

# **Project: BiG>East**

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## ***WP 3.3: Policy Roadmap for large-scale biogas implementation in Latvia***

**Deliverable 3.3**



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## 1. Introduction

Policy Roadmap for biogas implementation in Latvia has been developed in the scope of the **BiG>East** project, supported by the European Commission in the framework of the Intelligent Energy for Europe (IEE) Program.

The aim of this report is to give an overview on biogas potential and existing policies, as well as to give the set of recommendations to improve the regulatory, administrative and financial framework for facilitating biogas projects in Latvia. Biogas projects are interdisciplinary, covering different sectors requiring more effort for proper planning and coordination among involved responsible organizations like Ministry of Environment, Ministry of Economy and Ministry of Agriculture of Latvia. The first unified strategic document on biogas in Latvia was developed in 2006 by Ministry of Environment and presented as Biogas Production and Utilization Development Program 2007-2011. However, after three years of implementation it is clearly visible that only a very limited part of actions presented in this program are implemented in reality.

This Roadmap contains a range of practical recommendations in the area of national and regional policies in order to overcome existing barriers for biogas implementation in Latvia.

## 2. Biogas Potential – An overview

During the last three years there have been many researches and attempts to evaluate biogas potential in Latvia. Biogas potential has been evaluated in means of produced biogas amounts, as potentially produced energy and as well as capacity that could be installed based on biogas production amounts.

Potentially produced biogas amounts are basically ranged in three categories:

- 1) Biogas production potential in Latvia is 100 to 200 million m<sup>3</sup>/year when organic wastes and energy crops from existing agricultural practices are used;
- 2) Biogas production potential in Latvia is around 300 million m<sup>3</sup>/year when organic wastes and specially grown energy crops are used;
- 3) The maximum biogas production potential in Latvia could be up to 1 200 million m<sup>3</sup>/year when all currently unused agricultural land would be used for growing energy crops for biogas production.

However, it is difficult to compare these different potential studies because different feedstock categories and assumptions are used and in some cases they are not clearly referred.

According to the Biogas Production and Utilization Development Program 2007-2011 the most significant potential for biogas production is estimated in agricultural sector where

manure and energy crops could be used. The overview of biogas potential<sup>1</sup> is given in Table 2.1 below:

Table 2.1

## Estimated biogas potential in Latvia

<b>Feed-stock category</b>	<b>Biogas potential, million m<sup>3</sup>/year</b>
Agriculture (manure, energy crops)	111.8
Food processing and catering (food wastes)	23
Animal origin wastes/by-products	10.65
Waste water treatment (sludge)	10.8
Biological wastes (from households and industry)	23
TOTAL evaluated potential	~ 174

There have been only a few attempts to evaluate available biomass amounts and biogas potential on regional bases. The main reason is the lack of appropriate statistical data with distribution of biomass amounts and organic waste amounts in each particular Latvian region. Investigations performed in BiG>East project are showing that two regions could play an important role in establishing new biogas facilities in Latvia – those regions are Zemgale and Latgale. Zemgale region is known as traditionally developed agricultural sector and with a high agricultural activity. Latgale region has higher potential for biogas production from secondary agricultural waste and from food processing organic waste materials.

To evaluate technically and economically available biogas potential a series of limitations and constraints must be taken into consideration. These limitations are especially linked with the available raw material from agriculture, with technical availability and also with socio and economic constraints. The political background could play very important role for overcoming those constraints and barriers.

### 3. Biogas benefits and prospective

According to RES Directive included in EU Climate and Energy Package, Latvia will have to increase the share of renewable energy in final energy consumption from 34.9% in 2005 up to 42% in 2020. Reaching this target will be possible only with strong promotion of all kind of available renewable energy sources in Latvia, particularly biomass (including biogas) and wind energy.

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<sup>1</sup> Data source: Biogas Production and Utilization Development Program 2007-2011, The Ministry of Environment of Latvia, 2006

Biogas production by ensuring the methane collection gives a possibility to fulfil Latvia's International obligations for implementation of Kyoto Protocol requirements. Biogas production allow to collect a significant amount of greenhouse gases, which otherwise (e.g., using other biological material treatment technologies like manure storage in open containers, aerobic composting, waste disposal) would directly get into the atmosphere. Biogas in Latvia has significant potential for substitution of fossil fuels and for reduction of greenhouse gas (GHG) emissions from energy and transport sectors, e.g., using biogas for energy (heat, electricity, CHP) generation and as vehicle fuel. Biogas could give as well a significant contribution for reduction of CH<sub>4</sub> and N<sub>2</sub>O emissions from animal husbandry and manure storage and applications.

Exploitation of locally produced renewable energy resource like biogas reduces dependency from imported fossil fuels and strengthens the national and regional economy in Latvia. In order to be able to compete with fossil fuels, a strong incentives and subsidies for biogas in Latvia are required. Yet, the new feed-in tariff system for biogas electricity is introduced in Latvia; still the efficiency of the new system is not proved on real projects and different technical and administrative barriers is still present.

The most appropriate ways for producing and using biogas in Latvia should be supported taking into account the following experiences from countries with more developed biogas sector:

- Biogas project likely will be economically feasible in case if the distance of biomass and digestate transportation is not more than 20 km from biogas production plant.
- From environmental point of view using biogas only for electricity production without utilization of heat energy should be prohibited. Moreover, it is difficult to ensure project economical viability if heat energy from biogas plant is not used.
- In order to ensure the economical viability of new biogas plants, it is necessary to integrate biogas sector development issues in strategic and spatial planning processes.
- The lack of heat consumer near the biogas plant can be solved by working on biogas upgrading.

## **4. National Policies**

Based on Strategy of Utilization of Renewable Energy Sources 2006-2013, Climate Change Mitigation Program 2005-2010 and National Policy Plan 2004-2008 in 2006 the Ministry of Environment of Latvia elaborated the Biogas Production and Utilization Development Program so far being the most important regulation document on biogas in Latvia. The aim of the Biogas Production and Utilization Development Program 2007-2011 is to facilitate biogas production and use in Latvia, at the same time solving the problems related to organic waste management resulted from production, processing and recycling processes as well as minimizing the risks for soil, water and air pollution and potential threats for human health.

Since 2007 when Strategy of Utilization of Renewable Energy Sources 2006-2013 and Regulations on Electricity Generation from Renewable Energy Sources were introduced, the legislative framework for RES (incl. biogas) development in Latvia has significantly improved and according to the strategy a number of regulations have been issued.

State support for RES electricity generation is introduced in Cabinet of Ministers Regulation No.198 “Regulations on Electricity Generation from Renewable Energy Sources and procedure of determination of price” (24.02.2009). The regulation sets a number of criteria for biogas electricity producers to apply for electricity mandatory purchase and to guarantee that electricity producer will be able to sell the electricity for a certain price.

State support for electricity generation in cogeneration is introduced in Cabinet of Ministers Regulation No.221 “Regulations on Electricity Generation in Cogeneration and procedure of determination of price” (10.03.2009). This regulation sets criteria for CHP plants to apply for electricity mandatory purchase and to be able to receive guarantee payment for installed electrical capacity.

Along with feed-in tariff system to promote electricity generation from biomass, following other support instruments in Latvia are used:

- Ministry of Agriculture is providing the co-funding from EU financial support instruments to projects for biomass growing for electricity production purposes.
- Ministry of Economy is providing the co-funding from EU financial support instruments to projects for electricity production from biomass.
- Ministry of Environment has elaborated another support system called “Green Investment Scheme” which is a long term financing system that transfers revenues from the sale of greenhouse gas emission assigned amount units to environmental and energy efficiency measures with the focus on climate benefits. Some of those measures are promotion of biomass use including CHP plants, biogas recovery and use and promotion of biofuels use.

However, there still exist barriers related to fulfilment of criteria to qualify for mandatory RES electricity purchase and until now the situation with investment and financial support schemes for biogas projects is on very early stage of implementation thus causing a lot of uncertainties.

More information on European and national policies related to biogas in Latvia can be found in BiG>East Report on Task 3.1.

## **5. Barriers to biogas projects**

According to the earlier investigations done by BiG>East project (see BiG>East Report on Task 3.2), barriers to biogas projects in Latvia include:

- High investment costs necessary for biogas project implementation;

- Imposed obtaining of reliable information on food industry waste and other biomass amounts that are suitable for biogas production;
- Institutional disagreement and insufficient coordination among different field of organizations, institutions (incl. Ministries of Environment, Agriculture and Economy);
- The lack of practical experience in using recently introduced support mechanisms (for example, Cabinet of Ministers Regulations No.198 and No.221);
- The lack of knowledge and experience on construction and operation of biogas plants;
- Difficult to find appropriate energy (particularly heat) consumer;
- Calculation of biogas outcome using experiences from other countries could be inaccurate due to differences in climate conditions and soils.

The most crucial barriers for the development of a biogas project are:

- The lack of regulations and legal bases for biogas development (incl. biogas use in transport and injection into natural gas grid) and the lack of continuous, targeted, well-considered and well-planned state support for biogas projects in Latvia, e.g. by setting the biogas target for 2020 and providing of investment guarantees for biogas project developers.
- The lack of local energy agencies, as well as a lack of trained staff and experts in municipalities and local governments for the evaluation of energy related projects.
- Liberalization of electricity market in Latvia is more a theory than a reality, causing the dependence from one dominating electricity generation, transmission and distribution company and thus establishing connection to electricity grid is a very time consuming, expensive and bureaucratic procedure.
- The lack of statistical data and the lack of information on biogas potential spatial distribution.
- Low awareness on biogas and its environmental benefits in Latvian society.

## **6. Public Policy Measures to Support Biogas**

In this chapter a list of suggestions for public policy measures to support biogas in Latvia is given. Where relevant suggestions are partly based on the European Parliament resolution of 12 March 2008 on sustainable agriculture and biogas: a need for review of EU legislation<sup>2</sup>.

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<sup>2</sup> European Parliament resolution of 12 March 2008 on sustainable agriculture and biogas: a need for review of EU legislation (2007/2107(INI))

## 6.1. Regulatory Measures

### *Setting the National Biogas target*

Yet, there is an indicative biogas production target specified by the Biogas development program for Latvia, this statement is not strong enough to facilitate the development of all kind of biogas utilization. **Setting of clear national biogas target is necessary.** This can be done when developing the National Renewable Energy Action Plan under the section of sectoral targets and trajectories<sup>3</sup>.

### *Biogas and regional planning*

To extend the use of biogas potential, additional investigation on a spatial distribution of biogas feedstock in Latvia is necessary. Biogas potential could be utilized more efficient, if **RES projects would be incorporated in regional and spatial planning.** Biogas production plants should be developed close to intensive industrial or agricultural territories apart from the official administrative regional division.

Engaging in national and regional planning in order to limit legal and administrative impediments (for instance natural gas or other fossil fuels should not be preferred in areas in which it is feasible to sell heat generated from biogas).

### *Biogas feedstock availability*

Existing investigations on available waste material is showing that significant parts of waste material could be used for biogas production. In order to broaden the use of this waste, it is necessary to make **improvements in municipal waste sorting practices.** In order to extend the possibility for biogas production from organic waste, it is necessary to establish some tighter legislative framework to facilitate municipal and household waste sorting practices.

To ensure additional waste flow for biogas production, **a regulation that prohibits the delivery of expired food from supermarkets and kitchen waste from restaurants and catering industry to landfills has to be introduced.** The situation could be significantly improved together with the implementation of Landfill Directive (1999/31/EC) in Latvia. For municipal waste landfills it is planned to implement this Directive latest until 2013 when the biodegradable municipal waste going to landfill must be reduced to 50% of biodegradable waste produced in Latvia in 1995.

### *More efficient use of biogas*

In order to inject biomethane in natural gas grid, it is necessary to amend regulations to **ensure that natural gas transmission operator gives permission for appropriate quality biomethane injection.**<sup>3</sup>

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<sup>3</sup> Commission decision of 30.6.2009 establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC

**A long-term policy framework on biogas use in transport** (e.g. tax allowances for vehicles using biogas) **is necessary**.

## 6.2. Administrative Measures

### *Information collection*

In order to continuously update existing biogas potential studies and to find new possibilities for biogas production in Latvia, **improvements in collecting statistical information on biogas feedstock and biological waste is necessary**.

Annual statistics and reports on agricultural biogas production are necessary in order to be able to follow up on the biogas targets.

### *Information and consultancy availability*

The **development of local and regional energy agencies** is necessary to close the gap between potential biogas producers and biogas project developers and investors.

### *Administrative process*

In order to overcome the administrative barriers related to permit procedure and establishment of grid connection, the **development of roadmap or guide for permit procedure** is necessary.

To overcome the lack of knowledge and experience in contract negotiations with biogas technology suppliers, it is necessary to **develop a guideline indicating the most important issues to consider and providing some good examples on common practice of how the cooperation between plant owner and technology supplier is secured in other – more experienced on biogas countries**. In order to avoid additional expenses and problems during the biogas plant operation, it is necessary to consider the difference in climate conditions and the need for additional insulation, the need for frost endurance building materials, etc.

## 6.3. Incentives

### *Incentives and state support*

So far, provided state support for biogas projects was inconsistent and unregulated, therefore successful biogas sector development in future will be ensured only when **the state support will be continuous, targeted, well considered and well planned**.

**Liberalization of electricity market in Latvia not only in theory but also in practice** would give a positive impact regarding biogas development. Free competition in electricity market could reduce the existing administrative and financial barriers for establishing a grid connection. Biogas plant owners could choose the best price for selling the electricity.

**Incentives for research** on biogas should be established.

## 6.4. Other Measures

### *Cooperation among biogas market actors*

In order to develop biogas market in Latvia, there is a need for local technology producers and biogas experts gaining knowledge on biogas production under the country specific conditions. Since biogas technologies are complex and require the specific know-how, one of the best ways for potential local biogas technology producers would be **to make partnerships with some foreign companies already having the specific experience and knowledge.**

### *Awareness rising*

The awareness on biogas environmental, economical and social benefits in Latvian society is still low. It is necessary **to promote the awareness on biogas in all levels**, including public in general, potential biogas producers, decision-makers, politicians, authorities responsible for giving a permit for potential biogas project, etc.