



BIOENERGY ACTION PLAN  
FOR LIMBAZI REGION IN  
LATVIA  
2012 – 2022

FIRST EDITION

Limbazi, 2012

## Development of the regional bioenergy action plan

This document represents one of the five biomass action plans developed within Intelligent Energy Europe project BioRegions of the European Commission. Action plans set framework for the promotion of renewable energy production and use in five rural territories in Europe.

More information about the project and project partners can be found on the website [www.bioregions.eu](http://www.bioregions.eu).



bioregions.eu

Regional Networks for the Development  
of a Sustainable Markets for Bioenergy in  
Europe

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## Definitions and abbreviations

<i>Bioenergy</i>	–	Energy that is produced from organic sources, both flora (woodfuel, straw, algae, etc.) and fauna (e.g., grease and waste) products.
<i>Bioenergy region (bioregion)</i>	–	A region in which at least one third of heating and electricity needs is provided from regional and sustainable bioenergy sources.
<i>Cogeneration</i>	–	Primary energy transformation process where electricity and heat energy are simultaneously produced with facility specific power to heat ratio.
<i>Woodfuel</i>	–	Wood materials of variety of size, moisture content, as well as origin used as fuel. E.g., firewood, wood chips, pellets, briquettes and wood residue.
<i>Wood residue</i>	–	By-products and residues from wood processing industry.
<i>BTC</i>		Biomass trade and logistic centre
<i>CCFI</i>		The Climate Change Financial Instrument
<i>CFLA</i>		The Central Finance and Contracting Agency
<i>DH</i>		District heating
<i>EAFRD</i>		The European Agricultural Fund for Rural Development
<i>EE</i>		Energy efficiency
<i>ERDF</i>		The European Regional Development Fund
<i>EU</i>		European Union
<i>FSC</i>		Forest Stewardship Council
<i>LAD</i>		The Rural Support Service
<i>PEFC</i>		Programme for the Endorsement of Forest Certification schemes
<i>RES</i>		Renewable energy sources
<i>VARAM</i>		The Ministry of Environmental Protection and Regional Development of Republic of Latvia

# 1. NEED OF AN ACTION PLAN

## 1.1. Background

Energy is one of the leading development topics for European countries forcing the European Union (EU) to solve series of challenges including the climate change and growing dependence on energy imports, energy deficiency and the availability of secure energy at an affordable price. The EU implements an ambitious energy policy that covers all types of energy resources, ranging from fossil resources (oil, gas and coal) to nuclear energy and renewable energy sources (solar, wind, biomass, geothermal, hydro and wave energy), creating preconditions for new industrial revolution that can build low-energy economy, at the same time ensuring more secure, more competitive and more sustainable use of energy.

The EU has long been one of the leading actors fighting climate change in the international arena. Energy efficiency and renewable energy is an integral part of European energy and climate policy. The EU leaders have set three key objectives to be attained by 2020 (also known as '20-20-20' targets):

- A reduction in EU green house gas emissions of at least 20% below 1990 levels;
- 20% of EU energy consumption to come from renewable resources, and;
- A 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.

Figure 1.1 illustrates national renewable energy targets for all EU Member States. Latvia has committed to increase the share of renewable energy sources in gross energy consumption by up to 40% in 2020. Achievement of this target will only be possible by implementing concrete actions at national, regional and local levels. Each planning level has its own specificity while energy planning at regional level is recognized as the most proper for promoting renewable energy and energy independence, as well as reducing environmental impacts.

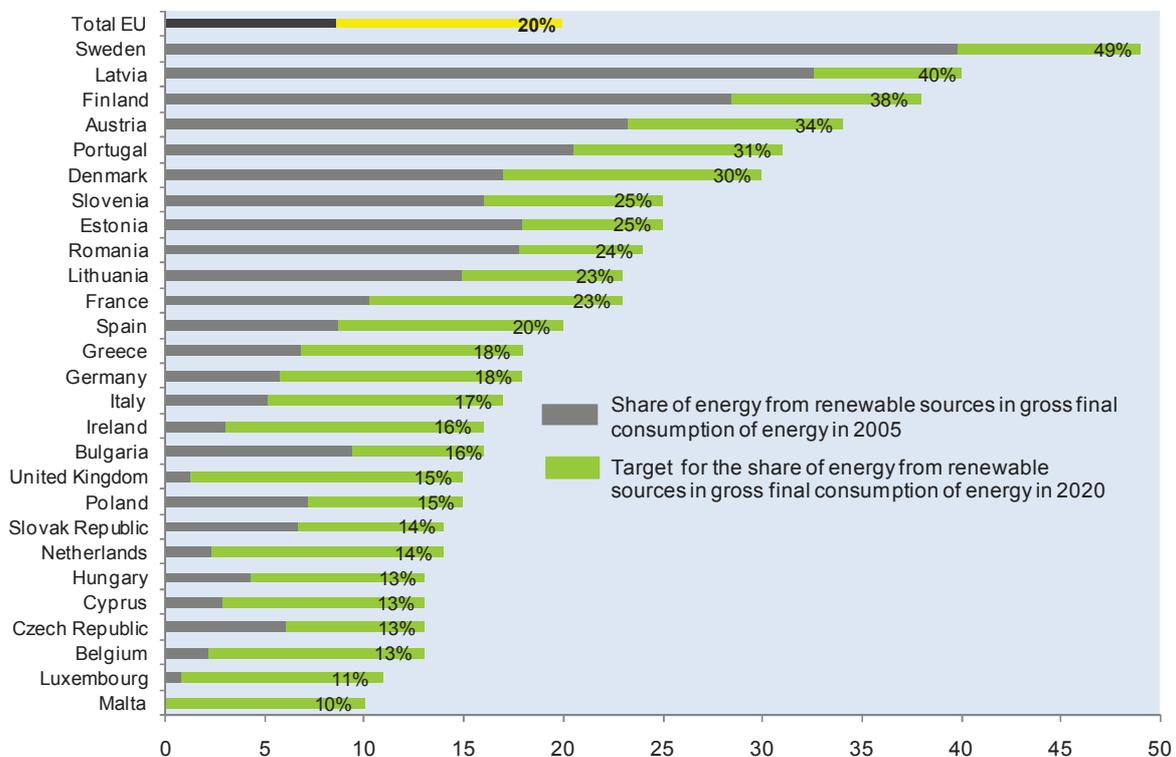


Fig.1.1. EU-27 renewable energy targets

The Intelligent Energy Europe project BioRegions contributes to reaching EU renewable energy targets by supporting the creation of 'bioenergy regions' in five rural areas of Europe. A 'bioenergy region' aims to meet at least one third of its heating and electricity needs from regional and sustainable bioenergy sources, with main focus on solid biomass.

One of the key activities of the BioRegions project is the development of regional bioenergy action plans in five rural territories in Europe:

- Brumov-Bylnice & Slavičín region, a forested mountainous area located in the Eastern part of the Czech Republic at the border with Slovakia;
- County Westmeath, Ireland, an agricultural county located west of Dublin;
- Limbazi and Salacgriva regions in Latvia, a densely forested areas located north of Riga;
- Sredna Gora region, a forested mountainous area in Central Bulgaria, and;
- Le Trièves, France, a forested area at the foot of the Alps near Grenoble.

## 1.2. Overview of existing action plans and policies related to development of the region

At a national level variety of policy planning documents have been developed for the support of renewable energy production and use in Latvia. Long term energy policy priorities are related to increased use of renewable energy sources (RES), energy security and independency, reduced final energy consumption and improved environmental air quality.

In Latvia electricity production from renewable energy sources in cogeneration is supported by a **feed-in tariff** and a **guaranteed payment** for installed electrical capacity. Until 2011 also distributed electricity generation from RES was supported by feed-in tariff and guaranteed payment for the installed capacity. However, at present the Ministry of Economics of Latvia has discontinued organization of new tenders for obtaining rights to sell electricity produced from biomass, biogas, solar and wind energy under the mandatory procurement. Currently a new Renewable Energy Act is pending in the Cabinet of Ministers to be confirmed. It will provide support for heat and electricity production from renewable energy sources in terms of price premiums.

The main State support instrument for initial financing of renewable energy and energy efficiency projects in Latvia is the **Climate Change Financial Instrument (CCFI)** or internationally known as Green Investment Scheme. CCFI is a programme of State Budget and resources are obtained from realizing state owned assigned amount units within the framework of international emissions trading. Investment support is also provided by activities implemented within the Rural Support program (the Ministry of Agriculture) and by the Cohesion Fund (the Ministry of Economics) which aim to promote the use of agricultural and forestry biomass in electricity production and to improve the efficiency of renewable energy systems.

At a regional level there are two key documents providing future development of Limbazi region – **Limbazi regional development program for 2011-2017** and the **Land use plan of Limbazi region for 2012-2024**. In addition to these documents in 2006 the **Tourism and marketing strategy of Limbazi city and Limbazi parish** was developed with an aim of creating framework for coordinated communication between involved parties to increase the flow of tourists to the city.

In accordance to the above mentioned planning documents priorities of Limbazi region include:

- Development of human resources and improving the quality of life;
- Promotion of business sector and increased employment rate;
- Sustainable development of the environment and use of natural resources, and;

- Promotion of regions availability and international recognition.

Energy and environmental challenges posed are related to improvement of energy efficiency in energy generation, transmission and at demand-side, as well as sustainable management of natural resources.

### **1.3. Aims of the development of the action plan**

Limbazi regional bioenergy action plan creates framework for the development of a bioenergy region, and it aims to:

- Support the development of efficient and reliable market and transport chains for solid biomass;
- Increase the knowledge of local stakeholders in establishing biomass projects and all activities related to this development, and;
- Stimulate investments into bioenergy projects and trading businesses of local stakeholders.

The action plan was developed by Ekodoma Ltd. in collaboration with Limbazi municipality during July-December 2011 and is available in both Latvian and English languages. The action plan will be adopted by responsible authorities during Spring-Summer, 2012. Afterwards the first steps for the creation of the bioregion will be implemented. The action plan will be updated periodically to adapt to changing framework conditions in the region.

### **1.4. Methodology of the development of the action plan**

The action plan has been developed as a part of the international BioRegions project based on a model created by partners from experienced bioregions in Achental (Germany) and Jönköping (Sweden).

Data used for calculation of biomass consumption and potential in the target region were collected from both national (Central Statistical Bureau of Latvia, the Rural Support Service, the State Land Service, the State Forest Service, the Agricultural Data Centre and the State Employment Agency, etc.) and regional level sources (Limbazi regional development program for 2011-2017 and the first redaction of Land use plan of Limbazi Region for 2012-2024). The analytical section is followed by a strategic section defining objectives for the development of bioenergy region and activities necessary for their achievement, as well as evaluating possible impacts.

Quality control of the action plan is ensured by all partner organizations of the BioRegions consortium.

## 2. TARGET REGION PORTRET

### 2.1. General characteristics of the region

Limbazi region is located in the north of Latvia, framed by the Baltic Sea in the west and close the Estonian border in the north (see Fig.2.1). Total area of the region is 1,170 km<sup>2</sup>.

Limbazi region comprises of seven parishes – Katvari, Limbazi, Pale, Skulte, Umurga, Vidrizi and Vilkene parishes – and Limbazi city which is the centre of the region with area of 9.994 km<sup>2</sup> and 8,475 inhabitants. According to the data of the Central Statistical Bureau of Republic of Latvia the population of Limbazi region in 2011 was 19,424. Due to negative migration rate and small number of newborns total population is decreasing over the last decade (Fig.2.2).

Limbazi region is rich in natural resources. Forest land covers 48% of regions area. 35% is agricultural land, 6% are swamps, 2% of the territory is covered with water. The main economical activities are agriculture, forestry, manufacturing and trade.

Lack of large industrial plants in the territory of Limbazi region has allowed remaining clean and unpolluted environment and natural resources. Largest companies by turnover in 2010<sup>1</sup> were Limbazu piens, JSC (dairy products), Limbazu celi, Ltd (construction of roads and motorways), Madara 93, Ltd (food and industrial good trading), Limbazu auto, Ltd (car services), Padtex insulation, Ltd (glass fiber production), Super Bebris, Ltd (construction of buildings and production of furniture), Lauga, Ltd (extraction of peat), N.Bomja bakery 'Lielezers', Ltd (bread and bakery products), Matadors, Ltd (meet processing), Optimus A, Ltd, and Ekla, Ltd (forestry and wood processing).

According to the data of the State Employment Agency<sup>2</sup> unemployment rate in the region in March, 2011, was 13.8% of economically active population which exceeds the average level in Latvia (11%).

### 2.2. Current energy situation

#### 2.2.1. Current energy infrastructure

The whole territory of the target region in supplied with **electricity** by the joint-stock company Latvenergo. At local level electricity is produced in two small hydro electric power



Fig.2.1. Limbazi region

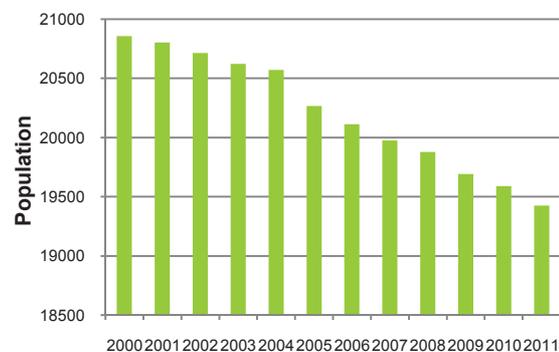


Fig.2.2. Number of inhabitants in Limbazi region 2000-2011

<sup>1</sup> Companies with the highest turnover in Limbazi region in 2010. Lursoft statistics

<sup>2</sup> Number of unemployed persons broken down by cities and regions on March 31<sup>st</sup>, 2011. The State Employment Agency

plants with total installed capacity 1.15 MW and two biogas cogeneration stations with total installed electrical capacity 2.5 MW and input heat capacity 5.46 MW. Produced electricity is consumed at site and fed into the public electricity network. Approximate amount of electricity transferred to the network when stations are working with full load is 20,000 MWh/annually.

The region does not have a direct access to natural gas networks. The nearest **natural gas infrastructure** is available in Seja and Koceni regions and Saulkrasti town. Design and construction of new natural gas objects is ordered by the natural gas supply company Latvijas gaze, JSC (the only natural gas supplier in Latvia) and these are focused on gasification of catchment areas, regions, and cities with no existing natural gas infrastructure. If a consumer wants to connect to an existing natural gas infrastructure, this is done by applying an individual submission for connection.

Due to the lack of natural gas infrastructure heat energy in the region is mainly produced from biomass, leaving small share for fossil fuels like light fuel oil, heavy fuel oil, and coal. There are three types of heating systems used in Limbazi region: (1) district heating, (2) local heating and (3) individual heating. **District heating** in Limbazi region is available in Limbazi city where two boiler houses with total capacity 23.8 MW are installed, and in Umurga (see Table 2.1 below).

Table 2.1

District heating boiler houses in Limbazi region <sup>3</sup>				
No	Location	Capacity, MW	Fuel	Consumption, t/g
1	Cesu Str.31, Limbazi	16.7	Chips	13,322
			Light fuel oil	0.4
2	Jaunatnes Str.6, Limbazi	7.1	Chips	8,875
			Wood residue	1,240
3	U.Sproga Str.11, Umurga parish	1.3	Wood residue	1,877

District heat is used for space heating and hot water preparation in households, municipality buildings and industry related entities. Existing capacity of district heating systems allows connection of new heat energy consumers. Building of new district heating systems is not planned. **Local heating** is largely provided in public buildings and industry and services sector while households with no access to district heating networks use **individual heating** systems. The main energy resource used in local and individual heating systems is woodfuel (mostly, firewood).

**2.2.2. Current energy supply and consumption**

Energy consumption in household, private and public sectors in Limbazi region is illustrated in Figure 2.3. Estimated energy consumption is 599 TJ/annually. Biomass share in final energy consumption is 80-90%. Woodfuel (logs, chips, wood residue and pellets) is the most widely used energy resource. Electricity shares slightly more than 10%.

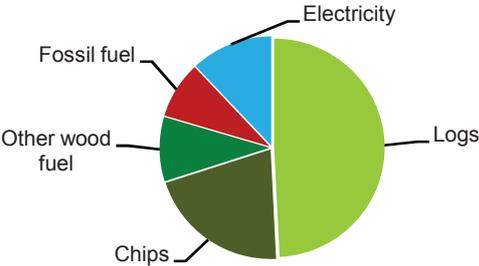


Fig.2.3. Energy consumption in Limbazi region (%)

<sup>3</sup> Data base 'Gauss-2'

## Heat energy

The largest **district heat** consumer is the household sector (74%). Public buildings consume 18% of district heat energy and industry and services sector – 8%. Total district heat consumption is around 27 thousand MWh/annually. Heat losses in distribution networks make 20% of produced heat energy. To reduce heat losses in distribution, a partial renovation of pipelines was done in 2011 by attracting co-financing from the Cohesion Fund (Fig.2.4).

Around 110 thousand MWh of heat energy annually are produced **decentralized**. Largest heat energy consumer is the household sector. The dominant resource for heat production in households is firewood. Data aggregated by the Central Statistical Bureau of Latvia for the year 2010 shows that firewood is mainly burned in room and kitchen stoves with average age exceeding 25 years. Old furnaces are ineffective and increase fuel consumption.

Installed capacity in **industry and services sector** (including district heat production) is 38.7 MW and annually 35 thousand MWh of heat are produced. Dominant fuel types are wood chips, residues and logs. Woodfuel share is 88% of total fuel consumption.

Installed capacity in **public sector** (excluding district heat production) is 3.3 MW and annually 8 thousand MWh of heat are produced. Dominant fuel type is wood logs. Woodfuel share is 93% of total fuel consumption.

**Biomass supply** in Limbazi region mainly depends on the requirements and possibilities of the consumer. Fuel for local authorities is purchased in a centralized way. This means that municipality identifies the needs of all local authorities within its supervisory and announces a single tender. Fuel is supplied by the winner of the tender and all costs of fuel preparation and transportation are included in the total contract cost. Usually short term contracts for particular heating season are negotiated between the municipality and fuel supplier. Private consumers use private forest resources or purchase fuel from neighbouring wood processing companies.

Recently increasing interest about decentralized heat production has been observed using such renewable energy technologies as solar collectors and heat pumps. Climate Change Financial Instrument up to date has financially supported 28 projects in household sector (see Table 1 in Appendix I) for fossil fuel replacement with renewables energy resources with total planned CO<sub>2</sub> emission reduction 192 thousand t/CO<sub>2</sub>/annually.

Overall building energy performance in the region is rather low. The average specific heat consumption is around 200 kWh/m<sup>2</sup>/a. Due to the possibility of attracting ERDF co-financing for apartment house insulation projects the number of renovated apartment buildings is increasing over recent years. Up to date eight apartment houses have been renovated and 10 more projects are under implementation (see Table 2 in Appendix I). The average planned energy efficiency saving due to energy efficiency measures (based on energy audits) is around 40%. As far as possible energy efficiency measures are implemented as well in municipality owned public buildings (see Table 3 in Appendix I).



Fig.2.4.  
Reconstruction of  
heat distribution  
pipes in Limbazi in  
summer 2011

## Electricity

Electricity in Limbazi region is produced in two biogas cogeneration plants with installed electric capacity 2.5 MW and in two small hydro electric power plants with installed capacity 1.05 MW. Produced electricity is used at site and transferred into the public network. Missing electricity is imported.

According to data on electricity consumption in Limbazi region<sup>4</sup> the largest part of electricity consumers are in group with electricity consumption not exceeding 100 kWh per month (see Figure 2.5). Total electricity consumption in Limbazi region is around 20,000 MWh per year.

Costs for electricity depend on electricity consumption. Households pay 0.0825 LVL/kWh (0.117 EUR/kWh) for the first 1,200 kWh per year and 0.1074 LVL/kWh (0.153 EUR/kWh) for each subsequent kWh. Legal entities pay for electricity depending on factors such as the lead-in voltage level, the chosen tariff and electricity consumption.

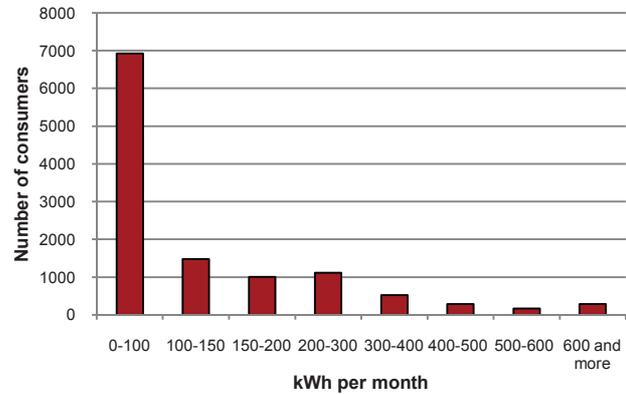


Fig.2.5. Electricity consumers in Limbazi region depending on average electricity consumption



<sup>4</sup> Data source: Latvenergo, JSC

### 3. BIOENERGY POTENTIAL

The main bioenergy potential in Limbazi region (Figure 3.1) is associated with woodfuel production from forest harvesting works (firewood from low-value round felling assortments, tree branches, tops of trunks, and stumps). Additional biomass sources are energy crops plantations and roadside maintenance biomass. Smaller amounts of biomass can be obtained in form of straw, by-products from wood processing industry, and biogas.

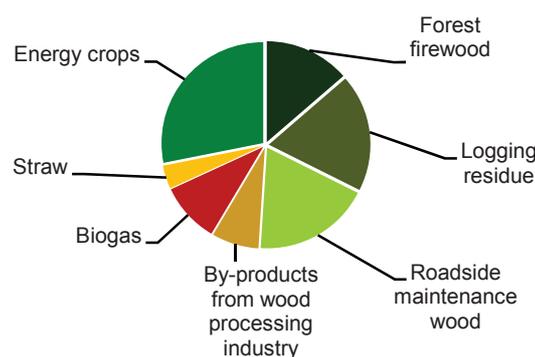


Fig.3.1. Biomass potential in Limbazi region (%)

#### 3.1. Woody biomass

Woodfuel is the most widely used biomass type. Woodfuel can be sourced from forest harvesting (low-value round felling assortments, stumps, branches, and tops of trunks), wood processing companies (cut offs, blocks, chips), area cleaning and landscaping works (fast growing bushes, etc.), special plantations (energy crops), as well as from wood that is not taken to landfills.

Limbazi region is rich in forests. Forest lands cover 48% of the territory of region or 56,545 ha<sup>5</sup>. The richest in forests are Vilkene and Pale parishes where the forest land covers more than a half of the territory (see Table 3.1). Dominant tree species are birch (41%), pine (23%), and spruce (18%).

Table 3.1

Wood cover in Limbazi region <sup>6</sup>			
Territory	Forest land, ha	Area, km <sup>2</sup>	Forest cover, %
Limbazi city	50.2	9.0	5.6
Katvari parish	5,391.5	124.1	43.4
Limbazi parish	9,640.6	228.0	42.3
Pale parish	7,395.4	146.0	50.7
Skulte parish	6,210.9	146.8	42.3
Umurga parish	8,848.2	189.5	46.7
Vidrizi parish	3,789.4	102.5	37.0
Vilkene parish	12,198.4	224.4	54.4
Total:	53,524.6	1,170.3	45.7

Wide availability of forest resources has favoured the formation of forest harvesting and wood processing industries as one of the key areas of economical activity in Limbazi region. Correspondingly significant biomass potential is associated with these activities.

Estimated potential of **forest firewood** (low-value felling assortments) and **logging residue** (tree branches, tops of trunks, stumps) in Limbazi region is around 84 thousand MWh/annually. **By-products and residues from wood processing industry** give additional 19 thousand MWh/annually. However, should be taken into account that the market of wood processing by-products is already well developed. Sawdust in most cases is sold to pellet

<sup>5</sup> Data source: State land service, 01/01/2010

<sup>6</sup> Data source: State forest service. Forest inventory 2011

producers. Increasing number of pellet producers over last years in Latvia has favoured competition for raw material and increased the price of saw dust which is between 4.5-5.5 LVL/ loose- m<sup>3</sup> (6.4-7.8 EUR/loose-m<sup>3</sup>). Saw dust that is not sold for fuel production is used for litter in nearby cattle farms. Wood cuttings are chipped and burned onsite for heating and drying purposes or sold for approx.3.5 LVL/loose-m<sup>3</sup> (5.0 EUR/ loose-m<sup>3</sup>).

Potential source of biomass is as well territories belonging to Limbazi municipality roads and railway. Taking into account the total length of municipal roads and the average overgrowth (6 solid-m<sup>3</sup>/ha), it is estimated that annual **roadside maintenance biomass** potential in Limbazi region is 48 thousand MWh.

Due to large areas of non agricultural lands there is a significant potential for the use of non agricultural land for **energy crops** (willow, canary grass, etc.) cultivation. Approximate energy production potential from energy crops plantations is 70-145 thousand MWh/annually.

### 3.2. Other biomass

**Straw** as fuel can be used in different forms: starting from pellets and ending with truss of straw. Rough calculation shows that the potential surplus of straw, which can be used for energy production in Limbazi region, is 10 thousand MWh per year.

Potential feedstock for **biogas production** is animal manure, sewage sludge from wastewater treatment plants and organic part of municipal waste. Biogas potential from animal manure in the region is around 88 TJ/annually. The amount of produced sewage sludge and municipal solid waste is relatively small and additional biogas potential from this feedstock is 100 MWh/a. Sewage sludge and municipal solid waste created in Limbazi region is collected and disposed at landfill 'Daibe' where landfill gas is produced.

### 3.3. Evaluation of regional biomass potential

Table 3.2 represents the theoretical biomass potential in Limbazi region broken down by different biomass sources.

Table 3.2

Biomass potential in Limbazi region			
<b>Biomass</b>	<b>MWh/a</b>	<b>TJ/a</b>	<b>%</b>
Forest firewood	35,200	127	13,6
Logging residue	48,600	175	18,8
Roadside maintenance wood	48,000	173	18,6
By-products from wood processing industry	19,400	70	7,5
Biogas	24,700	89	9,6
Straw	9,700	35	3,7
Energy crops	72,800	262	28,2
<b>Total:</b>	<b>258,400</b>	<b>931</b>	<b>100,0</b>

Assessment of Limbazi regional biomass potential leads to two important conclusions. First, the total biomass potential (931 TJ/a) is larger than the annual fuel consumption (599 TJ/a), reflecting the availability of local resources for sustainable energy supply. And second, the main biomass potential is associated with wood chips production from logging residues, roadside maintenance wood, by-products from wood processing industry and specially grown energy crops and its use in energy production.

## 4. BIOENERGY SWOT ANALYSIS

The SWOT analysis examines regional strengths and weaknesses, opportunities and threats for regional energy supply (see Table 4.1) and energy consumers (see Table 4.2) both in short and long-term.

Table 4.1

Regional energy supply – technical and economical availability of energy sources	
Strength	Weaknesses
Well developed forest harvesting and wood processing industries.	Low efficiency of individual heating systems (outdated technologies).
Biomass is traditionally widely used in heat production.	Low efficiency of fuel use (high moisture content).
High biomass share in heat supply.	High heat losses in distribution systems.
Well developed district heating systems.	High costs for electricity related services (connection, load change etc.)
Well developed road network for fuel supply logistics.	
Significant biomass potential.	
A wide range of energy efficient technologies and equipment in market.	
Lower costs, if compared to fossil fuel, for the production of heat energy from biomass.	
A number of existing biogas plants in the region.	
Opportunities	Threats
Reconstruction and modernization of heat production furnaces	Lack of capacity and knowledge for successful implementation of projects.
Reducing heat losses in distribution systems.	Lack of financial resources for reconstruction of heat supply systems.
Improved air quality and reduced fuel consumption due to installation of flue gas condensers in biomass boiler houses.	
Growing energy crops on non agricultural lands.	
Attracting co-financing for transfer from fossil fuels to biomass in municipal buildings and private sector.	
Reduced energy costs due to optimum use of local biomass resources.	
Efficient use of excess heat in existing biogas plants for, e.g., improvement of woodfuel quality.	

Table 4.2

## Energy consumers in Limbazi region – structure and efficiency

<b>Strength</b>	<b>Weaknesses</b>
Region has positive experience in implementing energy efficiency measures in both public and residential buildings.	Low public awareness about renewable energy sources and energy efficiency.
A wide range of energy efficient technologies and equipment offered in market.	Large heat energy consumption because of heat losses at energy demand-side.
Availability of co-financing for energy efficiency measures in municipal buildings, district heating systems, private sector and households.	
<b>Opportunities</b>	<b>Threats</b>
Public and private building energy auditing.	Inability of energy consumers to pay for heat and electricity, if energy tariffs increase.
Increasing public awareness about the importance of renewable energy and energy efficiency.	Lack of financial resources for energy efficiency measures.
Reduced energy costs due to improved energy efficiency.	Lack of knowledge and motivation for planning and implementation of renewable energy and energy efficiency projects.
Energy efficiency measures in all sectors.	

## 5. SETTING THE BIOREGION TARGET

### 5.1. Overall bioenergy vision of the region

Overall vision of Limbazi region is to create a competitive area with well developed infrastructure and high value added production, wide opportunities in all fields of life and sustainable living and working space. An integral part of a sustainable regional development is as well the sustainable development of surrounding environment. Production and use of alternative energy sources and improvement of the surrounding environment through energy efficiency measures are opportunities for Limbazi region in its way towards sustainable development.

### 5.2. Bioenergy targets for 2022

Overall target of a bioregion is to produce 33% of energy (heat plus electricity) from biomass. In heat production historically biomass has been the main energy resource in Limbazi region since the region does not have an access to natural gas grids. Current biomass share in Limbazi regional heat production is estimated to be around 80% which is more than twice the target. For this reason regional bioenergy targets are focused on more efficient use of bioenergy in terms of woodfuel quality and more efficient technologies and to wider use of local biomass resources.

Based on current energy situation in Limbazi region three fundamental bioenergy targets are stated:

- Keep the use of biomass in the final energy consumption at least 80% and increase gradually, ensuring optimum use of local biomass potential;
- Improve efficiency of biomass use for at least 20% till 2022;
- Decrease energy consumption in buildings for at least 30% till 2022.



## 6. ACTION PLAN

The action plan aims to develop short, medium and long term activities in each target group to promote bioenergy production and use, as well as energy efficiency in Limbazi region.

The action plan considers four target groups (Figure 6.1):

- Administrative sector (Limbazi regional administration and local administrations);
- Energy consumers (households, public buildings, industry and tertiary sectors);
- Energy producers (Limbazi district heating company, industry, municipality, family house owners), and;
- Bioenergy producers and suppliers (forestry and wood processing companies, private forest owners, etc.).

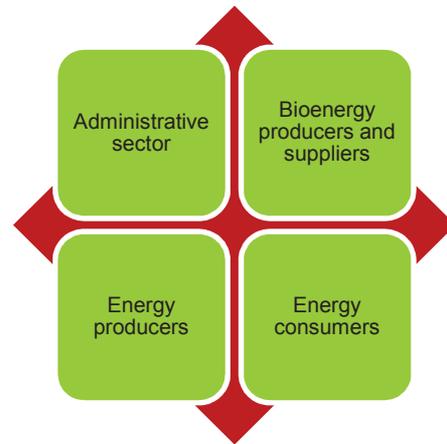


Fig.6.1. Bioenergy market stakeholders

### *Administrative sector*

Limbazi regional municipality is the key actor to promote the use and production of bioenergy and energy efficiency in two ways. Firstly, the municipality can implement measures to increase energy efficiency and the use of renewable energy sources in its public buildings (schools, kindergartens, museums etc.). Secondly, the municipality can take the lead action to promote energy efficiency and the use of renewable energy among local population.

### *Energy consumers*

Energy efficiency measures at energy-demand side are the main and the most important one, and allows reducing heat costs both in the short and long term. Energy efficiency measures related to consumer behaviour can be implemented with minimal investments but give immediate result in terms of reduced heat energy consumption and costs. In longer term energy efficiency measures allows avoiding sharp increase in energy tariffs as unnecessary investments in increased installed capacity will be avoided.

### *Energy producers*

Energy production is sector where there is a significant potential for energy efficiency improvement in Limbazi region. A greater attention should be paid to woodfuel quality issues. Fuel purchase should be organized based on energy content rather than the volume or mass of the fuel. As far as possible the old, inefficient boilers should be replaced with more modern equipment.

### *Bioenergy producers*

Bioenergy producers and suppliers should be involved in the local biomass trading and encouraged to supply biomass to the local bioenergy market. Benefits of participating in the emerging local bioenergy market should be explained for all concerned entities.

## 6.1. Milestones

<b>Short term (2015)</b>	<ul style="list-style-type: none"><li>▪ Feasibility study about the possible development of regional energy information and consultation centre is performed and following first steps are taken;</li><li>▪ Data base of energy efficiency projects implemented up to date in the region is developed;</li><li>▪ Data base of renewable energy projects implemented up to date in the region is developed;</li><li>▪ Data base of specific energy consumption in multi-apartment buildings and public buildings is developed and information is made available for local population;</li><li>▪ Data analysis and evaluation of energy efficiency and renewable energy projects implemented by the municipality is performed;</li><li>▪ Information on municipality website 'Green energy' is regularly updated;</li><li>▪ Data base of contacts with local bioenergy producers and suppliers is developed;</li><li>▪ All contacts included in the data base (see previous point) regularly receives information about binding activities in the bioregion;</li><li>▪ At least 6 workshops for different stakeholders with total number of participants at least 90 are organized;</li><li>▪ At least 3 different informative materials about renewable energy (especially biomass) and energy efficiency are prepared;</li><li>▪ Limbazi city has involved in Covenant of Mayors initiative;</li><li>▪ Energy management system for largest energy consumers is developed.</li></ul>
<b>Medium term (2017)</b>	<ul style="list-style-type: none"><li>▪ Regional energy information and consultation centre is developed, including demonstration stands;</li><li>▪ 40% of municipality owned buildings and 10% of multi-apartment buildings have performed an energy audit and have received an energy performance certificate;</li><li>▪ Fuel consumption in district heating systems is reduced by 20% due to improved efficiency in heat energy production;</li><li>▪ Feasibility study about the possible development of a biomass trade centre is performed and following first steps are taken;</li><li>▪ Energy management system for all energy consumers at municipality level is developed.</li></ul>
<b>Long term (2022)</b>	<ul style="list-style-type: none"><li>▪ Heat losses in distribution systems are reduced to 10%;</li><li>▪ Feasibility study about the use of solid biomass in electricity production is performed and following first steps are taken;</li><li>▪ 80% of municipality owned buildings and 50% of multi-apartment buildings have performed an energy audit and have received an energy performance certificate;</li><li>▪ Municipality owned buildings are 100% heated with biomass;</li><li>▪ Heat energy consumption in buildings is reduced by at least 30%.</li></ul>

## 6.2. Concrete actions

Based on regional bioenergy targets, action plan activities are divided into three groups:

- Measures aimed to increase the share of biomass in electricity and heat energy production;
- Measures aimed to increase the efficiency of biomass use, and;

- Measures aimed to decrease energy consumption in all sectors due to implementation of energy efficiency measures.

Following possible activities in each group are proposed:

## 1. Increased biomass share in energy production

### *Measure: Biomass cogeneration plant*

- Description:** In order to increase regional energy independence and to reduce energy production costs the idea of a cogeneration plant in Limbazi city has been discussed for already several years. The cogeneration plant can be installed in one of the two existing boiler houses. Both city boiler houses have joint heat distribution systems and heat energy in summer would be utilized for hot water preparation for consumers in Limbazi city. Electricity would be transferred into public networks. Several solutions are possible for the implementation of biomass cogeneration project which should be evaluated from technical, economical and environmental aspect.
- Responsibility:** Limbazu siltums, Ltd.or private investor.
- Financing:** ~ 7 mil.LVL (10 mil.EUR). Source of funding: ERDF, municipality budget or private investments.
- Desired result:** Installation of biomass cogeneration plant in Limbazi city till 2022. Reduced district heat energy costs. Increased share of biomass in electricity production.

### *Measure: Bioenergy use in municipality buildings and infrastructure*

- Description:** Most of public buildings with local heating systems in Limbazi region are heated with biomass. Only three of municipality owned public buildings uses fossil fuel for space heating. Those are Pale and Limbazi sports halls and primary school in Vilkene parish. The aim of this measure is to fully replace fossil fuel boilers with biomass boilers in municipality owned public buildings.
- Responsibility:** Municipality.
- Activities:** Feasibility studies on possible replacement of fossil fuel boilers with biomass one. Obtaining co-financing for project implementation.
- Financing:** ERDF, municipality budget.
- Desired result:** 100% of municipality owned buildings are heated with biomass till 2022.

## 2. Increased efficiency of biomass use

### *Measure: Installation of flue gas condenser in biomass boiler house*

- Description:** District heat in Limbazi city is produced in two biomass boiler houses. The average moisture content of wood chips used for heat production is rather high (around 40%) which leads to high heat losses with outgoing flue gases.

Installation of flue gas cooling and condensation equipment after a woodchip boiler allows increasing the efficiency of the boiler house by using the thermal energy of the outgoing flue gases. Additional benefit is reduced air pollution.

Responsibility: Limbazu siltums, Ltd.

Financing: 200,000 LVL (285,000 EUR). Source of funding: Limbazu siltums, Ltd.

Desired result: 20% reduced fuel consumption. 90% reduced solid particulate emissions.

*Measure: Roadside maintenance wood management pilot project*

Description: According to estimations there is significant roadside maintenance wood potential in the region. This biomass can be used in district heating boiler houses. The aim of roadside maintenance wood management activity is to collect biomass growing along municipal roadsides in the territory of Limbazi region, to chip this biomass and to use it for heat energy production. Such a scheme involves three interested parties (Figure 6.2):

- Municipality who is owner of roadsides belonging to its territory and territory adjacent to railway;
- Wood chips producer who offers chipping service, and;
- Municipality owned district heating boiler house.

The idea of this project is that municipality contracts with company (or private person) that does the roadside management work – collects and chips roadside biomass. Chipped biomass is later sold for heat energy producer.

Such scheme ensures that:

- The municipality has fulfilled the obligation of managing roadsides;
- Wood chips producer profits from selling biomass to boiler house, and;
- Regional biomass resources are optimally used.

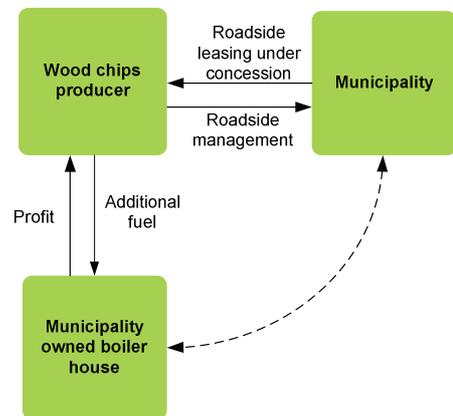


Fig.6.2. Optimized biomass collection and utilization structure in Limbazi region

Responsibility: Municipality.

Activities: Inventory of municipality owned roads, evaluation of roadside maintenance biomass potential, development of a roadside biomass management plan, contracting with chips producer.

Financing: Necessary for inventory of municipality owned roads.

Desired result: Biomass growing along municipality owned roads is utilized in district heating systems thus optimizing the use of local biomass resources.

*Measure: Biomass trade and logistic centre*

Description: The main objective of a biomass trade and logistic centre (BTC) is to serve as a mediator between biomass suppliers and consumers (Figure 6.4).

Activities of the BTC will be focused on woodfuel (firewood, wood chips,

pellets, wood residue) market. Expanding the functions of BTC the centre could act as an energy service provider (biomass drying to improve the quality, chipping, storage).

Advantages of the BTC:

- Opportunity to collect woodfuel from a number of smaller suppliers and to sell it to one or several larger consumers;
- Opportunity to improve woodfuel quality, and;
- Due to the possibility of woodfuel storage, the BTC acts like a buffer for large price and/or consumption fluctuations.

Responsibility: Private company.

Activities: The potential development of the Limbazi regional BTC is built in three phases (Figure 6.3).

1. A virtual biomass trading platform as a part of Limbazi regional energy information and consultation centre

Initially the BTC will act virtually having a separate section on the website of Limbazi regional energy information and consultation centre. The website will provide information for woodfuel consumers about woodfuel suppliers and vice versa. Consumers will have the opportunity to search for woodfuel suppliers at their location. Such scheme ensures the advantage to quickly and easily compare the price and quality of the woodfuel and to place an order. To participate in the trading platform woodfuel supplier must be able to provide appointed woodfuel supply and trading requirements. The seller must ensure that fuel quality meets the given criteria. Payment for transaction is made directly between the buyer and the seller. Fuel supply conditions depend on the agreement between involved parties.

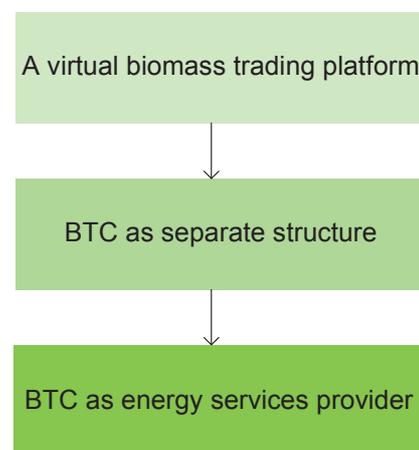


Fig.6.3. Potential development phases of Limbazi regional BTC

2. Biomass trade centre as a separate structure

Developing the idea further, the BTC from a virtual platform for biomass trading could become a separate structure with its own premises and management. In this phase the BTC will extend its functions and include participation in bioenergy projects, providing advisory and information on bioenergy technologies, organizing training and capacity building events, etc. Necessary funding for operation of the BTC can be obtained in form of an annual membership fee or payment of interest from transactions concluded.

3. Advanced biomass trade centre offering energy services

The concept of the advanced BTC means that in line with information provision on available biomass potential and consumption in the region, the BTC owns necessary infrastructure for woodfuel preparation (chipping, drying, and packing) and storage.

Financing: Ministry of Agriculture<sup>7</sup>, private financing.

Desired result: Development of a virtual biomass logistic and trading platform. Further development of the idea, if the viability of the project is proved.

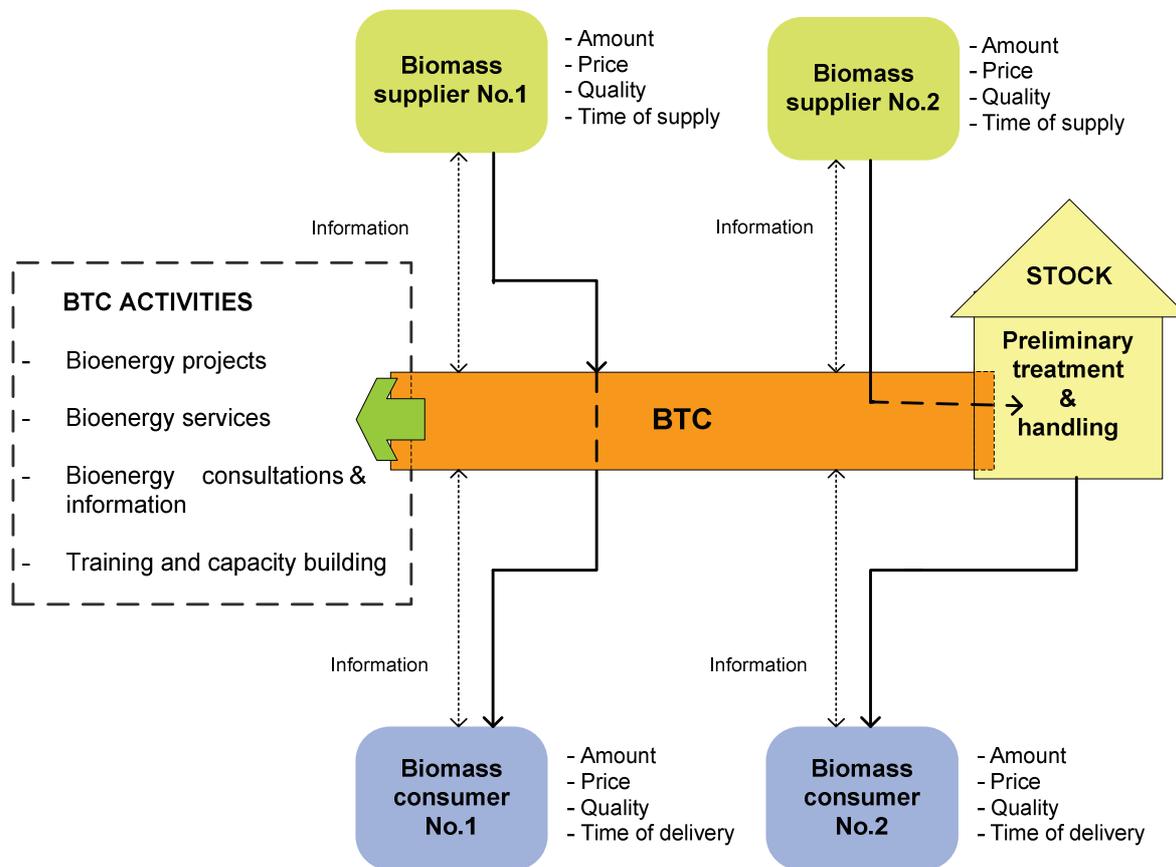


Fig.6.4. Biomass trading centre

### 3. Promoting energy efficiency and renewable energy sources

#### *Measure: Regional energy information and consultation centre*

**Description:** The main objective of Limbazi regional energy information and consultation centre is to provide information on different aspects of renewable energy (RE) and energy efficiency (EE) to the local society. Increased public awareness will promote reduction of greenhouse gas emissions and increase energy efficiency.

**Responsibility:** Municipality will be the owner and operator of the centre for the first 2-3 years. Later this could become a private business.

**Activities:** Activities are divided into three groups:

1. Identification and monitoring of current situation, information made available for public:
  - Development of a data base with EE and RES projects

<sup>7</sup> Ministry of Agriculture of Republic of Latvia plans to co-finance number of projects for development of woodfuel logistic system

implemented up to date in the region;

- Data analysis and evaluation of municipality implemented EE and RE projects;
- Publication of EE and RES best practice examples on municipality website;
- Development of a data base with information about the specific heat energy consumption in multi-apartment buildings and municipality owned public buildings; information made available for inhabitants.

2. Information about project development:

- Latest information on municipality website about possibilities for obtaining European and State co-financing for RES and EE projects;
- Development of guidelines for co-financing;
- Contacts for reliable energy auditors and builders;
- Cooperation with energy service companies (ESCOs).

3. Public awareness raising about RES and EE

- Workshops, consultation, training (technological solutions, energy efficiency, building management);
- Best practise visits;
- Preparation of informative materials, information campaigns, including regional TV and news paper;
- Competitions on best energy performance in different sectors;
- 'Green energy' lessons at schools (once a year);
- Information on green public procurement;
- New technology demonstration projects;
- Presenting results of energy demand-side management.

Financing: Approximate capital costs – 20,000 LVL (28,500 EUR). Source of funding: EU projects, municipality budget.

Desired result: Increased public awareness about RES (especially biomass) and EE.

- At least 6 events organized annually with total number of participants at least 90;
- Development of a data base of renewable energy and energy efficiency projects implemented up to date in the region. Carrying out data analysis of municipality owned projects;
- Substantially updated information on municipality website 'Green energy';
- Preparation of at least 3 informative materials annually (leaflets, posters, etc.);
- Equipping premises of regional energy information and consultation centre, including at least 3 demonstration stands;
- Development of a virtual biomass trade platform (for further information please see measure 'Biomass trade and logistic centre).



Figure: Materials of Latvenergo Energy efficiency centre are used for illustration

### Measure: Building energy performance certification system

**Description:** Reduced heat energy consumption in buildings provides environmental, economical and social benefits. In order to improve energy efficiency of buildings the European Union foresees implementation of building energy performance certification system.

According to Directive 2010/31/ES energy performance certificate is necessary when the building is sold, rented or leased. Each public and frequently visited building with floor space exceeding 500 m<sup>2</sup> must have an energy performance certificate and it must be placed in a visible place.

Energy performance certificate includes energy performance indicators by which the consumer can compare and evaluate building energy performance. The aim of this measure is to raise public awareness about building energy consumption and possibilities for reducing it by establishing a voluntary building energy performance certification system.

Initially energy performance certificates can be placed in municipality owned public buildings, appealing to owners of private buildings as well to participate in the system.

**Responsibility:** Municipality.

**Activities:** Energy auditing and energy certification of municipality owned public buildings.

**Financing:** Financing is equivalent to the cost of the energy auditing of public buildings and preparation of energy performance certificates (~300 LVL (430 EUR) for one building).

**Desired result:** Energy audits carried out and energy performance certificate received in all municipality owned public buildings (in active use) by 2022. Increasing number of private sector buildings received energy performance certificate.



Energy Efficiency Rating		Current	Potential
Very energy efficient - lower running costs			
(92-100) A			
(81-91) B			
(69-80) C			73
(55-68) D			
(39-54) E			
(21-38) F		37	
(1-20) G			
Not energy efficient - higher running costs			

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**Measure: Green public procurement**

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Description:	<p>Green public procurement is a systematic integration of environmental and social conditions into all activities related to the procurement of goods and services.</p> <p>Green public procurement helps to:</p> <ul style="list-style-type: none"><li>▪ Reduce environmental impact;</li><li>▪ Promote social improvement, and;</li><li>▪ Reduce budget costs.</li></ul> <p>The aim of activity is to integrate environmental and energy efficiency criteria into municipality public procurement.</p>
Responsibility:	Municipality.
Activities:	Introduction to the existing guidelines for green public procurement (developed by the European Commission and the Ministry of Environmental protection and regional development of Republic of Latvia), integration of green procurement criteria into the public procurement.
Financing:	Not necessary.
Desired result:	Green public procurement in Limbazi municipality.

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**Measure: Participation in Covenant of Mayors initiative**

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Description:	<p>The Covenant of Mayors is an initiative from European Commission which was created to promote the achievement of European Unions climate goals by stressing the important role of local and regional authorities in the way towards sustainable energy policy.</p> <p>The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increase energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% CO<sub>2</sub> reduction objective by 2020.</p>
Responsibility:	Municipality.
Activities:	Development of a sustainable energy action plan in a year after signing the Covenant. Implementation of the activities included in the action plan.
Financing:	Necessary for the development of action plan.
Desired result:	Mayor of Limbazi city has signed the Covenant of Mayors. Sustainable energy action plan is developed and is implemented.

### **6.3. Time table**

In Table 6.1 an indicative timetable for the implementation of proposed measures is given.

Table 6.1

Activity implementation time table

No.	Action	Activity	Responsible	Financing	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
1	Development of regional energy information and consultation centre	Concept development														
		Financing obtained														
		Identifying and evaluating existing situation in field of RES and EE					And further									
		Updates on municipality website 'Green energy'	Municipality	EU projects, budget		And further										
		Organization of informative and educational events				And further										
		Preparation of informative materials				And further										
2	Building energy performance certification	Equipping premises														
		Placing energy performance certificates in municipality buildings that have carried out energy audit up to date	Municipality	-												
		Carrying out energy audits in municipality owned public buildings and preparing energy certificates	Municipality	KPFI, budget												
3	Limbazi cogeneration plant	Promoting building energy performance certification among private sector buildings	Municipality	-	And further											
		Activities related to project development (feasibility study, obtaining financing, etc.)	Limbasu siltums, Ltd, or private investor	ERDF, budget, private												

No.	Action	Activity	Responsible	Financing	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4	Installation of flue gas condensers in district heating boiler houses	Activities related to project development	Limbasu siltums, Ltd	Budget											
		Inventory of municipality owned roads													
		Evaluation of roadside maintenance biomass potential													
		Development of a roadside biomass management plan	Municipality	Budget											
5	Roadside maintenance biomass management pilot project	Contracting with chip producer													
6	Bioenergy use in municipality buildings and infrastructure	Activities related to project development	Municipality	ERDF, budget											
		1 <sup>st</sup> phase. A virtual biomass trading platform													
		2 <sup>nd</sup> phase. BTC as a separate structure	Private investor	Ministry of Agriculture, private											
7	Biomass trade and logistic centre	3 <sup>rd</sup> phase. BTC as energy services provider													
		Integration of environmental and EE criteria into public procurement procedures	Municipality	-											
8	Green public procurement	Signing the Covenant of Mayors	Municipality	-											
9	Participation in Covenant														

No.	Action	Activity	Responsible	Financing	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	of Mayors initiative	Development of sustainable energy action plan													
		Action plan implementation													

#### **6.4. Application of quality/sustainability criteria**

The issues of woodfuel quality and sustainable energy production are pressing in Limbazi region. The quality of solid biomass mainly depends on factors such as the moisture and ash content of fuel. Undoubtedly better quality fuel reduces fuel consumption and energy production costs, as well improves air quality.

Currently there is no imposing legislation on EU level concerning sustainability standards for solid or gaseous biomass use for energy purposes. The bioenergy sector generally operates within frameworks related to agriculture, forest management and waste management. The European standardisation institute (CEN) has developed 37 standards for solid biofuels, covering fuel specification and classes, fuel quality assurance, sampling and sample preparation, physical and mechanical properties and chemical analysis. Standards have been developed during 2000 – 2011 and are published for market use but are rarely used in Latvia.

District heating company Limbazu siltums Ltd. is the largest woodfuel consumer in the region and is also the only one purchasing fuel on LVL/MWh basis. Usually wood chips are sold as LVL/tons thus not supporting the use of dried wood. The quality of the locally used solid biomass could be improved. Management of the moisture content in the fuel would benefit the markets and end use significantly.

Forest is the main source of biomass in Limbazi region. Exploitation of forest biomass in Latvia is generally governed by the Law on Forests. In order to commence tree felling in forest land, a confirmation shall be necessary, except in cases when such trees are cut, for the purpose of thinning of forest stands, the stump diameter of which is less than 12 centimetres, as well as dead standing and windthrown trees. The amount of dead standing and windthrown trees in ownership or lawful possession, cut without a confirmation at the territory of the relevant forest district, shall not exceed 10 m<sup>3</sup> per year. Tree felling in a forest is prohibited, if a forest inventory has not been made by the forest owner or the lawful possessor.

It is an obligation of a forest owner or lawful possessor to regenerate a forest stand within a period of three years after the performance of felling or the impact of other factors, if the basal area of the forest stand has become, due to such impact, smaller than the critical basal area. It is also a duty of a forest owner or lawful possessor to perform, in the forests of his ownership or lawful possession, a forest inventory at least once in 10 years, and to submit these materials to the State Forest Service. A forest management plan shall be developed on the basis of the forest inventory data. When planning forest management, a forest owner or lawful possessor shall observe maximum equable and sustainable utilisation of timber resources and preservation and increase of forest productivity and value.

Two most common forest certification systems – FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification schemes) – are used in Latvia. First FSC certificates were issued in 2001. The largest forest management company owing a FSC is company managing Latvian State forests 'Latvijas valsts meži' Ltd.

The target region is partly included in the North Vidzeme Biosphere Reserve which is divided into functional zones to ensure sustainable economic development of the biosphere reserve area.

## 7. IMPACT ASSESSEMENT AND PROGRESS MONITORING AND EVALUATION

Implementation of the action plan will have a number of positive impacts at regional, national and EU level:

- Contribution to the implementation of national and EU level renewable energy and energy efficiency targets;
- CO<sub>2</sub> reduction and air quality improvement due to fossil fuel replacement with renewable sources;
- Reducing fuel consumption due to energy efficiency measures;
- Income for local forestry and wood processing companies, as well as woodfuel suppliers due to wider use of local woodfuel;
- Creation of new work places and contribution to regions economical growth, and;
- Public awareness and knowledge raising about renewable energy and energy efficiency topics.

When exploitation of biomass for energy production is considered, also the negative aspects should be taken into account. This includes food safety in the region, competition between sectors and possible influence on biodiversity. Although there is a little likelihood of possible negative influence on regional food safety because of large areas of unused agricultural lands in the region, still first the waste biomass should be exploited.

To ensure the implementation of measures included in the action plan in accordance with the time schedule, a regular monitoring of activities and review of objectives and actions is planned. Responsible parties for the implementation of the action plan supervise the implementation process of the action plan in accordance to the timetable. Once a year, conclusions about the implementation of the action plan are sum up in a report, which, if necessary is followed by a review of action plan targets and proposed actions. The report includes review of regional energy balance based on statistics and the bioenergy characterization.

Monitoring of the action plan development and implementation of corrective measures, if necessary, is done by the working group once a year. Participants of the working group include Limbazi regional municipality representatives and representatives from energy information and consultation centre, as well as other interested parties.

Implementation of activities defined in the action plan is dependent on the interests and possibilities of the municipality and should be assessed from an economical, technological and environmental perspective. Activities included the action plan do not preclude to any extent implementation of other measures that are consistent with the general development vision of the region.

### Specific indicators for monitoring the progress

<b>Indicator</b>	<b>Unit</b>
Heat energy consumption broken down by sectors (households, industry and services sector, public buildings)	MWh/a
Electricity consumption	MWh/a
Biomass share in heat energy production	%
Biomass share in electricity production	%
Fuel consumption broken down by different fuel types (fossil fuel, biomass)	t/a
Specific building energy consumption	kWh/m <sup>2</sup> /a
Reduced greenhouse gas emissions	t CO <sub>2</sub> /a
Visitors in events organized by energy information and consultation centre	Visitors/a

## **ANNEX**

## ANNEX I. Energy efficiency and renewable energy projects in Limbazi region

Table 1

Use of RES in households				
No.	RES technology, location	Heat/ Power, H/P	Project realization	CO <sub>2</sub> reduction, kg CO <sub>2</sub> /a
1	Ground heat pump, Skulte parish	H	31/10/2011	4,627
2	Ground heat pump, Limbazi	H	31/10/2011	5,439
3	Ground heat pump, Limbazi	H	29/02/2012	6,798
4	Solar collector, Limbazi parish	H	30/06/2012	3,828
5	Air heat pump, Pale parish	H	01/06/2012	9,123
6	Ground heat pump, Skulte parish	H	31/05/2012	4,887
7	Heat pump and wind turbine, Limbazi parish	H, P	30/06/2012	13,454
8	Ground heat pump, Skulte parish	H	01/06/2012	5,700
9	Ground heat pump and solar collector, Skulte parish	H	01/06/2012	5,256
10	Ground heat pump, Limbazi parish	H	01/07/2012	5,030
11	Wood pellet boiler, Limbazi parish	H	01/07/2012	16,500
12	Ground heat pump, Limbazi parish	H	01/07/2012	4,627
13	Wood logs boiler and air heat pump, Skulte parish	H	30/06/2012	20,091
14	Solar collector, Vidrizi parish	H	29/02/2012	3,279
15	Ground heat pump and solar collector, Limbazi parish	H	30/04/2012	12,709
16	Ground heat pump, Vidrizi parish	H	01/07/2012	17,167
17	Solar collector, Vidrizi parish	H	30/06/2012	1,225
18	Wood pellet boiler and solar collector, Skulte parish	H	30/06/2012	17,552
19	Heat pump and solar collector, Skulte parish	H	01/11/2012	7,195
20	Solar collector, Vidrizi parish	H	01/11/2012	1,792
21	Solar collector, Limbazi	H	01/11/2012	1,528
22	Heat pump and solar collector, Skulte parish	H	01/11/2012	6,457
23	Air heat pump, Skulte parish	H	01/11/2012	1,418
24	Solar collector, Skulte parish	H	01/11/2012	2,402
25	Air heat pump, Limbazi	H	01/11/2012	1,227
26	Air heat pump, Vidrizi parish	H	01/11/2012	1,150
27	Biomass fireplace, Skulte parish	H	01/11/2012	6,600
28	Photoelectric cells, solar collector and air heat pump, Skulte parish	H,P	31/10/2012	5,356
TOTAL				192,417

Table 2

Energy efficiency improvement projects in multi-apartment buildings in Limbazi region				
No.	Project	Energy efficiency measures	Realization	Planned energy savings, %
1	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.11	Staircase window and door replacement, external wall and socle insulation	Implemented	20
2	Energy efficiency measures in multi-apartment building in Limbazi, Parka Str.24A	External wall insulation, staircase renovation, window and door replacement, attic ceiling insulation	Implemented	46
3	Energy efficiency measures in multi-apartment building in Limbazi, Sporta Str.2	External wall and attic ceiling insulation, window and door replacement	Implemented	32
4	Energy efficiency measures in multi-apartment building in Limbazi, Sporta Str.10	External walls and basement ceiling insulation, ventilation systems renovation, etc.	Implemented	65
5	Energy efficiency measures in multi-apartment building in Limbazi, Jauna Str.11a	Exterior wall, socle, attic ceiling insulation, window block replacement	Implemented	32
6	Energy efficiency measures in multi-apartment building in Limbazi, Priezu Str.10	Window replacement, external wall, socle and basement ceiling insulation, ventilation systems renovation	Implemented	41
7	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.3	Staircase window and door replacement, external wall, socle and basement ceiling insulation	Implemented	43
8	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.9	Staircase window and door replacement, external wall, socle and basement ceiling insulation, ventilation systems renovation	Implemented	42
9	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.15	External wall and basement insulation, window and door replacement in public areas	In process	45
10	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.13	External wall, socle and basement ceiling insulation, window and door replacement, roofing and manhole replacement	In process	45
11	Energy efficiency measures in multi-apartment building in Ozolaine (Limbazi parish), Abelu Str.19	External wall, socle, attic ceiling and basement ceiling insulation, window and door replacement	In process	57
12	Energy efficiency measures in multi-apartment building in Limbazi, Juras Str.21	n.a.	In process	62
13	Energy efficiency measures in multi-apartment building in Limbazi, Jauna Str.28a	External wall, socle, attic ceiling, basement ceiling, heat supply pipe insulation, window and door replacement	In process	34

No.	Project	Energy efficiency measures	Realization	Planned energy savings, %
14	Energy efficiency measures in multi-apartment building in Limbazi, Juras Str.19a	Facade, socle and attic ceiling insulation, window and door replacement, roofing replacement, heat and hot water systems renovation	In process	72
15	Energy efficiency measures in multi-apartment building in Limbazi, Lauku Str.5	External wall, socle, attic ceiling and basement ceiling insulation, window and door replacement, heat supply and hot water systems renovation	In process	38
16	Energy efficiency measures in multi-apartment building in Limbazi, Rigas Str.13	Facade, socle and attic ceiling insulation	In process	n.a.
17	Energy efficiency measures in multi-apartment building in Limbazi, Sporta Str.4	External wall, socle, attic ceiling, entrance point insulation, window and door replacement, heat supply and hot water systems renovation	In process	n.a.
18	Energy efficiency measures in multi-apartment building in Limbazi, Zales Str.1	Facade, socle, basement ceiling, entrance point insulation, window and door replacement in public areas, hot water systems renovation	In process	n.a.

Table 3

Public building renovation projects in Limbazi region

No.	Project	Project activities	Financial instrument	Realization	Project implementation
1	Geothermal energy demonstration project and the dissemination of experience in Riga region	School building insulation, attic construction, geothermal heating installation and replacement of the internal networks, development of renewable energy research and information centre, publicity measures	Norwegian Financial Mechanism, CFLA	Implemented	4/03/2009-28/02/2011
2	Energy efficiency improvement in Umurga elementary school and PEI „Ziluks”	Roofing replacement, external wall and foundation insulation, outer door replacement, ventilation system cleaning	KPFI, VIDM	Implemented	27/11/2009-1/12/2010
3	Energy efficiency improvement in	1. Window and door replacement, facade	KPFI, VIDM	Implemented	27/11/2009-1/12/2010

No.	Project	Project activities	Financial instrument	Realization	Project implementation
	Limbazi 3 <sup>rd</sup> secondary school and in Children-youth sports school (rowing base)	wall, thoroughfare, roof and socle insulation 2. Window replacement, wall insulation, pipe insulation, old attic insulation and fibrolite replacement			
4	Club office building reconstruction in Umurga	n.a.	EAFRD, LAD	Implemented	13/03/2009
5	Vidrizi Parish Sports Hall Reconstruction	Wall and roofing insulation, window and door replacement, etc.	EAFRD, LAD	Implemented	17/02/2009-31/07/2010
6	Reconstruction of Cultural and Information Centre in Pale parish	n.a.	EAFRD, LAD	Implemented	9/03/2009-8/03/2011
7	Public Centre reconstruction in „Lades Vitoli”, Limbazi parish	Facade insulation, roofing replacement, heating and utilities installation	EAFRD	Implemented	1/05/2010-1/06/2011
8	Reconstruction of Cultural and information centre	n.a.	EAFRD, LAD	Implemented	9/03/2009-31/12/2010
9	Renovation of Limbazi Children and youth centre	n.a.	ERDF	Implemented	

## EXECUTIVE SUMMARY

The European Union has set a number of ambitious energy and climate policy goals to be achieved over the next decades. Implementation of these goals will require active participation of all interested parties at national, regional and local levels. According to the Latvian legislation local municipalities are not obliged to favour the use of renewable energy sources in the territory of their administration. However both local authorities and the society in general should be aware of the importance of this issue towards sustainable development of the region.

During July-December, 2011, a Bioenergy action plan for Limbazi region in Latvia was developed within Intelligent Energy Europe project BioRegions of the European Commission. Analytical part of the action plan includes description of the current energy situation and assessment of regional biomass potential. Following strategic section deals with bioenergy targets and measures proposed to achieve these targets.

The share of biomass in Limbazi region is 80-90% of the total energy consumption. It is more than twice the bioregion<sup>8</sup> target. Therefore greater attention should be paid to more sustainable and effective use of biomass which allows not only reducing fuel consumption, but also improves air quality.

Estimation of regional biomass potential indicates that it exceeds annual fuel consumption. This shows the availability of local resources for sustainable energy supply which goes hand in hand with strengthening local economy and promoting welfare.

The action plan indicates three major goals to be achieved till 2022:

- Keeping the use of biomass in the final energy consumption at least 80% and increasing gradually, ensuring optimum use of local biomass potential;
- Improving the efficiency of biomass use for at least 20% till 2022, and;
- Decreasing energy consumption in buildings for at least 30% till 2022.

Activities proposed in the action plan include:

- 1) Installation of a biomass cogeneration plant in Limbazi city;
- 2) Replacement of fossil fuel boilers with renewable energy sources (mainly biomass) in municipality owned public buildings;
- 3) Installation of flue gas condensers in Limbazi district heating boiler houses;
- 4) Roadside biomass management pilot project;
- 5) Development of a regional biomass trade and logistic centre;
- 6) Development of a regional energy information and consultation centre;
- 7) Performing energy audits and placing building energy performance certificates in municipality owned public buildings;
- 8) Integration of energy efficiency and environmental criteria into the public procurement procedures, and;
- 9) Participation in Covenant of Mayors initiative.

Implementation of activities defined in the action plan is strongly dependent on the interests and possibilities of the municipality and should be assessed from an economical, technological and environmental perspective. Activities included the action plan do not preclude to any extent implementation of other measures that are consistent with the general development vision of the region.

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<sup>8</sup> Bioregion (bioenergy region) – a region in which at least one third of heating and electricity needs is provided from regional and sustainable bioenergy sources

ANNEX

***ADOPTION OF THE ACTION PLAN***

**LIMBAŽU NOVADA PAŠVALDĪBA**

Reģ. Nr. 90009114631, Rīgas iela 16, Limbaži, Limbažu novads, LV-4001  
Tālrunis: 64023003, fakss: 64070870, e-pasts: dome@limbazi.lv

**DOMES SĒDES PROTOKOLS**

Nr.8

Limbažos

2012.gada 24.maijā

**28.§**

**Par Limbažu novada bioenerģijas ražošanas un izmantošanas veicināšanas rīcības plāna 2012.-2022.gadam publiskās apspriešanas gaitu**

Ziņo A.Legzdiņš

Iepazinusies ar 17.05.2012. apvienotās Finanšu, Teritorijas attīstības, Izglītības, kultūras un sporta jautājumu un Sociālo un veselības jautājumu komitejas priekšlikumu un Limbažu novada pašvaldības attīstības nodaļas vadītāja Ģ.Ielejas ziņojumu, pamatojoties uz likuma „Par pašvaldībām” 61.<sup>1</sup> panta pirmo daļu, 61.<sup>2</sup> pantu, dome, atklāti balsojot, ar 10 balsīm par (Vaira Ābele, Ainārs Grīviņš, Aivars Kontiņš, Aigars Legzdiņš, Gunta Ozola, Velta Puriņa, Gints Rožkalns, Andis Zaļaiskalns, Ainārs Zeidmanis, Juris Žūriņš), pret – nav, atturas – nav, **NOLEMJ:**

1. Apstiprināt Limbažu novada bioenerģijas ražošanas un izmantošanas veicināšanas rīcības plānu 2012.-2022.gadam (pielikumā).
2. Atbildīgo par lēmuma izpildi noteikt Limbažu novada pašvaldības attīstības nodaļas vadītāju Ģ.Ieleju.

Sēdes vadītājs  
Sēdes protokoliste

**IZRAKSTS PAREIZS**

Limbažu novada pašvaldības sekretāre  
Limbažos 30.05.2012.

/paraksts/  
/paraksts/

A.Legzdiņš  
A.Goba

A.Kamala