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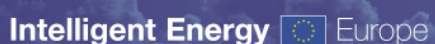
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1. Introduction

The Assessment on Policies in Latvia presented with this report has been developed in the scope of the **BiG>East** project, funded under the Intelligent Energy for Europe (IEE) Program.

The scope of this report is to assess the policies on biogas production and its utilization in Latvia, considering legislation, standards, tax policies, incentives and possible funding sources.

Europe's current situation with exploding fossil energy prices and rising dependency on energy imports makes it highly necessary to produce and valorize biogas in terms of heat, electricity and fuel. In 2006, about 5.35 Mtoe of biogas were produced for energy uses in the European Union, nevertheless, the potential is estimated at more than 20 Mtoe. However, future development of biogas technologies is highly dependant on the willingness of politicians that formulate policies and introduce legislations.

2. EU Policies and Targets

2.1. Renewable Energy policy in European Union

The development of renewable energy - particularly energy from wind, water, solar power and biomass - is a central aim of the European Commission's energy policy. There are several reasons for this. Renewable energy has an important role to play in reducing Carbon Dioxide (CO₂) emissions - a major Community objective. Increasing the share of renewable energy in the energy balance enhances sustainability. It also helps to improve the security of energy supply by reducing the Community's growing dependence on imported energy sources. Renewable energy sources are expected to be economically competitive with conventional energy sources in the medium to long term.¹

The European Commission has set the target to reduce greenhouse gas emissions from developed countries by 30% by 2020 and it has already committed to cutting its own emissions by at least 20% and would increase this reduction under a satisfactory global agreement². In January 2007 the European Commission presented a "Renewable Energy Roadmap" as part of its "energy-climate change" package³. This Roadmap was endorsed by the Commission in March 2007 with the following targets:

- A binding target to have 20% of the EU's overall energy consumption coming from renewables by 2020, and;

¹ Source: http://ec.europa.eu/energy/res/index_en.htm

² Source: COM(2007)1final „An Energy Policy for Europe“

³ Source: COM(2006)848final „Renewable Energy Road Map: Renewable energies in the 21st century: building a more sustainable future“ (10.1.2007)

- A binding minimum target for each member state to achieve at least 10% of their transport fuel consumption from biofuels. However, the binding character of this target is "subject to production being sustainable" and to "second-generation biofuels becoming commercially available".

In November 2007, the European Commission presented a "Strategic Energy Technology Plan (SET-Plan) - Towards a low carbon future"⁴. The SET-Plan proposes to deliver the following results: (i) a new joint strategic planning, (ii) a more effective implementation, (iii) an increase in resources, and (iv) a new and reinforced approach to international cooperation. The Commission hopes for endorsement (and financing commitments) from EU leaders for the SET-Plan in March 2008.

Furthermore, in January 2008 the Commission has put forward a larger package on renewable energies and climate change and published a Draft Directive "on the promotion of the use of energy from renewable sources which has to be reviewed and approved by the European Parliament and the Council before entering into force. This Directive is a comprehensive 'framework directive' on renewable energies including an update of the biofuels directive.

2.2. Policies and Legislation affecting Biogas

2.2.1. Biogas policies and markets in the European Union

Within the diversification of energy resources and the increased reliance on renewable energy resources, biomass is considered to play an outstanding role in Europe's energy policy. As highlighted in the Commission Biomass Action Plan⁵, published on 7 December 2005, "Energy is key in helping Europe to achieve its objectives for growth, jobs and sustainability". The increasing oil prices and Europe's dependency on energy imports are considered to menace the economic growth within the European Community. In 2005, the EU met about 4% of its energy needs from biomass. The main objective of the Biomass Action Plan is to double this share by 2010. The plan would reduce oil imports by 8%, prevent greenhouse gas emissions worth 209 million tons CO₂-equivalent per year and create up to 300,000 new jobs in the agricultural and forestry sector.

Currently, the biogas sector in some European countries is faced by rapid technical and non-technical developments and innovations, and biogas markets are growing in these countries at a considerable pace. For instance, in Germany, the biogas market is booming although there was a significant decrease of new installed biogas plants in 2007. Until the end of 2007 about 3.700 biogas plants were in operation. Most of the newly installed biogas plants in Germany have an electric capacity of 500 kW by using CHP installations and are operated with energy crops as feedstock. New applications such as biogas up-grading

⁴ Source: COM(2007) 723 final „A EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-PLAN)

Towards a low carbon future“

⁵ COM (2005) 628: "Biomass Action Plan"

to vehicle fuel (in Jameln) and feeding into the grid (in Pliening, Kerpen and Straelen) have come into operation. In Austria the number of biogas plants has increased from about 170 in 2004 to more than 340 in 2005 and to almost 600 in 2006, the majority of plants having an electric capacity of 100 to 500 kW. By September 2006, 62 landfill gas recovery plants, 134 sewage sludge digesters, 350 biogas and co-fermentation plants, 25 anaerobic waste treatment plants (industry), and 15 biowaste digestion plants (municipalities) were in operation. Finally, in Denmark the political aim is to produce 8 PJ from biogas through the construction of 40 new biogas plants by 2008. This target means a doubling of the present production and an increase of 1 PJ per year.

At the same time the biogas market is very small in many other European countries. This situation needs to be changed in the next years since these countries have to take actions in order to fulfill Europe's energy targets.

2.2.2. Legislation on biogas in the European Union

The production and utilization of biogas is affected and influenced by many European and national legislations.

The following list gives an overview about European Directives and Regulations, which are related to biogas production and utilization as well as to other important issues related to biogas. Only the most important legislations were selected. Brief description of selected legislations is given in BiG>East project report on Assessment of Biogas Policies in European Union (please see on BiG>East web-site: www.big-east.eu).

List of European legislations related to biogas production and utilization:

- Directives:
 - DIRECTIVE **2000/76/EC** “on the **incineration of waste**”
 - DIRECTIVE **2001/77/EC** „on the promotion of **electricity produced from renewable energy sources** in the internal electricity market“
 - DIRECTIVE **2001/80/EC** “on the **limitation of emissions of certain pollutants** into the air from large combustion plants”
 - DIRECTIVE **2002/91/EC** „on the **energy performance of buildings**“
 - DIRECTIVE **2003/30/EC** „on the promotion of the use of **biofuels** or other renewable fuels for transport“
 - DIRECTIVE **2003/55/EC** “concerning common rules for the **internal market in natural gas** and repealing Directive 98/30/EC”
 - DIRECTIVE **2003/87/EC** „establishing a scheme for **greenhouse gas emission allowance trading** within the Community and amending Council Directive 96/61/EC“
 - DIRECTIVE **2004/8/EC** „on the promotion of **cogeneration** amending Directive 92/42/EEC“

- DIRECTIVE **2006/12/EC** „on waste“
- COUNCIL DIRECTIVE **86/278/EEC** “on the protection of the environment, and in particular of the soil, when **sewage sludge** is used in agriculture”
- COUNCIL DIRECTIVE **91/676/EEC** „concerning the protection of waters against pollution caused by **nitrates** from agricultural sources“
- COUNCIL DIRECTIVE **96/61/EC** “concerning **integrated pollution prevention and control**”
- COUNCIL DIRECTIVE **1999/31/EC** “on the **landfill** of waste”
- COUNCIL DIRECTIVE **2003/96/EC** “restructuring the Community framework for the **taxation of energy products and electricity**”
- COUNCIL DIRECTIVE **2004/67/EC** “concerning measures to safeguard **security of natural gas supply**”
- Regulations:
 - REGULATION (EC) No **1774/2002** “laying down **health rules concerning animal by-products** not intended for human consumption”
 - REGULATION (EC) No **2003/2003** “relating to **fertilizers**”
 - COUNCIL REGULATION (EC) No **1782/2003** “establishing **common rules for direct support schemes under the common agricultural policy** and establishing certain **support schemes** for farmers and amending Regulations (EEC) No 2019/93, (EC) No 1452/2001, (EC) No 1453/2001, (EC) No 1454/2001, (EC) 1868/94, (EC) No 1251/1999, (EC) No 1254/1999, (EC) No 1673/2000, (EEC) No 2358/71 and (EC) No 2529/2001”

3. National Policy & RES Support Instruments

3.1. Legislative framework on RES and Biogas in Latvia

3.1.1. General legislation on RES in Latvia

There are a number of normative acts and programs that determine and describe the Latvian overall energy policy. The main programs, normative acts and plans on energy policy and RES are summarized below:

National Energy Program⁶

The Cabinet of Ministers has approved the National Energy Program on September the 9th, 1997. The objective of the Program is to define a set of measures that will ensure stable

⁶ Latvian National Energy Program. *PHARE TR Energy Program for Latvian Energy*. Riga, June 1997

energy supplies at the lowest costs and lowest affordable environmental impacts, which in quantity and quality correspond to domestic demand. This objective is to be achieved by improving energy efficiency, promoting utilization of domestic energy resources and decreasing share of energy in the country's import.

The program covers a period up to the year 2020. It is a planning document that integrates into a single system interrelating technical, financial and organizational measures and is composed of 12 subprograms – Energy Efficiency, Thermal Energy, Electricity, Gas Supply, Oil Products, Coal, Wood, Peat, Alternative Energy Sources, Environment Protection, Legislation and Institutional Regulations, Education and Science.

As the new Energy Development Conception for 2007-2013 has been approved in 2006 this Program has now a minor importance.

Law on Energy⁷

The Law on Energy, approved on September 1998, regulates energy as an economy infrastructure of the Republic of Latvia, comprising extraction of different kinds of energy, supply of energy to consumers, and consumption of energy resources. This Law as well as defines transmission order in energy and the principles of the organization and development of operation of energy supply enterprises.

Amendments to the Law on Energy⁸

Amendments to the Law of Energy (approved on May the 10th, 2001) prescribe protective impact on the environment and use of environmentally friendly technologies as well as provide rules for the installation of generation equipment and purchase of electricity produced from renewable energy resources. The document also stipulates that: <owners of buildings and other facilities have the right to choose the most cost-efficient type of energy supply, yet refusal from centralized district heating or, on the contrary, connecting to the system should not cause disturbances of heat deliveries to other users of the system.

Law on Electricity Market

The overall objective of the Law on Electricity Market, approved in May 2005, is to set and describe the functioning of the electricity sector taking into account the rights of all users to choose freely electricity trader and promotion of renewable energy and cogeneration. The Law points out the duties and rights of Transmission System Operator (TSO), Distribution System Operator (DSO), electricity trader and gives general conditions for introduction of new capacities, electricity price determination and electricity production with renewable energy sources and in cogeneration cycle. The Law determines as well transitional provisions for several issues like households will have free option to choose electricity supplier from 1 July 2007 and independence of DSO will have to be assured as well since 1 July 2007.

⁷ The Law on Energy, Riga, 1998

⁸ Amendments to the Law on Energy, Riga, 2001

Energy Development Conception for 2007-2013

Energy Development Conception for 2007-2013 (approved on August the 1st, 2006) is a policy-planning document prescribing main energy policy principles, goals and strategies for next 10 years and giving some outline on energy sector long-term development directions.

There are different solutions foreseen to achieve the goals defined. One of solutions is ensuring the development and implementation of investment programs to increase energy efficiency in district heating systems and in buildings and to promote the energy production from renewable energy sources by attracting EU Structural and Cohesion Funding.

Energy development conception prescribes that starting from 2008 implementation of energy efficiency measures should reduce the primary energy consumption by 1% per year.

This planning document declares support for development of cogeneration plants and enlarged use of renewable energy sources. However, previous experiences show that this kind of support in policy documents is provided over the years but in practice establishment of energy quotas is minimal.

The Strategy of Utilization of Renewable Energy Sources 2006-2013

On 31.10.2006 was accepted the Strategy of Utilization of Renewable Energy Sources 2006-2013. This is a medium-term policy-planning document, which is proposed to define policy measures, aims and strategies regarding use of renewable energy sources in Latvia. Strategy's main objectives are following:

- To increase the share of renewable energy sources in Latvia's total energy balance;
- To promote energy supply security in Latvia;
- To ensure reduction of GHG over the long-term.

To constantly increase the use of renewable energy sources, four priority measures in strategy are defined:

- Promotion of technologies allowing to increase RES competitiveness compared to fossil energy sources;
- Use of biomass for heat and electricity production;
- Development of innovative RES demonstration projects in order to demonstrate different possibilities and to examine technologies suitability for local conditions.
- Support for research projects on RES utilization possibilities.

Strategy includes promotion of biogas cogeneration plants, stressing the contribution of biogas production and utilization in GHG reduction, and giving the possibility to fulfill Latvia's obligations regarding implementation of Kyoto protocol requirements.

The Strategy of Sustainable Development

The Strategy of Sustainable Development of Latvia (approved on 15.08.2002) defines tasks and objectives for ensuring the sustainable development, including increase of energy efficiency and promotion of renewable energy use, develop biofuel production (biodiesel, bioethanol and biogas), using agricultural feedstock (rape and grain) and animal breeding by-products. Regarding the renewable energy sources following actions were defined:

- Promotion of biogas collection and further use from landfills and farms;
- Reduction of GHG emissions from municipal landfills and dumps;
- Promotion of biofuel use;
- Promotion of wind, solar and hydro energy use;
- Promotion of waste wood use in heating.

Regulations on Electricity Generation from Renewable Energy Sources

Cabinet of Ministers Regulation No.503 “Regulations on Electricity Generation from Renewable Energy Sources” (approved on 24.07.2007) prescribe conditions for electricity production using renewable energy sources, including biogas, and defines criteria for RES electricity producers to be eligible to sell their electricity within compulsory procurement with fixed purchase price (a feed-in tariff system).

The list of other Latvian legislation related to sustainable production and use of energy is given below:

- The Unified Strategy of National Economy (approved on 18.08.2004);
- Latvian National Lisbon Program 2005-2008 (approved on 19.10.2005);
- Latvian Long-term Economical Strategy (approved on 17.07.2001).

3.1.2. Legislation on Biogas in Latvia

Based on Strategy of Utilization of Renewable Energy Sources 2006-2013, Climate Change Mitigation Program 2005-2010 and National Policy Plan 2004-2008 the Ministry of Environment of Latvia has elaborated the Biogas Production and Utilization Development Program – the most important regulation document on biogas in Latvia. The Program is affected by following legislation and regulations:

- Laws:
 - Law on Environmental Protection (approved on 02.11.2006);
 - Law on Energy (approved on 03.09.1998);
 - Law on Pollution (approved on 15.03.2001);
 - Law on Waste Management (approved on 14.12.2000);

- Law on Electricity Market (approved on 05.05.2005);
- Law on Biofuels (approved on 17.03.2005).
- Policy planning documents:
 - Strategy of Utilization of Renewable Energy Sources 2006-2013 (approved on 31.10.2006);
 - National Environmental Policy Plan 2004-2008 (approved on 04.02.2004);
 - National Development Plan 2007-2013 (approved on 04.07.2006);
 - The Strategy of Sustainable Development of Latvia (approved on 15.08.2002);
 - Climate Change Mitigation Program 2005-2010 (approved on 06.04.2005);
 - Strategy for the Realization the JI Projects Under the UNFCCC Kyoto Protocol for 2002-2012 (approved on 07.11.2002);
 - State Plan on Waste Management 2006-2012 (approved on 29.12.2005);
 - Energy Development Conception for 2007-2016 (approved on 01.08.2006).
- Other regulations:
 - Cabinet of Ministers Regulation No.29 “Procedure for installation and placement of electricity generation capacities if renewable sources are used” (approved on 15.01.2002);
 - Cabinet of Ministers Regulation No.695 “Regulations on permits for increase of electricity generation capacities or introduction of new generation facilities” (approved on 29.08.2006);
 - Cabinet of Ministers Regulation No.921 “Regulations on Electricity Production from Cogeneration” (approved on 06.11.2006);
 - Amendments for Cabinet of Ministers Regulation No.772 “Regulations on order for biofuels quality requirements, conformity assessment, market regulation and consumer information” (approved on 18.10.2005);
 - Cabinet of Ministers Regulation No.503 “Regulations on Electricity Generation from Renewable Energy Sources (RES)” (approved on 24.07.2007).

According to the Strategy of Utilization of Renewable Energy Sources 2006-2013 the main renewable energy sources in Latvia are biomass (wood) and hydro resources. Wind energy, biogas and straw are less used. The Law on Electricity market and Law on Biofuels consolidate the need for increasing the share of those resources in electricity and transport fuel consumption, however there is a lack of unified strategy for reaching those goals. Therefore the main objective regarding RES is optimal use of RES potential in Latvia by taking into account the economical, geographical and technical possibilities and EU policy objectives and requirements. Concerning the RES share in primary energy balance the objective set in RES Strategy is to increase the RES share up to 35% in 2010 and to reach 37% in 2016.

Biogas production allows implementation of requirements set by the Law on Pollution that regulates the division of polluting activities and aspirations for their implementation. Respectively, using biogas technologies is possible technically and economically efficient to solve the manure and biological waste management problem addressed by regulation of Cabinet of Ministers No.294 “Procedure for applying for A, B and C category polluting activities and giving permits for implementation of those activities” (approved on 26.07.2005). Requirements for soil and water protection are defined by following regulations:

- Cabinet of Ministers Regulation No.531 “About water and soil protection from pollution with nitrates resulted from agricultural activity” (approved on 18.12.2001);
- Cabinet of Ministers Regulation No.34 “Regulations on polluting emissions in water”;
- Law on fertilizers movement;
- Law on “Convention on the Protection and Use of Transboundary Watercourses and International Lakes”.

Development of biogas production sites significantly facilitates the compliance with those requirements. Biogas production is also good solution for reduction the amount of solid biological waste regulated by following Latvian legislation:

- Cabinet of Ministers Regulation No.258 “Regulations on waste classification and characteristics for hazardous waste” (approved on 19.06.2001);
- Cabinet of Ministers Regulation No.432 “Procedure for giving, extending and cancellation of waste management permits” (approved on 09.10.2001);
- Cabinet of Ministers Regulation No.474 “Regulations on waste landfill construction, landfill and waste dump management, closing and recovering” (approved on 13.06.2006);
- Law on Environmental Impact Assessment;
- Law on Waste Management.

Biogas production is one of the most efficient ways for treatment of wastewater sludge. It allows performing the hygienization regulated by:

- Cabinet of Ministers Regulation No.365 “Regulations on wastewater sludge and sludge compost utilization, monitoring and control” (approved on 20.08.2002);
- Law on Agriculture.

Biogas production by ensuring the methane collection gives a possibility to fulfill 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, aerobe composting, waste disposal) would directly get into the atmosphere. Also GHG emissions from heat and electricity production are prevented replacing it by energy produced from biomass.

The aim of Biogas production and utilization development program 2007-2011 is to develop 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. In program are analyzed possibilities for biogas production from agricultural byproducts, industrial process residues and from other organic waste.

In program the main problems are analyzed to increase the biogas production amounts, as well as biogas production potentials are estimated and different production and utilization models are designed. The main objectives of biogas development program are:

- To support the adaptation of agricultural and food industry organizations to EU and Latvian legislation regarding the management of animal origin byproducts and integrated pollution prevention and control;
- To promote compliance with Latvian legislation by improving the manure management practice and methods;
- To promote the development processes of rural areas by creating a new jobs and improving the environmental quality.

3.2. Support Instruments

Increasing environmental protection requirements and standards of hygiene in EU and Latvia are the main contributing factors for biogas sector development. In Latvia this is realized using policy planning documents, regulatory restrictions and new tariff system. The government of Latvia also implements special tax policy, including exemption in CO₂ taxes for RES users.

3.2.1. Feed-in tariff system

State support for RES (incl., biogas) electricity generation is introduced in Cabinet of Ministers Regulation No.503 “Regulations on Electricity Generation from Renewable Energy Sources”. 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.

According above-mentioned regulations the percentage of each kind of RES for ensuring the mandatory purchase is given in Table 1.

Regulations also determine the formula for calculation of sale price for electricity amount produced from biogas for 10 years starting from the first day of biogas plant operation:

$$C = \frac{T_g \cdot k}{9,2} \cdot 3,5$$

Where

C – price without VAT for public seller to purchase electricity from biogas plant (LVL/MWh)

T_g – natural gas trade end tariff approved by regulator without VAT, determined for natural gas annual consumption from 126 thous.n.m³ to 1260 thous.n.m³ (LVL/thous.n.m³), if calorific value of natural gas is 7900 kcal/n.m³

k – price differentiation coefficient that depends on plant's capacity and is given in regulations Annex 6 and in Table 2 (please see below).

Table 1. Share from final electricity consumption of end users in Latvia that mandatory has to be covered with electricity produced using renewable energy sources

RES	2007	2008	2009	2010
Hydropower plants with capacity over 5 MW _e	41,28 %	39,32 %	37,35 %	35,39 %
Hydropower plants with capacity up to 5 MW _e	1,04 %	1,06 %	1,08 %	1,10 %
Wind power plants	1,48 %	2,78 %	4,08 %	5,37 %
Biogas electricity generation plants	0,38 %	1,07 %	1,77 %	2,46 %
Biomass power plants and biomass and fossil fuel co-firing power plants	0,44 %	1,95 %	3,46 %	4,97 %
<i>TOTAL</i>	<i>44,62 %</i>	<i>46,18 %</i>	<i>47,74 %</i>	<i>49,30 %</i>

Table 2. Values of coefficient k depending on installed electrical capacity

Installed electrical capacity, MW _e	Coefficient k value
<0,08	1,240
>0,08 - 0,15	1,231
>0,15 - 0,20	1,202
>0,20 - 0,40	1,131
>0,40 - 0,60	1,086
>0,60 - 0,80	1,072
>0,80 - 1,00	1,055
>1,00 - 1,50	1,035
>1,50 - 2,00	1,008
>2,00 - 2,50	0,992
>2,50 - 3,00	0,982
>3,00 - 3,50	0,974
>3,50	0,965

3.2.2. Other support instruments for RES electricity generation

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.

3.2.3. Joint Implementation (JI) projects

Regarding Kyoto Protocol requirements the target set for Latvia is to reduce GHG emissions by 8% compared to the level of 1990. As stated in Paragraph 6 of Kyoto Protocol, participating countries are able to implement projects for emission reduction in exchange of emission reduction units that can be used to reach the emission reduction targets.

JI project steps are given in Figure 1.

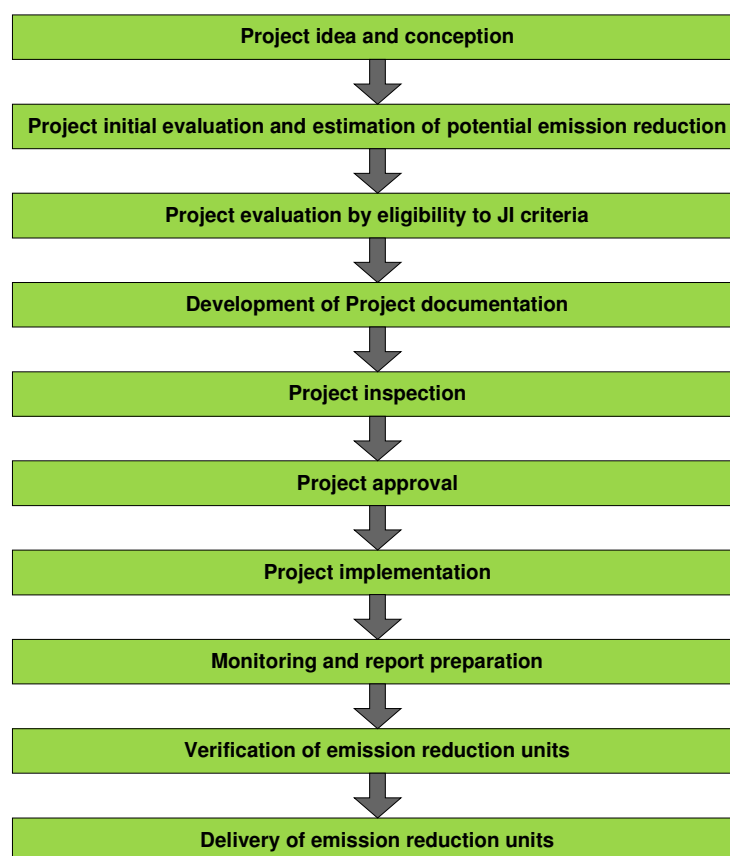


Figure 1. JI project development procedure

The main advantage of JI projects is improvement of project vital capacity through additional cash flow resulted from sale of emission reduction units.

3.2.4. Support for energy crop growing

Support for energy crop growing is one of the instruments for reaching the targets defined by EU Bioenergy Strategy. The aim of the payment is to support farmers growing crops with high energetic value and with a purpose to use the crops for processing them into energy products – heat energy, electricity, biofuels etc. production. Support allocation procedure is prescribed in Cabinet of Ministers Regulation No.180 “Procedure for administration and supervision of European Union support on cultivated plants with high energetic value” (approved on 13.04.2007).

Farmers can get support if they have a contract with approved collecting company or first processor. Practically this system is subordinated to needs of traditional cultivated plants (cereal and rape) growers, in order to prevent the possibility for farmers to receive support for energy crop growing and at the same time to sell their production for food industry. Such a system is not eliminating a possibility for growing perennial energy crops because both the owner of technology, who is performing crop harvesting, and cutting, and consumer (e.g. biogas plant) can register as collecting company or first processor.

3.3. Market Reform & Investment Environment

Since 2002 new RES capacities were regulated based on Cabinet of Ministers Regulation No.29 on Installation and dislocation of electricity production capacities if RES are used for production of electricity. Based on this regulation the Ministry of Economy annually estimated and announced the total capacity of RES allowed to be installed in the Latvian territory and the applied tariff.

In 4 years (2002-2005) the total allowed RES capacity was 58 MW. The annual breakdown is given in Table 3.

Table 3. Annual breakdown of allowed RES capacities in Latvia

RES	2002	2003	2004	2005
Hydro energy, MW	10	0	0	0
Wind, MW	0	1	0	0
Biomass, MW*	10	1	1	20
Biogas, MW	10	1	1	3
Sun, wave and geothermal energy, MW	0	0	0	0
<i>TOTAL</i>	<i>30</i>	<i>3</i>	<i>2</i>	<i>23</i>

* in 2002-2004 including peat

In meantime, the Regulation allowed investors to install their RES capacities besides the yearly quota limits, however in this case they could not receive financial support in terms of the price of electricity sold to the grid.

In 2005 Ministry of Economy has issued 3 permits with total capacity 21.5 MW from the 23 allowed quotas:

- 1 permit for a wind farm with capacity 12 MW;
- 2 permits for biomass cogeneration plants with capacities of 5 and 4.5 MW.

There were no regulation approved regarding RES capacities in 2006, however according to information received from the Ministry of Economy, 4 permits have been issued in 2006:

- 3 permits for wind farms with capacity of 160 MW;
- 1 permit for biomass cogeneration plant of 10 MW.

Starting from 2007 new RES capacities are allocated according to Regulation No.503 “Regulations on Electricity Generation from Renewable Energy Sources” where is defined the share from final electricity consumption of end users in Latvia that mandatory has to be covered with electricity produced using renewable energy sources (please see Table 1).

3.4. Comparison to EU policies

Since Latvia joined EU in May 2004 and undertook implementation of overall EU policy, including RES policy, Latvian government has been slow in harmonization of Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (RES-E Directive) with national legislation.

The 10th of April 2006, the European Commission has initiated infringement proceedings against six Member States, including Latvia, regarding the implementation of the RES-E Directive. EC has indicated the following main reasons for infringement:

- Lack of commitment concerning target – at least 49.3% of the total electricity consumption in Latvia in 2010 will be produced by use of RES;
- A system of guarantees of origin has not been implemented;
- Opaque and discriminatory conditions regarding access to grid and regarding rules for cost sharing/bearing of various grid investment (connection, extension and re-inforcement) costs.

To prevent the disparity indicated by the EC, the Ministry of Economy has finally prepared Regulations on Electricity Generation from Renewable Energy Sources and they were approved on 24.07.2007.

To implement the RES policy included in the EC Directives 2001/77/EK and 2003/30/EK, also the Strategy of Utilization of Renewable Energy Sources 2006-2013 was approved on 31.10.2006. Besides the directives mentioned above, the Strategy facilitates as well the implementation of Convention of Long-range Transboundary Air Pollution and UNFCCC.

4. Biogas contribution

Currently there are three biogas cogeneration plants operating in Latvia. Their total installed electricity production capacity is 7.5 MW_e. The cogeneration plant owned by company “Riga Water” for biogas production uses sludge from wastewater treatment. The other two biogas cogeneration plants are installed in landfills in Rīga and Liepāja regions and use landfill gas for electricity and heat production. Amounts of biogas production in 2002-2006 are given in Table 4.

Table 4. Biogas production in Latvia 2002-2006⁹

	2002	2003	2004	2005	2006
Landfill gas, million m ³	3	8	13	13	13
Sewage sludge gas, million m ³	0	0	3	5	4
<i>TOTAL, million m³</i>	3	8	16	18	17

In 2005 using biogas were produced about 1% from all renewable electricity in Latvia.¹⁰ The target for RES share in electricity production is based on RES-e directive and is defined by the Law on Electricity market and Regulations on Electricity Generation from Renewable Energy Sources. In 2010 Latvia will have to reach 49.3% of RES share in electricity production. In 2006 independent electricity producers (small hydro power plants, wind and biogas plants) in total produced only 1.8 % of all electricity generated in Latvia. To reach the RES-e target it is proposed to increase the percentage of biogas electricity production from 0.38% in 2007 up to 2.46% in 2010.

Biogas development also could give a significant contribution for reaching the target (set in the Strategy of Utilization of Renewable Energy Sources 2006-2013) providing the proportion of RES in primary energy balance. The target is to increase this proportion up to 35% in 2010 and to reach 37% in 2016. Current structure of primary energy resources and proportion of renewable energy sources in primary energy balance is given in Figure 2 and detailed structure of RES in Latvia is given in Figure 3.¹¹

According to GHG emission reduction target for Latvia it is necessary to reduce GHG emissions by 8% compared to the level of 1990. Despite the fact that calculations of the Ministry of Environment show that Latvia will easily fulfill GHG emission reduction target, Latvia as EU member state is obligated to implement different GHG emission reduction measures. Energy sector including transport is the main CO₂ emission source in Latvia. Biogas could contribute to GHG emission reduction in energy sector by partly replacing fossil fuels (e.g. natural gas) in electricity and heat generation as well as in transport sector using biogas as vehicle fuel instead of gasoline or diesel fuel.

⁹ Data source: Central Statistical Bureau of Latvia

¹⁰ Data source: Biogas production and utilization development program 2007-2011

¹¹ Data source: Central Statistical Bureau of Latvia

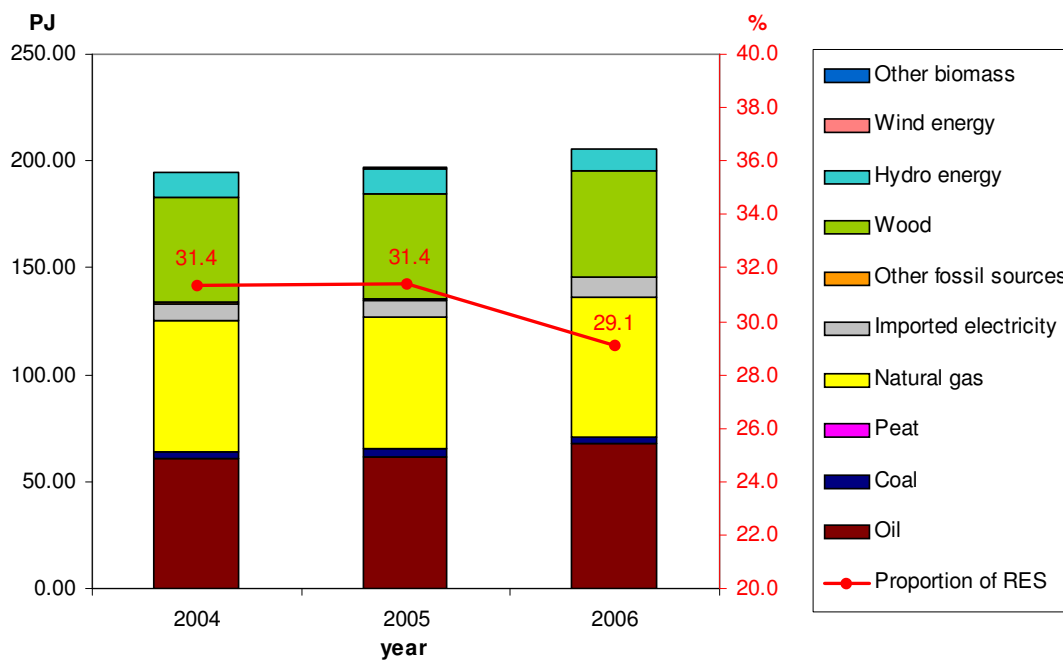


Figure 2. The structure of primary energy resources and proportion of renewables in primary energy balance in Latvia

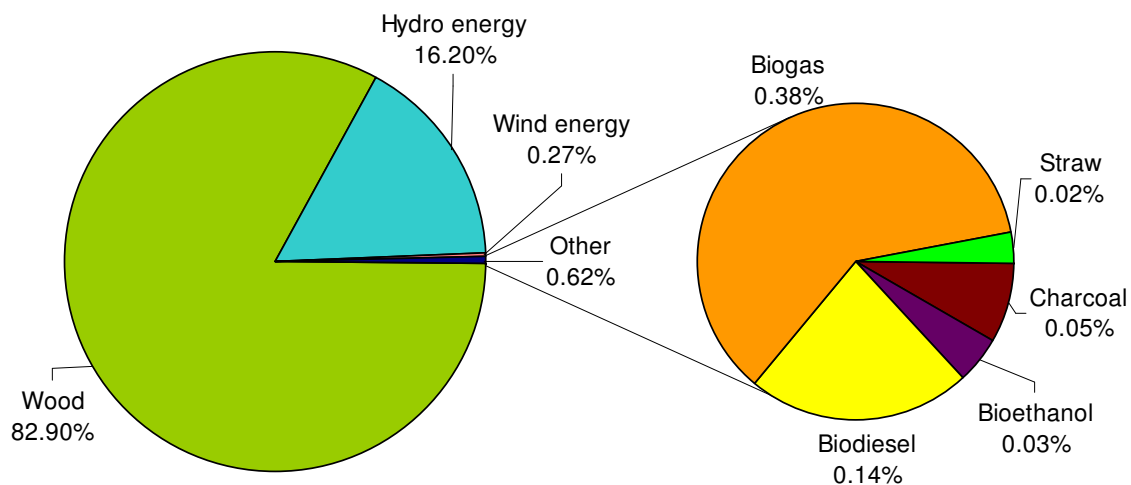


Figure 3. The structure of renewable energy sources in Latvia in 2006

5. Conclusions

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. However, there still exist some legislative barriers related to fulfillment of criteria to qualify for mandatory RES electricity purchase.

Regarding support instruments the big step towards biogas penetration in Latvia was development of RES electricity feed-in tariff system. However, until now the situation with investment and financial support schemes for biogas is still not clear, thus prohibiting development of competitive biogas projects. This situation could change after implementation of first successful demonstration projects.

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.

Biogas production sector development could significantly contribute in reaching different National targets concerning increase of RES share in electricity production and in primary energy balance, as well as to reduce GHG emissions. Biogas potentially can be used instead of fossil fuels in energy generation (producing electricity and heat energy) and in transport as vehicle fuel.