

SUMMARY OF THE NATIONAL BiG>East BIOGAS HANDBOOK

Svetla Marinova – „N. Pousckarov” Inst. of Soil Science,

Sofia, Bulgaria

e-mail svetla_mar @ mail.bg



January 2010

The Bulgarian National guide to biogas production was developed on the base of Biogas - manual, which was developed by experts from Denmark, Germany, Austria and Greece, as a part of the Project BIG-EAST, /EIE /07/214/S12.467620/. The specific information for our country is included in the guide. This specific information is prepared by the Members from the Bulgarian part in the Project - IP and ENPRO.

I. In Bulgaria there are two mechanisms to support the production of electricity from RES:

A/ Support through preferential prices, currently operates a combination of preferential tariffs and green certificates.

- “Energy Law” from the Year 2006 obliges all National operators to purchase all electro-energy, produced from Renewable Energy sources and small power stations at preferential rates.

- The system „Green certificates” supports the Renewable Energy Sources under different circumstances.

B/ Loans

II. At this stage, the law regulates only the production of biofuels. It is no financial support for production of heat-energy from RES.

Financial credit lines for energy efficiency and from RES in Bulgaria enable ability to receive grants from 20% loan for technologies for heating and cooling with renewable energy.

At this stage obligatory connection into the electro-transfer system and the system for distribution of the electro-energy is valid only for combined heat power plants operating on

biomass, biogas and biofuels with capacity up to 10 MB. But this initiative is applied only for preferential purchase of electro-energy, but not for heat-energy.

III. The reduce of taxes, when it is not blended with other fuels, are free from mandatory taxes since 2005.

There are plans for mandatory blending for obligatory mixing of biofuels with liquid fuels with oil origin, which will take place in warehouses, licensed by the Law for the excise duty

IV. Support for all types of RES: It is usually made, when the owners of RES projects receive 20% discount from the basic loan in the performance of the project.

RES projects can be supported from:

- **International Fund “Kozloduy”** for support of taking out from exploiting, managed by the European Bank for restoring and Development /EBRD/.
- **Credit Line energy efficiency** and renewable energy sources in Bulgaria /BEERECL/.
- **Program between the United States Agency for international. development** and some banks /credit line/.
- **Adopted a new Law on Renewable Energy Sources** will help by giving of financial incentives.

V. The policies relating to renewable energy sources in Bulgaria include:

Legislative framework

- Law for Renewable and alternative energy sources and bio-publ. SG № 49/19.06.2007.
- Law for the Energy - promulgated. 107/9.12.2003, amended SG №. SG. № 74/08.2006.
- Energy Efficiency Act - promulgated. SG № 18/5.03.2004 and in SG № 74/8.09.2006 and amend. SG № 55/06.06.2007.
- National long-time program for the promotion of the use of RES for the period 2005-2015.
- Nat. Strategic Plan for Rural Agricultural regions for 2007-2013, dated in the Year 2006.

VI. In pursuance of the tubular main EU policy, the Bulgarian government developed National goals for production and utilization of renewable energy and took several decisions, including:

- Examining the potential of biomass and the feasibility of different scope and application, and
- Establishing mechanisms to support effective technologies for utilization of biomass.

VII. Despite the large public interest in recent years concerning the production and use of biogas in Bulgaria will not:

- No built plants for production of biogas. There are not built and filling stations for bio-methane, or bio-methane mixture with other fuels.

We believe, that the implementation of future projects for biogas production largely depends on the policy of the country and the success of the demonstration projects.

VIII. In Bulgaria and there are good opportunities for recovery of waste to biogas

Bulgaria has a good infrastructure and appropriate framework for waste management. The system of separate collection and recycling of wastes is still not working well enough, so that most of the biodegradable waste comes into the landfill. About 85% of the generated wastes is transported to landfills, and about 52% of total quantity is biodegradable waste.

The choice of appropriate technologies for production and use of biogas should be based on the specific economic conditions, preferential prices, the cost of harvesting and others.

IX. In assessing the potential of biomass for biogas produce, as the first is estimated the amount of material, generated by municipal waste and agricultural activity.

Then evaluate the materials that could be recovered from these practices, taking into account the technical and environmental constraints related to other factors.

The largest potential for biogas production from primary and secondary agricultural waste has North-East region and the regions in South Central /BG 13 BG 22/. Related on the municipal solid waste and sewage sludge, the more potential is in the South-west Bulgaria, where the density of the people is high /BG 21 and BG 22 /.

By comparison of the potential for biogas /organic material in class/ in the six countries of Eastern Europe Bulgaria, Greece, Latvia, Romania, Slovenia and Croatia it is shown, that Bulgaria has the highest potential of agricultural waste, generated in the secondary proceedings.

Also, Bulgaria has a great potential to produce biogas of sludge from waste water treatment stations of municipal solid waste and waste food.

The real potential for biogas production /exploration based on the potential of biomass/ is assumed to be approximately 30% of theoretical potential for biogas production.

X. The methodology used to assess the agricultural structure is selected from Eurofarm.

It includes standard sizes of farms, their productivity distribution of farms in the country.

- In the Year 2004 the arable land was 3.3 million hectares /61.8% of the all used land/ and about 7% of it is concentrated in 3 regions-North, North Central and South Central regions.

- The majority of the total area /about 78%/ processed farm managers for more than 50 ha /they has been only 0.8% of the farms/.

- Less than 7% of the land in 75% of farms, covering an area of less than 1ha each.

- There is a tendency for consolidation of the plot- in the Year 2004 in Bulgaria there were 665 500 farms, but in the Year 2007 there were only 477 100 farms.

The secondary production is very important for the production of biogas.

Important role have poultry-raising farms /23%/, swine-breeding farms /15%/, cows and goats – breeding farms /10% and 15%/, evaluated by the number of farms, and not to the production of WWTP sludge and municipal solid waste.

The highest number of animals for farms of herbivores are located in the South-eastern region followed by North-East region. The smallest number of animals is shown in the South-west region.

It can be concluded that

- Agricultural structure and its evolution over time favored the production of biogas.
- The most promising areas for building of installations for biogas production are Northeast, North Central and South Central.

There is great diversity in size, and potential of biomass in the different farms. It is shown trends to increase the average number of animals on farms, so that each future place should be considered individually, depending on the region.

XI. Opportunities for injection of biomethane into the national network for natural gas in Bulgaria

Bulgartransgas is the only operator for transport of natural gas on the territory of Bulgaria. This operator is a member of Gas Infrastructure Europe. Largest private gas company in the country is "Overgas" Inc.. The company builds and operates networks for distribution of gas and sells natural gas to end users. The total length of distribution net is over 1600 km.

The indicators for the quality of natural gas in Bulgaria, according to BDS ISO 6976 are presented in the book.

The technical requirements for the network and the devices for natural gas facilities are regulated by several ordinances. Specific requirements for the injection of biomethane into the natural gas network are not given.

Bulgaria still not discussed the possibility of injection of biomethane into the natural gas network.

XII. Benefits from the production of biogas in Bulgaria

Biogas production is

- Effective measures to reduce energy dependence of our country and a safe means of limiting emissions of methane and other gases, which have negative influence on the environment.

- Bulgaria is one of the poorest countries in water resources in Europe. Water deficit is expected to increase even more, which has serious social, economic and environmental problem for the country. Therefore, the use of wastewater is essential. By treatment of sludge from wastewater treatment stations can produce biogas for energy needs.
- One of the main contributions of biogas is that by anaerobic biological treatment we have possibility to reduce compartments of nitrogen from manure.
- Currently in Bulgaria the manure is not stored and utilized. To limit the negative effects of the position by the dispersion of the manure and by its store, it is recommended its use as a feedstock for biogas production. The secondary product /revised biomass / is suitable for use as a fertilizer dung as a tool for increase yields of agricultural production and limiting the formation of degradation processes in Bulgaria.
- Production of biogas gives good impact on social and economic sector of the state - creating opportunities for new jobs and for future rural development in the country.