media that got a considerable promotion recently. Nevertheless in the recent years awareness is raising both at general public as well as at farmers and industry.

On the other hand, there is also a lack of official documents describing real technical potential for biogas, especially for biogas from agriculture. There are detailed studies for (wood) biomass and only few institutions have estimated the potential for different locations. A new energy geographical information system for Slovenia - EnGIS was prepared

in 2008 (where potential will be calculated based on the location of bigger farms (more than 50 live stocks) and actual land use. Application will be used to prepare different strategies for future development based on the potential. Detailed information will be available to the Ministry and to some level to municipalities. General and generated potential will be for public.

5.3.2 Education

Potential investors that are already thinking about biogas installations have made contact with domestic companies offering services (consultancy or even building a whole plant) and also with foreign (especially from neighbouring Austria). In general knowledge on bio-gas technology is relatively good what bigger investors (big farms, industry) are concerned and quite poor on the individual – farmer level.

This was perceived also from local agricultural organizations – Agricultural Forestry Chamber and their network of agricultural counsellors for example. They are now organising seminars on RES production for farmers as mean of additional earning and contribution towards energy/environmental direction of the country. There are also other playrs in the field in terms IEE projects. Namely almost simultaneously is running also a Biogas Regions project, where national partner is the Slovenian Agricultural Institute, which happens to be an important part of the education puzzle for farmers in Slovenia. Therefore we cooperate and coordinated our activities as much as we could with them.

Furthermore also formal educational sector recognised the need for new educational programmes. This is already resulting in some new programmes in secondary schools. PV an biogas plant managers for example.

All these activities contributed also to higher awareness and the need for continuing of the seminars and education in general were already expressed.