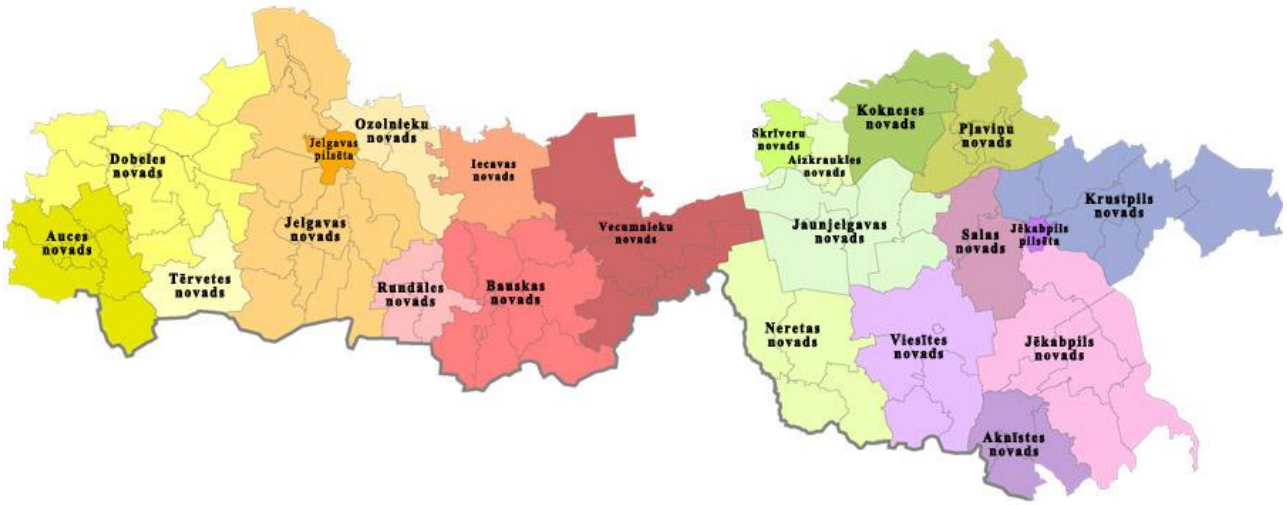
LOCAL ACTION PLAN 2012 - 2020

ZEMGALE REGION
LATVIA



September, 2012

CONTENTS

1 GENERAL CONTEXT

Local Action Plan for Zemgale Region 2012-2020 has been elaborated in line with the methodology of an international project “EU2020 Going Local” under the programme “Interreg IVC”.
The objective of the Action Plan is to facilitate the achievement of EU 2020 targets, i.e. to reduce CO2 emissions per at least 20% by 2020, which is achieved by increasing the energy efficiency per 20%, and by producing 20% of the consumed energy from the renewable energy sources. (20/20/20).
According to Directive 2009/28/EC, Annex I, Part A, Latvia objective is to increase the share of renewable energy sources (hereinafter - RES) from 32.6% in 2005 to 40% in 2020 in gross energy consumption (in 2009 the share of RES – 34,3% , in 2010 – 32,5%).

The Local Action Plan of Zemgale region comprises two main directions in energy – promotion of energy efficiency and use of renewable energy sources, the stakeholders analysis of both directions, the analysis of the exsting situation in a shape of problems and their solutions, proposed measures and energy projects to achieve the objectives.

The Local Action Plan has been elaborated under the management of Zemgale Plannning Region in collaboration with the association "Zemgale Regional Energy Agency" (ZREA), and is to be considered as a continuation of Sustainable Energy Action Plan for Zemgale region (SEAP), in which the baseline situation in energy sector in Zemgale in 2009 has been defined.

The territory of Zemagle Region lies in the South and South-East part of Latvia covering 10 733 square kilometres and being divided in 22 administrative units – 20 conties and 2 cities.
It has been calculated [1] that in the baseline year – 2009 the amount of CO2 emissions in Zemgale Region was 287 786 tonnes. To achieve the EU objectives 20/20/20, the amount of CO2 emissions would have to be reduced per at least 57 557 tonnes.

Taking into account that that the most direct saving of energy and reduction of CO2 could be provided by energy efficiency measures, particulatrly in residential houses which consume 69% of the total energy consumption [2] and transport measures would not give such a direct contribution in energy balance , Zemgale Planning reguion within the framework of this Action Plan has defined the the two main directions:

1.Renewable Energy Sources (RES)
2.Energy Efficiency (EE)

Subsequent to Latvia energy policy and developing further the ideas defined in the Sustainable Energy Action Plan (SEAP) of Zemgale, the 3 following objectives have been defined within the framework of this Local Action Plan:

1. To increase the share of RES in energy production up to 40% in 2020.
2. To improve energy efficiency per 20% by 2020.
3. To implement at least 10 initiatives at regional level for the achievement of the two above goals.

[1] SEAP of Zemgale Region (2011), page 36
[2] SEAP of Zemgale Region (2011), page 20

2.Renewable Energy (RES) and Waste to Energy

2.1 Introduction

In line with EU policy towards green energy, Latvia has elaborated a range of energy policy documents, each at at different stage at the moment, envisaging increase of RES share in electricity production, centralized heat production, as fuel by the end user and as transport fuel. As per Latvia Republic Prognosis Document on how to achieve the necessary share of RES in 2020, as main energy sources have been indicated solid biomass – mainly timber, wind energy, biogas and hydroenergy3, and LR "Energy Strategy 2030" adding waste as a resource and biofuel in transport.

In Zemgale region the most widely used and effective is firewood and wood products. Use of straw and other agriculture biomass products and use of biofuel could be widely used and effective but the potential is not fully used. Zemgale has a good potential for use of biomass and biogas as it has wood resources, agriculture side products, side products of food industries etc. According to Latvia wind map the wind potential in Zemgale region is lower than in other regions along the seaside, but sun tehcnologies are at pilot stage used in few pilot projects, although the amount of sun is about the same as in North Germany. There are quite good sources of geothermal energy in Zemgale, but they are not sufficiently studied yet, and the few studies so far have ended with consclusions that the use of geothermal resources is too expensive with the existing technologies.

There have been several support instruments in recent years increasing the use of RES in Zemgale, for instance in 2009 programme "Developement of Cogeneration stations" supported by EU Cohesion fund, under which 10 projects from Zemgale were supported.
Then national programme Climate Change Financing Facility in 2011 under which about 500 projects were approved from Zemgale anticipating transfer from fossil fuels to RES technologies in households - like wood biomass boilers, sun collectors, wind generators, heat pumps etc.
In 2011 eleven projects from Zemgale were supported from Latvia Rural Development Service under the measure "Support to energy production from wood or agriculture biomass", which was supported by EU European Fund for Development of Agriculture.

Local steering group

The achirvement of the objectives set out within this Local Action Plan shall be insured by the each municipality itself (communal services etc.). The regional activities and regional planning shall be done by Zemgale Planning Region and Zemgale Regional Energy Agency. Zemgale Planning Region and Zemgale Regional Energy Agency will also montor the indicators of perormance.

The RES objective within the framework of the Local Action Plan:
In accordance with the relevant EU 2020 objectives and the correspoding Latvia objectives, the objective is **to contribute in increase of the share of RES in energy production to achieve 40% in 2020.**

[3] LR prognosis document on how to achieve the necessary RES share in gross energy consumption in 2020. , page 3

2.2 The Local Actors in Renewable Energy and Waste to Energy

Stakeholders interest analysis				
Theme:	**Renewable energy and Waste to Energy**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible solutions to adress stakeholders' interests**
Primary stakeholders (Those Affected)				
2.2.1 Residents				
2.2.1.1 Residents of mulitresidential buildings	- would like to have cleaner environment,to pay resonable price for energy, -smaller bills for electricity and heating	With increasing costs of fossil fuels motivation will increase, but relatively long pay back period of renewable energy sources reduces the incentive	Knowledge of technology is not sufficient, low capacity due to lack of funds for the implementation of technologies, burden – there is no motivating legislation for power generation from renewable energy sources, for example, in apartment buildings	- support at the national level to increase the share of renewable energy in central heating systems and for the installation of renewable energy technologies in apartment buildings, where owners want to
2.2.1.2 Residents of private buildings	- independence from the power supplier - smaller bills for electricity and heating	With increasing costs of fossil fuels motivation will increase, but relatively long pay back period of renewable energy sources reduces the incentive	Knowledge of technology is not sufficient, low capacity due to lack of funds for the implementation of technologies	- support at the national level to increase the share of renewable energy in individual heating systems - introduction of smart grids in Latvia would promote energy end-users' interest in energy-efficiency and new technologies to reduce energy consumption

Stakeholders interest analysis				
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Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible solutions to adress stakeholders' interests**
2.2.2. Municipalities	-Provision of heat supply, -sustainability of housing, - would like to have a cleaner environment, to pay a reasonable price for energy - reduce consumption, - efficient power supply to buildings - economically viable use of renewable energy	With increasing costs of fossil fuels motivation will increase, but relatively long pay back period of renewable energy sources reduces the incentive	Knowledge of technology is not sufficient, capacity is relatively good in the big municipalities, but relatively low in small municipalities due to lack of professionals and financing for investments	- support at the national level, legislation, political support - tax policy changes to support wider use of renewable energy in energy mix
2.2.3.Heat producers	- to increase the operational efficiency of the company - development and improvements of energy technologies for lower consumption of resources and increased share of renewable energy meanwhile providing security of power supply (constant acess to resources)	Heat production rate of biomass boiler plant may be two times smaller than the production rate of boiler plant using natural gas	Knowledge of technology is not sufficient, capacity is relatively good in the large municipalities, but relatively low in small municipalities due to lack of financing for investments	- support at the national level for the reconstruction of heat sources and construction of biomass CHPs with objective to increase their efficiency - tax policy changes to support the wider use of renewable energy in energy mix

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2.2.4. Producers, entrepreneurs	- financial economy, - improvement of the competitiveness of the company and reduction of energy costs used in the manufacturing process	- Motivation depends on favorable or unfavorable conditions of national procurements - provides good business opportunities for Latvian entrepreneurs in implementation of energy and climate solutions in Latvia and globally	Lack of money for initial investments, disorder in the legislation on electricity purchase rates etc. - clear criteria and procedures are necessary on energy purchase	- tax policy changes to support the wider use of renewable energy, including clear criteria on conditions for electricity purchase, quotas. - to identify and increase the support to local energy production and use - to promote good partnerships between universities and large industrial companies to develop energy-efficient and green growth-based companies in the country -Development of energy storing technologies, adoption of good practices
Secondary stakeholders (service providers)				
2.2.5. Planning regions	-to promote regional development, to elaborate strategy on green energy, which determines the directions of regional development in energy sector up to 2030	Balanced, efficient, economically, socially, environmentally sound regional development, providing further economic development, its competitiveness in Latvia and globally	Knowledge of technology is not sufficient, relatively low capacity due to the lack of specific specialists to investigate the situation	- to identify and increase the possibilities of production and use of domestic energy sources; - to promote good partnerships with universities, scientific institutions
2.2.6. Associations and societies of the RES sector				

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2.2.6.1. Latvia Association of Renewable Energy	- to promote development and use of renewable energy sources in Latvia, - to reduce Latvia's dependence on energy import, promote the use of new, energy-efficient technologies using renewable energy	Motivation is high	Capacity is sufficient, specialists available for each area energy. Maybe more active involvement and initiative of association members is necessary to carry out the changes in legislation allowing RES producers (households) selling energy in the common grid.	- to elaborate and recommend for implementation the market policy in energy in Latvia; - to promote imporvement of legislation at regional and national level, - to support creation of a single, diverse, balanced, independent energy production system in Latvia
2.2.6.2. Association of Solar Energy	- to promote development and use of renewable energy sources in Latvia - to reduce Latvia's dependence on energy import, - to promote the use of new, energy-efficient technologies of renewable energy	Motivation is high	Capacity is insufficient at present to get through the changes in legislation that would allow and motivate energy producers (households etc.) of solar energy to sell energy in the grid.	- to promote and support maximal use of solar energy in Latvia, - to promote the use of renewable energy sources, - to promote the necessary changes in legislation in energy sector at regional and national level, - to inform the society on possibilities of use of solar energy in Latvia

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2.2.6.3. Latvia Biogas Association	- to promote development and use of renewable energy sources in Latvia - to reduce Latvia's dependence on energy import, - to promote the use of new, energy-efficient technologies using renewable energy, - to promote the development of production and use of biogas in Latvia, - to represent the members of association in national institutions	There is motivation to develop proposals and otherwise promote and participate in development and implementation of new technologies for production and use of biogas, as well as in elaboration of necessary technical designs and manufacturing of equipment;	Association comprises 30 members, but ability to influence the legislation is limited, as in most cases ministries do not take into account the recommendations submitted (Situation in June 2012 - Regulations No.262 and 221 by the Cabinet of Ministers – the state support provided so far to RES – has been currently suspended until 2016 and new support for renewable energy is not planned in the near future)	- to promote arrangement of the energy sector legislation at regional and national level, - to support creation of a single, diverse, balanced, independent system of energy generation in Latvia -to provide informative support for introduction of biogas technologies, their production and use in Latvia; - to promote public awareness and implement educational activities regarding the use of renewable energy, alternative energy and environment protection issues

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2.2.6.4. Wind Energy association	- to promote development and use of renewable energy sources in Latvia, - to reduce Latvia dependence on energy import, -to promote the use of new, energy-efficient technologies using renewable energy, - to promote the use of wind energy in Latvia	High motivation to develop proposals for the use of wind energy, to draft the necessary projects and to prepare the feasibility studies	There are many entrepreneurs wishing to produce energy from wind, but the existing legislation does not support the production of energy from the wind (Regulations of Cabinet of Ministres No. 262 and 221 have been suspended). Ability to influence the legislation is limited, as in most cases Ministries do not take into account the submitted recommendations	- to promote arrangement of the energy legislation at regional and national level, - to support creation of a single, diverse, balanced, independent system of energy generation in Latvia - to promote goal-oriented use of knowledge potential of association members and external specialists and implementation of their ideas

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2.2.6.5. Latvia Association of Biofuels and Bioenergy	- to promote development and use of renewable energy sources in Latvia - to reduce Latvia dependence on energy import, - to promote the use of new, energy-efficient technologies using renewable energy, - to promote the use of biodiesel, bioethanol and biogas in Latvia, - to increase competitiveness of companies producing biofuels and bioenergy, – establishment of collaboration network with the related NGOs in the Baltic and other EU countries	Motivation is high - to develop proposals for use of biofuels and bioenergy, to elaborate the necessary projects and designs and prepare the feasibility studies, - to develop business opportunities for Latvian entrepreneurs in implementation of energy and climate solutions in Latvia and globally	Ability to influence the legislation is limited, as in most cases ministries do not take into account the recommendations submitted, not accpeting the increase in price of energy.	- to promote the development of a new agro-industrial sector comprising all process from a field to biofuel and bioenergy; - alignment of the relevant legislation on regional and national level, - support to the local producers and traders of rape, non-food grains, rapeseed oil, biodiesel, bioethanol and biogas, - participation in projects of EU structural funds, NGOs, national programmes and cross-border cooperation, - cooperation with ministries, local governments, scientists and practitioners, Association of Fuel retailers and producers, Cooperation Council of Agriculture (LOSP), Climate and Renewable Energy Department of Ministry of Environment, - To study and promote good practices of production and use of renewable energy in Latvia and in other EU countries, - To ensure the flow of information to shape the public opinion in favor of production and use of rapeseed oil, biodiesel, bioethanol.

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2.2.6.6. Latvia Biomass Association „LATbioNRG"	- to promote development and use of renewable energy sources in Latvia, - to reduce Latvia dependence on energy import, -to promote the use of new, energy-efficient technologies using renewable energy, - to promote the use of biomass, including wood, in energy	Motivation is high - to develop proposals for the use of different kinds of biomass, - to promote the production of biofuels, - to represent and promote the producers of biofuels,	Ability to influence the legislation is limited, as ministries in most cases do not take into account the recommendations submitted, not willing to increase the price of energy.	- tax policy changes to support wider use of renewable energy sources, - support at the national level for construction and reconstruction of biomass cogeneration plants in order to increase their effectiveness
2.2.6.7. Latvia Association of Waste Management - LASA	- to promote environment protection by using animal by-products for energy production, using sludge from waste water treatment plants and gass from landfills for biogas production	Motivation is high	Capacity is relatively high, situation is fairly well arranged in Latvia due to the use of landfills (11 sites) and gas collection. Work ongoing on gasification ideas, waste pre-treatment in a single cell, RDF production.	- to encourage development of new waste treatment and disposal technologies and implementation of energy recovery technologies, - to promote the use of biogas for electricity production meanwhile developing an integrated approach to the management of biodegradable by-products created in the process of waste management, agricultural production, processing and recycling processes, thus reducing soil, water and air pollution risk

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2.2.7. Science and research institutions, universities (RTU, Latvia University of Agriculture)	- development of technologies, - development of scientific potential and the competitiveness of science and research institutions, universities	- to promote the availability of products and technologies in Latvia - to promote cooperation with entrepreneurs, municipalities and other entities in terms of implementation of new technologies	Capacity is low due to the lack of financial support for new technological developments and implementation of pilot projects	- to provide preconditions for development and implementation of new energy technolgies by financing the development of energy science, - to direct the financing planned for science to research on development of effective biomass technologies
2.2.8. Energy agencies, Advisory boards	Promotion of the use of RES for economical development of the country	- to promote the availability of products and technologies in Latvia, - to develop cooperation with entrepreneurs, municipalities and other entities on the implementation of new technologies - raise the level of awareness among residents	Capacity is limited due to the funding system of energy agencies	- to maintain and regularly update the databases of the best available technologies, - to promote the cooperation between entrepreneurs and research institutions in the in EU-funded investment projects and other, - financial support to agencies to motivate the energy end-users to implement the best new and green technologies and energy-efficiency measures.

2.3 The Problems and Solutions

Problems and solutions table		
Theme:	**Renewable Energy and Waste to Energy**	
Problems	**Solutions**	**Benchmarks from Good Practice Examples**
2.3.1.General problems in the sector of renewable energy sources (RES)		
2.3.1.1. The current legal regulations do not ensure the necessary RES development in line with EU requirements	- to develop free energy resource market policy for Latvia and recommend it for implementation; - to promote aligment of the industry's legislation (for instance, solar panels for household use); - to support the creation of a single, diverse, balanced, independent energy generation system in Latvia; - support at the national level to increase the share of renewable energy in the individual heat supply; - cahnge in tax policy to support the wider use of renewable energy in energy mix.	Energy law in Germany, Croatia, enabling also small energy generators (households, for instance) to sell the produced energy in the grid.
2.3.1.2. The relatively low competitiveness of RES when compared to imported fossil energy, lack of motivation to change and improve the local energy system	– liberalization of electricity market; – creation of a sustainable support mechanism for renewable energy; – defining the sustainability criteria for biofuels and biological liquid fuels; – compulsory purchase of the produced electricity and fixed purchase price for electricity, when generated from renewable energy sources; – introduction of smart grids in Latvia would promote interest of energy end-users in energy efficiency and itroduction of new technologies to reduce energy consumption;	Staffordshire & Shropshire Renewables Programme - RE:think Energy (England) www.rethinkenergy.org.uk The project sought to encourage both public and private sectors to install renewable energy devices as an alternative to traditional fuels in the new construction projects and within reconstruction of existing buildings.

Problems and solutions table		
Theme:	**Renewable Energy and Waste to Energy**	
Problems	**Solutions**	**Benchmarks from Good Practice Examples**
	– earmarked subsidies for investment, – to promote co-operation with companies and individuals at local, national and international level in energy sector.	14 grants for the development of the feasibility studies were awarded with the aim of stimulating renewable energy markets - 3 for the use of solar energy, 3 for the use of biomass, 1 for a ground source heat pump, 1 for the use of hydropower, and 1 for the use i of anaerobic digestion. Project funding was provided by the municipalities and the private sector.
2.3.1.3. Weak and unmotivated cooperation of research institutions and businesses in RES sector Cooperation between research and participants of energy market is crucial to promote the transfer of latest technology and innovation to companies operating in the field of energy efficiency technologies and use of renewable energy resources.	- promotion of good partnerships between universities and large industrial companies to develop energy-efficient and green growth-based companies in the country; - support to the cooperation of businesses and research institutions in EU funded and other investment projects; - financial support to ensure the motivation of energy end-users in the implementation of energy efficiency measures and use of RES; - maintaining and regular update of database of the best available technologies; - creation of preconditions for the development and implementation of new energy technologies while financing the development of energy science.	
2.3.1.4. Energy supply security in remote settlements	Hydropower, biomass, wind and solar energy provides an opportunity to diversify energy resources and creates basis for energy supply security solutions. RES provides greater energy supply security than dependence on fossil fuels, from the dictated terms and economic calculations from the side of their suppliers.	

Problems and solutions table		
Theme:	**Renewable Energy and Waste to Energy**	
Problems	**Solutions**	**Benchmarks from Good Practice Examples**
2.3.1.5. The insignifficant impact of the associations of the sector on decision making at national level.	Activization of the role of associations in the use of RES and desicion making at national level. Eaboration and implementation of demonstration/pilot projects.	
2.3.2. Problems in renewable energy sources (RES) per resource groups		
2.3.2.1. Wood biomass		
2.1.1. There are no publicly available research results on wood biomass resources and researches are fragmented (there are researches done for Jelgava and Jekabpils biomass cogeneration plants and, reseraches done by “Silava”) therefore it is difficult to determine whether after the implementation of two large CHP projects in Zemgale, the amount of wood biomass will be sufficient for other projects.	- when planning CHP, technologies allowing several types of fuel would have to be chosen; - to support energy production from agricultural and forestry biomass.	
2.3.2.1.2. Lack of professional knowledge regarding preparation and use of wood fuel at all levels, which prevents development of the regional energy sector and development of individual energy objects.	- to support and promote the acquisition of knowledge and technological development in the preparation of wood fuel; - to promote cooperation with companies and individuals in the energy field on local, national and international level;	

Problems and solutions table		
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Problems	**Solutions**	**Benchmarks from Good Practice Examples**
	- to ensure cooperation between the wood resource owners, the owners of generating capacity and the largest energy consumers, -joint ventures with a stable and full energy cycle (RES acquisition, supply, energy generation and supply to the end users) should be established.	
2.3.2.1.3. A large proportion of small woodworking companies are not upgraded, and their products have little added value, byproducts are not used	- analysis should be made in woodworking companies not only on the final product but also concerning the byproducts; - to promote acquisition and use of new and modern equipments.	
2.3.2.2. Geothermal energy		
2.3.2.2.1. The use of geothermal energy is still at an experimental stage, research and implementation of such projects is very expensive	- promotion of use of geothermal energy for energy generation by developing an economically viable support scheme; - overall strategy and initiative from the government i woul be necessary - support for research, visits to projects where the geothermal energy is used for heating or other purposes.	
2.3.2.2.2. Research on geothermal energy and / or management of them could be done as a pilot project within the public–private partnership (PPP) project, but the implementation of PPP is limited and difficult due to the lack of the relevant legislation.	Drafting of a pilot project in Latvia.	

Problems and solutions table		
Theme:	**Renewable Energy and Waste to Energy**	
Problems	**Solutions**	**Benchmarks from Good Practice Examples**
2.3.2.3. Wind and solar energy		
2.3.2.3.1 Cost-effectiveness of solar technology is not high enough. Currently the wind and solar equipment and technologies are more expensive, the return of investment time is longer than the one of conventional technologies and energy costs are higher than the costs of fossil technologies.	However, fossil fuels become increasingly expensive, therefore we should: - promote the use of photvoltaics, by developing economically viable support scheme and including in it the requirements for photovoltaic performance indicators; - to support demonstration pilot projects; - to implement pilot projects to obtain practice and to enable specialists to practically assess economically the most favourable technologies for the future.	Good practice example: Solar panels for social housing, Stoke on trent, England: The local government installed solar panels in 54 social houses, so that these houses would be partly self-sufficient in energy, and electricity in bright daytime hours would be free for residents of social houses. In this project the local government worked together with the utility provider and the installer of the technology. Funding was provided by the municipality. Good Practice Example: Solar Park Azewijn, The Netherlands. In 2011 the first solar park was built in the Netherlands, on the landfill site. Area - 8 acres, planned to supply electricity to 550 houses. It is important to find land to be used
2.3.2.3.2. Lack of funding for the implementation of the new technologies for businesses, citizens, and municipalities.	A united policy and state support would be necessary. The use of solar energy for water heating in private houses is feasible already now, with state support it would be possible to increase the share of such energy in energy mix.	
2.3.2.3.3 Lack of appropriate legislation, no regulations enabling the sales of the produced energy from renewable energy sources in the grid both by legal and private persons, the Law on Renewable Energy is not adopted.	The use of solar and wind energy requires a political decision at the national level that would provide support from: EU funds, Climate Change Finance Instrument and other national programs, implementation of pilot projects, admitting that now we pay more, but we obtain a cleaner environment, we diversify energy sources and obtain greater independence from energy imports (example of Denmark), - Identification of priorities and the necessary legislation at	

Problems and solutions table		
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	the national level: The Law on Renewable Energy , Energy-efficiency Law, Energy Strategy 2030 - to arrange a regulatory framework that would allow individuals to produce the electricity needed for their households (also heat energy) and to sell the surplus in the common grid at a specified rate.	multi-functionally, so agricultural land does not have to be used, better to re-use site of landfill. The next step – to find an investor / sponsor. It is important to find a power consumer, because it is financially more rewarding than selling the electricity in the grid. The project was implemented by the muncipality in cooperation with the solar technology suppliers - metalwork company, as they were a new type of panels with a metal frame. The energy consumer is a brick factory. Funded by the local government, together with the solar panel supplier. Recommendation - if landfill is still settling, solar panels should not yet be installed yet. Next project - to install solar panels on the roofs of large commercial objects, the other project - a solar panel system in the form of the Netherlands.

Problems and solutions table		
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2.3.2.4 Agriculture biomass		
2.3.2.4.1 Biomass is available, but the entrepreneurs' / farmers' interest is weak as the technologies for such energy generation are expensive, small municipalities lack the resources.	Support of EU structural funds – inclusion into the priorities of National Development Plan, individual solutions, the business activity. Support is necessary for local innovations helping to use the RES potential, especially of wood fuel and straw.	
2.3.2.4.2. Combined heat and power plants fueled by agricultural biomass can have an unpleasant smell, therefore cities / towns would not support the constructions of such plants.	Careful selection of site for combined heat and power plant, closed structures.	
2.3.2.4.3. There are situations when the heat resulting from the biogas generation process is not fully used, for example, Auce county is looking for the most efficient ways to use the by-product heat. The idea of using this heat for heating buildings in Vecauce village has been considered, but the biogas production plant is located too far away for this to be useful and economical.	In the planning and design stage - a careful choice of location for the co-generation plant - not too far from the potential heat consumers.	

Problems and solutions table		
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Problems	**Solutions**	**Benchmarks from Good Practice Examples**
2.3.2.4.4. Thermal generators with relatively small capacity. The problem, for example, in Rundale: In many populated places the central heating systems have been destroyed and cannot be renewed, the economic situation in rural areas is poor, the residents' activity is small. Problematic is also the narrow business specialization of the county - agriculture production.	Support to municipalities for the preservation and restoration of centralized heating systems thus creating centralized systems. Cooperation between municilapities and local businesses in use of biomass and cooperation with local farmers. Wider and more efficient use of biomass in energy, improvement of technological solutions of biomass and increase of energy efficiency by use of residues from woodworking and logging, development of fast growing bushes and other crops.	
2.3.2.4.5. There are a lot of farm lands in Zemgale both managed and unmanaged - as a resource, but biomass cogeneration stations are usually only a private initiative. For example, "Agrofirma Tervete" Ltd. plans to build a biogas plant in Tervete county, which could be used for heating of apartment buildings and other facilities.	Targeted support to cogenerations by establishing biomass cooperatives for regular supplies of biomass. The solution could be a municipal heating company or PPP - construction of cogeneration fueled by agricultural biomass.	
2.3.2.4.6. The problem whic limits the activity – receiving of the quotas. For example, contractor could not build a biogas CHP plant in Akniste county, as it did not reiceive the quotas for the production of electricity for increased tariffs from the Ministry of Economics	Changes in energy and tax policy to support wider use of renewable energy sources, including clear rules on purchase/sales of electricity, quotas.	

Problems and solutions table		
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2.3.2.5. Waste to Energy		
2.3.2.5.1. Difficult use of the biogas produced in landfills – they are located far from the energy consumers, potential is low.	To develop complex solutions for the energy generation in landfill biogas CHP plants, landfill biogas power plants together with sewage biogas CHP plants and recycling of the materials of agricultural origin.	Good Practice Examples - waste incinerators in Sweden, Norway, Denmark, Germany, etc. - such as Linkoping in Sweden, Gjovik in Norway, etc. Good Practice Example: The use of food and wastewater treatment plant sludge in the production of biogas for cars Eskilstuna Energi & Miljö AB (Sweden) www.eem.se
2.3.2.5.2. According to the data of Waste Management Association of Latvia, Latvia waste resources have a high moisture holding capacity, therefore, waste incineration for heat and power production has a weaker economical base. Also, the transport of waste at a greater distances is not profitable; the incinerator could be economically viable only around Riga.	Taking over of the good practices of other countries, precise calculations for each particular project idea.	

2.4. The proposed measures to be supported, renewable energy sources

2.4.1. Regional measures/initiatives.

2.4.1.1 Activities facilitating the implementation of the Local Action Plan, coordination of the implementation and monitoring, including:
- Work at national level, creation of preconditions that the planned infrastructure projects could be promoted and implemented;

- Work at regional level, regional initiatives, coordination of measures;

- Monitoring of LAP implementation.

2.4.1.2. Promotion of awarenes on RES , on the newest technologies, benefits, for example, use of alternative resources, individual heating solutions, fast growing tree species a.o technologies; Support to energy agencies for this function;

2.4.1.3. Support to the planning regions, energy agencies for energy planning at regional level, monitoring, keeping of data base, collection of data on RES potential:
- for the use of Zemgale agricultural resources;
- assessment of efficiency of the existing RES generators (small hydro power stations, biomass plants etc.);
- planning of future resources;

2.4.1.4. Promotion of introduction of green vehicles, including electro mobiles, bicycles, promotion of installment of infrastructure for the green vehicles.

2.4.1.5. Inclusion of households and other small energy generators in energy production.

2.4.1.6 Inclusion of an energy chapter in municipal planning documents – RES, EE, transport etc.

2.4.1.7. Pilot projects in RES generation, dissemination of the pilot project practices.

2.4.1.8. Popularizing of green criteria in the public procurements, use of them in the municipalities and their institutions.

2.4.2. General measures in the field of renewable energy sources:

2.4.2.1. Support to use of alternative solutions in generation of thermal energy and electricity - solar energy, ground source energy, geothermal energy, etc.

2.4.2.2. Support to estabslihment of smart energy system with double sided meters for the use in cases of small RES generators.

2.4.2.3. Support to the esablsihment of partnerships between businesses and research institutions / universities in EU-funded and other investment projects in order to develop energy-efficient and green growth based companies in the country.

2.4.2.4. Support to the motivation and education of energy end-users on energy efficiency.

2.4.2.5. Changes in legal and tax policy that would support the wider use of renewable energy in energy mix.

2.4.3. Measures in RES by groups of resources:

2.4.3.1.Wood biomass:

2.4.3.1.1. Support to the reconstruction of the existing boiler plants switching to renewable energy;

2.4.3.1.2. Support to the construction of new combined heat and power stations fueled by renewable energy sources (biogas, wood and other biomass for heating of residential buildings, industries, etc.);

2.4.3.1.3. Support to the use of thermal energy from CHP plants: in industires (e.g., greenhouses), consumer services (e.g. laundry rooms, bathhouses), recreation facilities (e.g. swimming pools, tennis courts, gyms);

2.4.3.1.4. Support to the acquisition of professional knowledge in preparation and use of energy wood at all levels for development of energy sector in the region;

2.4.3.1.5. Support to establishment of joint ventures with a stable and full energy cycle (generation of RES, generation of energy and delivery of the energy to the end users) between the wood resource owners, the owners of generating capacity and the largest energy consumers.

2.4.3.2. Geothermal energy:

2.4.3.2.1. Support to reserach in geothermal energy, to elaboration of a fesibility study for a project and implementation of a pilot project;
2.4.3.2.2. Support to the installation of technologies using geothermal energy for heat supply;

2.4.3.3. Wind and solar energy
2.4.3.3.1. Support to the installation of solar collectors and panels for heating and preparation of the hot water in public buildings (for the buildings with bigger consumption of hot water - gyms, swimming pools, hospitals, kindergartens, etc.);
2.4.3.3.2. Support to the installation of solar collectors and panels for heating and preparation of the hot water in private buildings;
2.4.3.3.3. Support to the installation of wind technologies.

2.4.3.4 Biomass from agriculture
2.4.3.4. 1 Support to the improvement of the existing straw technologies and to development of new technologies;
2.4.3.4.2. Support to the construction of new combined heat and power stations fueled by renewable energy (biogas from agricultural biomass, livestock waste, etc.);
2.4.3.4.3. Support to research, feasibility studies, elaboration of technical design for energy production from agricultural biomass;

2.4.3.5. Waste to energy
2.4.3.5.1. Support to establishment of biogas plants (agricultural biomass, livestock waste, sludge form sewage treatment plants).

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
2.5.1.Regional projects/initiatives						
	Zemgale Planning Region	Activities facilitating the implementation of the Local Action Plan, coordination of the implementation and monitoring, including: - Work at national level, creation of preconditions that the planned infrastructure projects could be promoted and implemented; -Work at regional level, regional initiatives, coordination of measures; - Monitoring of LAP implementation.	To increse the share of RES in energy supply to 40% by 2020.	RES share in energy supply – 40% in 2020.	The number of projcets included in the National Development Plan and other programmes fo financing.	Zemgale Planning Region (ZPR)
	Zemgale Planning Region (ZPR), Zemgale Regional	Promotion of awarenes on RES , on the newest technologies, benefits, for example, use of alternative resources, individual heating	To increse the share of RES in energy supply to 40% by 2020.	RES share in energy supply – 40% in 2020.	Number of events (seminars, open doors events etc.): Number of study visits: Number of publications	EU funds ZPR ZREA

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
	Energy Agency (ZREA)	solutions, fast growing tree species a.o technologies; Support to energy agencies for this function;				
	ZPR, ZREA	Energy planning at regional level, monitoring, keeping of data base, collection of data on RES potential: - for the use of Zemgale agricultural resources; - assessment of efficiency of the existing RES generators (small hydro power stations, biomass plants etc.); - planning of future resources;	To increse the share of RES in energy supply to 40% by 2020.	RES share in energy supply – 40% in 2020	Regional Action plan in energy, energy data	EU funds ZPR ZREA
	ZPR, ZREA	Promotion of introduction of green vehicles, including electro mobiles, bicycles, promotion of installment of infrastructure for the green vehicles.	Use of green energy in transport	Increased share of green energy used in transport	Number of international projects implemented; Number of charging infractructure units for green vehicles	EU funds ZPR ZREA
	ZPR, ZREA	Inclusion of households and other small energy	Diversification of energy production, increasing the	Increased share of RES in energy mix,	Number of international projects implemented	EU funds ZPR

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		generators in energy production.	share of green energy in energy mix, use of local resources	local resources used in energy production, greater independence from energy suppliers obtained	on transfer of good practices; Number of proposals in changes in legislation elaborated and submitted	ZREA
	ZPR	Inclusion of an energy chapter in municipal planning documents – RES, EE, transport etc.	Increasing the share of RES in energy mix	Energy chapter with planned measures and activities on how to increase the share of RES in energy balance, how to use the local resources in energy production, how to obtain greater independedence from energy suppliers	Number of municipalites having signed the Covenant of Mayors; number of municipalities having enclosed the energy chapter in their development programmes	ZPR, budget of municipalities
	ZPR, ZREA	Pilot projects in RES generation, dissemination of the pilot project practices.	Increasing the share of RES in energy mix	Increased share of RES in energy mix, local resources used in energy production, greater independence from energy suppliers obtained	Number of feasibility studies; Number of implemented projects	EU funds, national programmes, ZPR, ZREA
	ZPR, ZREA	Popularizing of green criteria in the public procurements, use of them in the municipalities and their institutions.	Environment-friendly products and services	Environment-friendly products and services	Number of municipalities and their institutions which use the green criteria	EU and other funds,ZPR, ZREA, budget of municipalities and their institutions

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
2.5.2.Wood biomass						
2.5.2.1. Central heating (boiler houses)	"Aizkraukles siltums" Ltd., Aizkraukle county	Construction of 3 MW wood boiler house in Aizkraukle, Rūpniecības street 2, the update of technical documentation necessary	To increase the efficiency of heat production; Replace fossil fuels with renewable energy; Provide cheaper heating for citizens; To reduce the amount of CO2 emissions.	constructed energy-efficient boiler plant, the transition from fossil fuels to renewable energy made, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 emissions t/ per year	EU and other funds, budget of municipal Ltd.
	Auce county	Reconstruction of boiler house at the training and research farm of Latvia University of Agriculture "Vecauce", making it the central heating producer and supplier in Vecauce rural municipality	To increase the efficiency of heat production; Replace fossil fuels with renewable energy; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	constructed energy-efficient boiler plant and energy supply system, the transition from fossil fuels to renewable energy made, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, budget of the Latvia University of Agriculture
	Jaunjelgava county	The transition to co-generation heating in Jaunjelgava city	To increase the efficiency of heat production; Replace fossil fuels with renewable energy; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	An energy-efficient CHP station has been constructed and reconstructed, transition from fossil fuels to renewable energy made, reduced amount of CO2 emissions,	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, budget of municipality

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
				reduced production costs of 1MWh		
	Jelgava county	Technological transition from fossil fuels to renewable energy sources in several boiler houses of rural municipalities	To increase the efficiency of heat production; Replace fossil fuels with renewable energy; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	Reconstructed ,energy-efficient boiler plants, transition from fossil fuels to renewable energy made , reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, budget of municipality etc.
	Jekabpils county	Renovation of boiler plant and replacement of boilers in Dunava rural municipality	To increase the efficiency of heat production; Replace fossil fuels with renewable energy; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	Reconstructed ,energy-efficient boiler plant, transition from fossil fuels to renewable energy made, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, national programmes, municipal cofinancing
	Krustpils County	Transition to cogeneration heating in the elderly house “Jauna muiza” and connection of residents of Jauna Muiza willage to the centralized heating system (Alternative No.1)	To increase the efficiency of heat production; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	Reconstructed ,energy-efficient cogeneration station, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
	Krustpils County	Renovation and optimization of the central heating system in Atasiene village (considering also cogeneration)	To increase the efficiency of heat production; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions.	Reconstructed ,energy-efficient heating system, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, national programmes, municipal cofinancing
	Krustpils County	Renovation and optimization of the central heating system in Vipe village (considering also cogeneration)	To increase the efficiency of heat production; Provide cheaper heating for citizens; Reduce the amount of CO2 emissions	Reconstructed ,energy-efficient heating system, reduced amount of CO2 emissions, reduced production costs of 1MWh	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 tons per year	EU funds, national programmes, municipal cofinancing
	Rundale county	Transition from gas heating system to system using RES in Pilsrundale	Replace fossil fuels with renewable energy; Reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made; the amount of CO2 emissions reduced	Reduced quantity of CO2 t/ year ; increased demand for local resources, t/year	EU funds, national programmes, municipal cofinancing
	Sala county	Transition from gas heating in Sala village for municipal institutions and residential buildings to renewable resources, provided by local producers	Replace fossil fuels with renewable energy; Reduce the amount of CO2 emissions	Transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced, the demand for production of local producers increased	Reduced quantity of CO2 tons per year, Demand for production of local producers, tons per year.	EU funds, national programmes, municipal cofinancing
	Tervete	Join-stock company	To replace fossil fuels with	The transition from	Reduced quantity of	EU funds, national programmes,

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
	county	„Agrofirma Tervete" is planning to build a biogas plant that could be used for the heating of residential buildings and other objects. (for instance, Kronauce village). The municipality could insall biogas boilers of adequate capacity in „Lidumi" and „Laci" boiler plants. Join-stock company „Agrofirma Tervete", the supplier of biogas, would sign the contracts with residents on heat supply	renewable energy; To reduce the amount of CO2 emissions	fossil fuels to renewable energy made; the amount of CO2 emissions reduced, the local producers supported	CO2 t/ year	private funding
2.5.2.2. Cogeneration (CHP) plants	Auce county	To esatblish a wood biomass CHP in Bene rural municipality and to use the produced heat in the centralized heating supply system	To increase the efficiency of heat production; To replace fossil fuels with renewable energy; to reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced, the local producers supported	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 t/ year, demand for production of local producers, t/ year	EU funds, national programmes, municipal cofinancing
	Skriveri County	Biogas production plant combined with cogeneration plant -	To increase the efficiency of energy production; To replace fossil fuels with	The transition from fossil fuels to renewable energy	Improved coefficient of performance - production costs of	EU funds, national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		2.0 Mw capacity	renewable energy; to reduce the amount of CO2 emissions	made, the amount of CO2 emissions reduced, the local producers supported	1MWh, reduced quantity of CO2 t/ year, demand for production of local producers, t/ year	
2.5.2.3. For residential buildings	Akniste county	CHP plant ~ 1 MW electricity, 2,4 kW heat (or 1 kW electricity, 2,4 kW heat)	To construct a high-efficiency CHP plant, To replace fossil fuels with renewable energy; To reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced, the local entrepreneurs supported, jobs created	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 t/ year	Municipal land has been reserved to be rented to entrepreneur, a private entrepreneur to be involved
	Jaunjelgava county	Transition to CHP heating in Jaunjelgava city	* see the same project in central heating chapter above			
	Rundāle county	Transformation of Pilsrundale village central heating system boiler plant into CHP plant	To develop a high-efficiency CHP plant, To replace fossil fuels with renewable energy; to reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced	Reduced quantity of CO2 t/ year	EU funds, Climate Change Finance Facility (CCFF) a.o. national programmes, municipal cofinancing
	Tervete county	To replace 0,5 MW wood boiler in „Labrenči" boiler plant	To increase the efficiency of heat production	Increased energy efficiency	Improved coefficient of performance - production costs of	EU funds, national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		with 0,5 MW woodchip boiler.			1MWh	
	Viesite county	The construction of CHP plant in Viesite city with the total capacity of ~ 6,8MWH	To construct a high-efficiency CHP plant, to replace fossil fuels with renewable energy; to reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced, The production costs of 1MWh reduced	Improved coefficient of performance - production costs of 1MWh, reduced quantity of CO2 t/ year	Entrepreneurs attracting EU funds, national programmes
2.5.2.4 Local heat supply (individual boiler houses)	Plavinu county	Boiler house for municipal buildings 43-45 Daugavas Street, 11 dzelzcela Street, to music school	Construction of high efficiency boiler house, to replace fossil fuels with renewable energy; to reduce the amount of CO2 emissions	The transition from fossil fuels to renewable energy made, the amount of CO2 emissions reduced	Reduced quantity of CO2 t/ year, production costs of 1MWh	EU funds, national programmes, municipal cofinancing
	Skriveru county	Transfer from local heating to centralized district heating	To increase energy effciency	Increased energy effciency	Reduced amount of CO2 t/ year, production costs of 1MWh	EU funds, national programmes, municipal cofinancing
2.5.3. Geothermal energy						
2.1 Central heating (boiler plants)	Dobele county	Project for the construction of a boiler plant (control drills have been made)	Replacement of fossil fuels with renewable energy; reduction of CO2 emissions	Project for the construction of a boiler plant	Reduced amount of CO2 t/ year	Attraction of investments - a joint venture or a limited liability company
	Dobele county	Reserach on use of geothermal energy in Dobele county	Obtaining of data – whether its feasifble to use the green energy for provision of heat and	Done research for construction of geothermal plant, so that green energy could	Information for making decision whether its feasible to construct such a plant	EU funds, national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
			electricity	be used for prodcution of heat and electricity, amount of CO2 emissions reduced		
	Dobele county	Petrothermal power plant. Research on possible production and use of alternative energy in the county and development of a strategy.	Obtaning of data – wheter the use of green energy /renewable energy in petrothermal power plant to provide power to reduce the amount of CO2 emissions is feasible	Research done on the construction of petrothermal power plant to use renewable green energy for production of power; so that the amount of CO2 emissions could be reduced	Information for decision making wheter the construction of petrothermal power plant is feasible	EU funds, national programmes, municipal cofinancing
	Jelgava county	Possible use of Kalnciems underground sulphur mineral springs	To do research and calculations whether it is feasible to use the sulphur mineral springs in energy production	Research results and calcultions for decision making whether the use of sulphur mineral springs is feasible	Information for decision making whether it is feasible to use the sulphur mineral springs in energy production	EU funds, national programmes, municipal cofinancing
	Rundale county	Research on use of geothermal energy	To do research and calculations whether it is feasible to use the geothermal waters in energy production	Research results and calcultions for decision making whether the use of geothermal energy is feasible	Information for decision making whether it is feasible to use the geothermal waters in energy production	EU funds, CCFF and other national programmes, municipal cofinancing
	Skriveri county	Research on use of geothermal energy	To do research and calculations whether it is feasible to use the geothermal waters in energy production	Research results and calcultions for decision making whether the use of geothermal energy is feasible	Information for decision making whether it is feasible to use the geothermal waters in energy production	EU funds, CCFF and other national programmes, municipal cofinancing
2.5.3.2. Local heating	Jelgava county	Elaboration of feasibility study on use of	Implementation of pilotproject in use of	Research results and calcultions for decision	Information for decision making whether it is	Attraction of foreign investment, public-private partnership. Available

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
(individual boiler plants for industries and residential houses)		geothermal energy in Eleja county. The implementation of feasibility study ideas in use of geothermal waters in Eleja county – both for production units and residential buildings	geothermal waters in production of energy, use of RES in provision of heating, reduction of CO2 eemissions	making (whether the use of geothermal waters is feasible. Renewable energy sources used to provide heating	feasible to use the geothermal waters in energy production. Amount of energy produced from the geothermal sources, MWh; Production costs for 1MWh	resources – geothermal waters, human resources. EU funds, national programmes
	Ozolnieki county	The use of geothermal sources in Ane village	To do research and calculations whether it is frasible to use the geothermal waters in energy production; Provision of heating from renewable energy sources; reduction of CO2 emissions	Research results and calcultions for decision making whether the use of geothermal waters is feasible. Renewable energy sources used to provide heating	Information for decision making whether it is feasible to use the geothermal waters in energy production; Energy produced from geothermal sources, MWh; Production costs of 1MWh	EU, national programmes, municipal cofinancing
	Rundale county	Research on use of geothermal sources	To do research and calculations whether it is frasible to use the geothermal waters in energy production; Use of RES in provision of heating; Reduction of CO2 emissions	Research results and calcultions for decision making whether the use of geothermal waters is feasible. Renewable energy sources used to provide heating	Information for decision making whether it is feasible to use the geothermal waters in energy production; Energy produced from geothermal sources, MWh; Production costs of 1MWh	EU funds, CCFF a.o. national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
2.5.4.Wind and solar energy						
2.5.4.1. For production of heat and hot water	Dobele county	Installation of solar collectors for Dobele swimming-pool, kindergarten “Spriditis” and sports hall of Penkule Elementary School	Use of renewable energy in heating; Reduction of CO2 emissions	Renewable energy sources used to provide heating; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	Attraction of investments, EU funds, national programmes, municipal cofinancing
	Jelgava county	Installation of solar collectors on municipal kindergartens, social care institutions	Use of renewable energy in heating; Reduction of CO2 emissions	Renewable energy sources used to provide heating; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	Collaboration with entrepreneurs, EU funds, national programmes, municipal cofinancing
	Jekabpils county	1. Use of solar energy in Dunava rural municipality – for heating and preparation of hot water in Dunava Culture House; 2. Installation of solar collectors in Abelu rural municipality – preparatio of hot water for Abelu school’s gym.	Use of renewable energy in heating and preparation of hot water; Reduction of CO2 emissions	Renewable energy sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU funds, national programmes, municipal cofinancing
	Jekabpils county	Installation of solar collectors for	Use of renewable energy in heating and preparation of	Renewable energy sources used to	Amount of energy produced from RES,	EU funds, CCFF a.o. national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		preparation of hot water on the roof of Jekabpils regional hospital	hot water; Reduction of CO2 emissions	provide heating and preparation of hot water; Reduced amount of CO2 emissions	MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	
	Koknese county	Installation of solar collectors on the roof of kindergarten „Bitite" in Bebri rural municipality. Installation of wind turbines near Vecbebri boarding crafts school	Use of renewable energy in heating and preparation of hot water; Reduction of CO2 emissions	Renewable energy sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU funding, CCFF a.o. national programmes, municipal cofinancing
	Krustpils county	Research and elaboration of feasibility study on use of solar techlologies for heat production in municipal buildings	To do research if use of sun energy is feasible	Results of the research and calculations to make decision , if use of solar technologies is feasible in Krustpils county	Elaborated documentation, obtained data: the possible amount of energy to be produced from RES, MWh; Production costs per 1MWh, Reduced quantity of CO2 emissions kg/m2 per year	EU funds, CCFF a.o.national programmes, municipal cofinancing
	Krustpils county	Based on the research, to install solar colectors on the roofs of municipal buildings	Use of RES in provision of heating; Reduction of Co2 emissions	Renewable energy sources used to provide heating and preparation of hot	Amount of energy produced from RES, MWh; Production costs of	EU funds, CCFF a.o.national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		where it is feasible		water; Reduced amount of CO2 emissions	1MWh; Amount of reduced CO2 emissions kg/m2/ year	
	Krustpils county	Construction of solar station in the property "Logistikas parks"	Use of RES in energy production; Reduction of Co2 emissions	Renewable energy sources used in production of energy; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	Private investments, EU funds, national programmes
	Ozolnieki county	The use of solar or wind power in the kindergartens „Saulīte" and „Bitīte" and Ozolnieki Secondary School in Brankas	Use of RES in provision of heating and hot water; Reduction of Co2 emissions	Renewable energy sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU fund projects, national programmes, municipal cofinancing
	Plavinu county	Installation of solar technologies for the elderly house, 3 municpial kindergartens, 2 boiler houses, Gymnasium of the county, to the youth complex "Ideja', fittness hall	Use of RES in provision of heating and hot water; Reduction of Co2 emissions	Renewable energy sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU fund projects, national programmes, municipal cofinancing
	Rundale	Installation of solar	Use of RES in provision of	Renewable energy	Amount of energy	EU funds, CCFF a.o.national

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
	county	collectors on several public buildings	heating and hot water; Reduction of Co2 emissions	sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	programmes, municipal cofinancing
	Skriveri county	To equip all the public buildings (or particular buildings) with sun collectors	Use of RES in provision of heating and hot water; Reduction of Co2 emissions	Renewable energy sources used to provide heating and preparation of hot water; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU funds, national programmes, municipal cofinancing
2.5.4.2. For generation of electricity	Jelgava county	Research and if feasible - implementation: 1.Use of solar panels for generation of electricity (municipality, houeholds, entrepreneurs) 2.Use of solar and wind energy in municipal institutions, industry and households 3.Establishment of wind park in Vircava rural municipality -	Use of RES in provision of heating and hot water, in production of electricity; Reduction of Co2 emissions	Renewable energy sources used to provide heating and preparation of hot water, production of electricity; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	Collaboration with entrepreneurs, EU funds, CCFF projects a.o. national programmes, municipal cofinancing

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		feasibility study and construction (entrepreneurs)				
	Koknese county	Installation of wind turbines for Vecbebri boarding crafts school	Use of RES in production of electricity; Reduction of Co2 emissions	Renewable energy sources used to produce electricity; Reduced amount of CO2 emissions	Amount of energy produced from RES, MWh; Production costs of 1MWh; Amount of reduced CO2 emissions kg/m2/ year	EU funds, CCFF projects a.o. national programmes, municipal cofinancing
	Krustpils county	Installation of wind generators for production of electricity	Use of RES in production of electricity;	Renewable energy sources used to produce electricity;	Amount of energy produced from RES, MWh; Production costs of 1MWh;	EU funds, national programmes, private investments
	Rundale county	Research on the use of solar and wind energy in Rundale county	To do research and calculations whether it is feasible to use the solar and wind energy	Research results and calcultions for decision making whether the use of solar and wind energy in Rundale district is feasible	Data: possible amount of energy which could be produced from renewable energy sources, MWh. Possible production costs of 1MWh, Possible reduction of CO2 emissions kg/m2 per year	EU funds, CCFF projects a.o. national programmes, municipal cofinancing
2.5.5.Agricultural biomass						
2.5.5.1. Central heating (boiler	Jelgava county	Production of woodchips in polder territories –	To use the potential of renewable energy sources, to provide support to local	Used local potential of renewable energy sources, local	Indicators of operation of cooperative: the amount of produced	EU funds, state programmes,private investments, municipal cofinancing if public-

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
plants)		establishment of cooperative	producers, creation of jobs	production unit has been created, jobs created	woodchips, m3; the production costs of 1m3, number of jobs created	private partnership
	Krustpils county	Construction of Cogeneration plant which could be used for provision of heating for multiresidential buildings and other objects	Use the potential of local renewable energy sources, to provide support to local producers, improvement of energy efficiency,reduction of CO2	Effective solution of heat supply, local RES used, jobs created	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh; Heating costs for 1m2, number of jobs created	EU funds, state programmes, private investment, municipal cofinancing if PPP
	Krustpils county	Transition to heat supply from cogeneration – in elderly house “Jauna muiza”, connection of Jauna muiza village to the heating network (Alternative No.2)	To increase the efficiency of energy production, To provide cheaper heating; To reduce the amount of Co2 emissions	Effective solution of heat supply, local RES used, jobs created	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh; Heating costs for 1m2, number of jobs created	EU funds, state programmes, private investment, municipal cofinancing if PPP
	Rundale county	Improvement of existing straw technologies in heat supply	Use of potential of renewable energy sources; support to local producers	The local potential of renewable energy sources used, new straw technologies developed	The amount of energy produced with straw technologies, MWh; Production costs of 1MWh	EU funds, state programmes, Municipal cofinancing
	Tervete county	Project of „Agrofirma Tervete” Ltd: Construction of biogas plant that could be used for heating of	Use of local potential of renewable energy sources, support to local producers, improvement of energy efficiency, reduction of	Efficient solution for heating, local renewable energy sources used, jobs created	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh;	EU funds, state programmes, private funding

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		residential buildings and other objects	CO2 emissions		Heating costs for 1m2, number of jobs created	
4.2 Production of biogas, cogeneration	Auce county	Pig breeding company "BalticBreeder" Ltd is planning to build biogas plant in Ile rural municipality. Biogas could be produced from agricultural biomas and livestock waste.	Use of local potential of renewable energy sources, support to local producers, energy-efficient solutions for energy production	Constructed biogas plant, created jobs, local renewable energy sources used	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh	Private funding
	Koknese county	Farm „Zemitani" in Irsi rural municipality: construction of CHP plant for production of power and heat; „Bormaņi" Ltd Koknese rural municipality: construction of CHP plant for production of power and heat	Use of local potential of renewable energy sources, support to local producers, energy-efficient solutions for energy production	Constructed biogas plant, created jobs, local renewable energy sources used	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh	Private funding
	Krustpils county	Research on possible establishment of biogas production plant in Krustpils county	To do the research and calculations whether the establishment of biogas production plant would be feasible	Results of the research and calculations to make decision whether the establishment of biogas production plant would be feasible	Research documentation, data: the possible amount of energy produced from RES, MWh; Production costs of 1MWh	EU funds, CCFF projects a.o. national programmes, municipal cofinancing, private financing (companies)
	Krustpils county	"Krustpils energija" Ltd: construction of biogas production plant for	Use of local RES potential, support to local producers, energy efficient solutions	Biogas cogeneration station constructed, local renewable	Amount of energy produced with biogas technologies, MWh;	EU funds, national programmes, private funding

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		production of heat and electricity in Kuku rural municipality	for energy production, created jobs	resources used, jobs created	Production costs of 1MWh; Number of jobs created	
	Krustpils county	"Birzites" Ltd: construction of biogas production plant for production of heat and electricity in Kuku rural municipality	Use of local RES potential, support to local producers, energy efficient solutions for energy production, created jobs	Biogas cogeneration station constructed, local renewable resources used, jobs created	Amount of energy produced with biogas technologies, MWh; Production costs of 1MWh; Number of jobs created	EU funds, national programmes, private funding
	Rundale county	Research on possible construction of biogas plant in Rundale county	To do research and calculations whether it is feasible to construct a biogas plant	Results of the research and calculations to make decision whether the establishment of biogas production plant would be feasible	Data: possible amount of energy produced from renewable energy sources, MWh. Production costs of 1MWh.	EU funds, CCFF a.o. national programmes, municipal cofinancing
2.5.5.3. Local heating (individual boiler plants) For production units, residential houses, warehouses	Akniste county	Construction of straw pellet production unit	Use of potential of locl renewable energy sources, support to local producers, energy-efficient solutions for energy production, creation of jobs	Straw pellet production unit constructed, jobs created, local renewable energy sources used	Amount of straw pellets produced, t ; Productions costs of 1t; heat capacity of straw pellets, 1t, number of jobs created	EU funds, CCFF a.o. national programmes, municipal cofinancing
	Krustpils county	Establishment of local heating unit by transfering to alternative type of	Use of local RES potential, support to local producers, energy efficient solutions for energy production,	Local heating unit established, local renewable resources used, jobs created	Amount of energy produced, MWh; Production costs of 1MWh;	EU funds, national programmes, private intvestment

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		heating (biomass, straw pellets etc.)	created jobs		Number of jobs created	
	Krustpils county	Processing of peat for production of heat and electricity	Use of local RES potential, support to local producers, energy efficient solutions for energy production, created jobs, reduction of CO2	Effective solution of heating supply, local renewable resources used, jobs created	Amount of energy produced, MWh; Production costs of 1MWh; Number of jobs created	EU funds, national programmes, private intvestment
	Rundale county	Research on whether it is possible to provide Svitene, Berstele and Viesturi residential areas with local heating by using agricultural biomass boilers	To do research and calculations whether it is feasibleto use agricultural biomass boilers for local heating	Research results and calcultions for decision making whether it is feasible to use agricultural biomass boilers for local heating	Data: the possible amount of energy produced from renewable energy sources - agricultural biomass, MWh; Production costs of 1MWh	EU funds, CCFF a.o. national programmes, municipal cofinancing
2.5.6. Waste to Energy						
2.5.6.1. Agricultural and livestock breeding waste	Koknese county	Farm „Pilslejas", in Bebri rural municipality: construction of biogas cogeneration plant in Bebri rural municipality; Farm „Vecsiljani", Bebri rural municipality: construction of biogas cogeneration plant	Use of local potential of renewable energy sources in energy production, energy-efficient solutions for energy production, creation of jobs	Constructed biogas cogeneration plants, local renewable energy sources used. jobs created	Amount of energy produced, MWh; Production costs of 1 MWh; number of jobs created	EU funds, private funding, national programmes
	Skriveru county	"Zalas zemes energija" Ltd plans to establish a biomass cogeneration	Use of local potential of renewable energy sources in energy production,	Constructed biomass cogeneration station, local renewable energy	Amount of energy produced, MWh; Production costs of 1	EU funds, national programmes, private funding

2.5 Activities, project ideas The summary of activities and expected results in order to achieve the objectives						
Theme:		**Renewable energy**				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of Funding**
		station for production of electricity	energy-efficient solutions for energy production, creation of jobs	sources used, jobs created	MWh; number of jobs created	
2.5.6.2. Household waste	Jelgava county	Production and further use of biogas in household waste composting areas in Livberze rural municipality	Use of local potential of renewable energy sources in energy production, energy-efficient solutions for energy production, creation of jobs	Constructed biogas plant, local renewable energy sources used, jobs created	Amount of energy produced, MWh ; Production costs of 1 MWh; number of jobs created	EU funds, CCFF a.o. national programmes, municipal cofinancing
	Krustpils county	Establishment of cogeneration station in Mezare landfill, using waste to produce electricity and heat	Use of local potential of renewable energy sources in energy production, energy-efficient solutions for energy production, creation of jobs	Constructed cogeneration station, local renewable energy sources used, jobs created	Amount of energy produced, MWh ; Production costs of 1 MWh; number of jobs created	EU funds, CCFF a.o. national programmes, Vidusdaugavas SPAOO programme, municipal cofinancing

3. Energy Efficiency Meaures

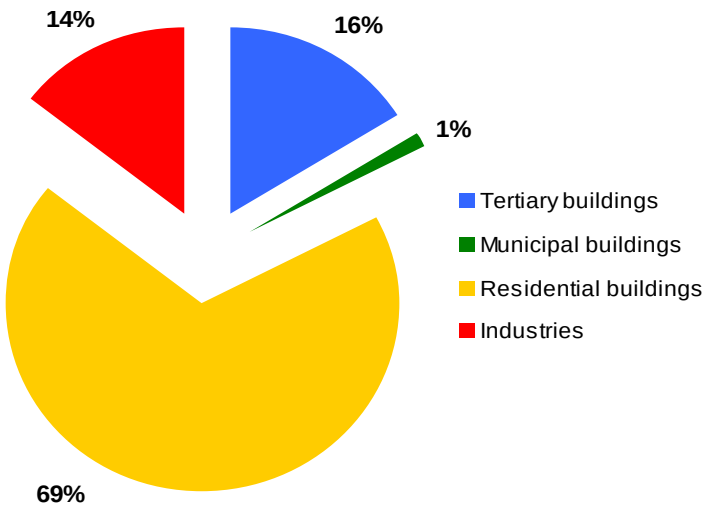
3.1.Introduction

The greatest energy saving potential in the world , including Europe Union is the buildings sector currently consuming about 40% of the whole energy balance. Latvia situation is characterized by the small energy market and insuffcient local primary resources to cover the energy demand, therefore in the recent years a range of programmes and energy policy documents has been elaborated in Latvia to ensure the confomity with EU 2020 energy policy and to improve the situation in energy efficiency – such as "Latvia National Reforms Programme EU 2020" defining the quantitative goals in 2020 envisaging the increase of energy efficiency in multiresidential buildings, public and industrial buildings, increasing the energy efficiency in street lighting, in production of heat energy and in transport sector. "Latvia Sustainable Development Strategy by 2030" adding raising of efficiency level in the heat supply systems, rational use of energy in households, but "Energy Strategy 2030" - the security of the energy supply.

As 66% of Latvia inhabitants live in multiresidential buildings, these and other buildings are one of the main areas where the energy efficiency measures would have to be introduced.

In Zemgale in 2009 residential sector consumed about 70% from the total energy consumption.[4] The average household energy consumption in 2009 was 285 kWH/m2 but for heating – 193 kWh/m2, which is signiffcantly aobve the average indices in Europe.

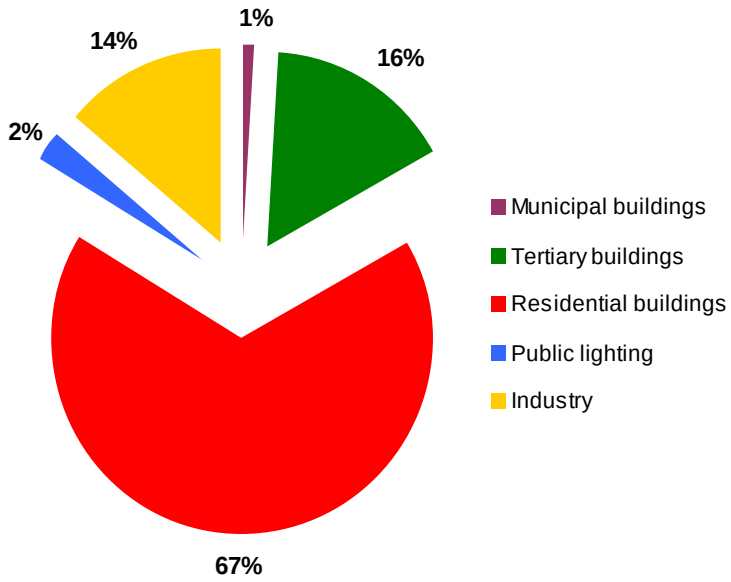
Situation in Zemgale in 2009[5]



Heat consumption (district heating) in Zemgale region in 2009

Zemgale region, sources of information: LR bureau of Statistics

[4] Sustainable Energy Action Plan (SEAP) for Zemgale Region, 2011.
[5] Sustainable Energy Action Plan (SEAP) for Zemgale Region, 2011



Electricity consumption in Zemgale region in year 2009

Zemgale region, sources of information: LR bureau of Statistics

The objective of this Local Action Plan is to improve energy efficiency per 20% by 2020 in comparison with 2009.

3.2 The local actors

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
Primary stakeholders (affected directly)				
3.2.1.Residents	- cheaper electricity and heat	- as a result of implementation of energy efficiency activities, heat loss will be eliminated and overall heat consumption will reduce	limited	- with the help of EU funds to provide financial support to energy efficient renovation projects of residential houses
3.2.1.1. residents of multi residential buildings	- cheaper electricity and heat, - improvement in housing quality and sustainability	- reduced electricity and heat bills for households, - use of renewable energy sources in households promotes independence from the energy suppliers	limited	- measures improving the thermal insulation of the multi residential buildings – improvement of energy efficiency to ensure the sustainablility of the living fund and efficient use of energy; - support to the use of renewable energy sources in the households; - to define the obligatory information on energy efficiency of the household to be enclosed in the bills of service providers and house maintenance companies.
3.2.1.2. residents of private houses	- cheaper electricity and heat, - improvement in housing quality and sustainability - independence from the energy supplier	- construction of buildings of low energy consumption, renovation of the existing buildings and simplified renovations mean smaller bills for electricity and heat, - use of renewable energy sources in household sector promotes independence from the energy source	limited	- to provide support and information on use of renewable energy sources and energy efficiency in household sector, for example, energy audits; - support to purchase of heat or electricity microgeneration equipment and installation in residential buildings to ensure energy efficient generation of heat and electricity from renewable energy sources

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
		supplier		
3.2.2.1.Mucipalities, the owners of public buildings	- to reduce heat and electricity consumption - effective energy supply to buildings	- to decrease CO2 emissions by raising the energy efficiency of municipal buildings and reducing heat consumption; - as a result of renovation, heat losses will be eliminated	limited	- support to municipal projects improving energy efficiency in public buildings to reduce the amount of green house gas emissions
3.2.2.2.Municipalities, the owners of social residential apartaments	- reduced expenses for electricity and heat, - improvement of housing quality	- as a result of implementation of energy efficiency measures, heat losses will be reduced and overall heat consumption will decrease	limited	- to increase the energy efficiency of municipal social housing by improving its quality and sustainability, and providing the residents under the risk of social exclusion with appropriate housing
3.2.2.3. Municipalities, the providers of public lighting	- to reduce electricity consumption, - economy of financial means	- reduction of greenhouse gas emissions and electricity consumption in the municipal lighting	limited	- support to municipalities in installation of such lighting infrastructure that would allow to reduce the current electricity consumption thus reducing the amount of greenhouse gas emissions, - support for the development of perspective and environmentaly friendly technologies, for example, automatic lighting systems and LEDs which in long term could reduce the municipal costs for electricity and lighting system maintenance

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
3.2.3. Small and medium enterprises, including farms	- economy of financial means, -increase of energy effciency in industrial buildings, equipment and production technologies	- raising of the level of competitiveness and reduction of energy costs related to production processes, - development of technologies reducing the amount of greenhouse gas emissions	limited	- support to projects increasing the energy efficiency in industrial buildings reducing the amount of greenhouse gas emissions, - support to improvement of energy efficiency in production processes
3.2.4. Industrial and commercial enterprises	- economy of financial means, -increase of energy effciency in industrial buildings, equipment and production technologies	- raising of the level of competitiveness and reduction of energy costs related to production processes, - opportunity to improve competitiveness in global export markets especially in the field of technologies related to the imporvement of energy efficiency	limited	-support to projects increasing the energy efficiency in industrial buildings, reducing the amount of greenhouse gas emissions and developing technologies reducing the amount of CO2 emissions, - support to the energy audits in industrial and commercial enterprises;
Secondary stakeholders (service providers)				
3.2.5. Heat supply enterprises, heat producers and suppliers	- Reduction of heat loss in transmission and distribution systems, - Increase in the operation efficiency of the enterprise	- to increase the efficiency of heat production, - reduction of heat losses in heat supply and distribution systems, - development of high efficiency CHP stations	limited	- support to the projects raising energy efficiency to reduce the amount of CO2 emissions and reduce the heat losses in supply and distribution systems, - support to the reconstruction of heat production units and construction of high efficiency CHP plants to improve their efficiency or reduce their

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
				impact on the environment
3.2.6. House maintenance companies	- economy of financial means, - improvement of housing quality	-to increase the energy efficiency of housing fund by improving its quality and sustainability, - to increse the level of awareness among residents on possibilities to save energy in their households	limited	- to support projects of energy efficient renovations of residential hauses - to support use of renewable energy sources in household sector
3.2.7. Energy Service Companies ESCO[6]	- economy of financial means, - improvement of housing quality	- to increase the energy efficiency of housing fund by improving its quality and sustainability, - to reduce the maintenance costs of the buildings	Limited, as ESCO market is not developed in Latvia	- to support projects of energy efficient renovations of residential hauses - to support use of renewable energy sources in household sector to provide energy efficient solutions in energy supply -state guarranty programme for ESCO projects
3.2.8. Construction companies	- Qualitative construction works for reasonable prices	- to meet customer's requireements in quality of house construction – to construct energy efficient, high quality buildings at reasonable prices with low	Limited Within the orders made to the	- review and improvement of minimum energy efficiency requirements in contruction – adjustment of Latvian Building Norms and the Regulations of the Cabinet of Ministers setting

[6] ESKO - energy service companies – investment company that invests in energy efficiency measures, implements the measures and earns back the investments from long term energy savings (usually in 20 years).
http://www.renesco.lv/index.php?option=com_content&view=article&id=22&Itemid=22&lang=lv

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
		maintenance costs; - to have the knowledge of the latest technologies in the construction of buildings requested by the clients, such as passive or almost 0 energy buildings to get orders and maintain the competitiveness of the construction company	company	the higher requirements; - development of energy audit quality control system; - development of quality control system of construction projects; -setting of united quality and energy efficiency criteria and control system in accordance with the national energy policy
3.2.9.Science and research institutions, universities (Latvia University of Agriculture)	- Development of technologies reducing the amount of greenhouse gas emissions	- to promote avalability of products and technologies reducing the amount of greenhouse gas emissions in Latvia, thus ensuring the reduction of greenhouse gas emissions, - to promote cooperation with entrepreneurs, municipalities and other entities in the implementation of the new technologies	limited	-to support the development of science and research infrastructure; - support to studies on low energy consumption buildings, new heat insulation materials, indoor air quality - promotion of cooperation between entrepreneurs and research institutions within EU funded investment projects
3.2.10. Public transportation companies	- increase of energy efficiency in everyday provision of services to the residents	Increase of energy efficiency, optimization of costs: - by esablishing a united public transport network and organizing coordinated transport timetables in municipal administrative territories, - by improving the planning system of public transport routes,	limited	- to support the improvement of a united public transport network by reviewing the subsidies for parallel regional and intercity rail and bus routes, - to support purchase of energy efficient vehicles for public transport with the help of "green purchases", etc.

Stakeholder interest analysis				
Theme:	**Energy Efficiency Measures**			
Stakeholders	**Interest reflecting particular issue**	**Motivation to deal with the issue**	**Capacity to deal with the issue**	**Possible actions to address stakeholders interests**
		- by using energy efficient transport fleet, the maintenance and operational costs of which are optimal and environmentally friendly		
3.2.11. Electricity production and supply companies	-smaller costs in energy production, -„green energy" from local sources	- optimisation of energy losses in Latvia energy systems by determining the maximum acceptable energy losses in transmission systems, - promotion of use of renewable energy sources, including the the small generators (households) in the common energy grid	good	- to establish a national energy management system to ensure the reduction of energy consumption and implementation of energy policies: information to energy users, encouraging the users to control the energy consumption in households (Energy agencies) etc. - implementation of smart energy system with double sided meters for the small generators of renewable energy
3.2.12. Related associations, energy agencies, advisory boards	- promotion of energy efficiency measures for development of national economy	- to promote avalability of products and technologies reducing the amount of CO2 emissions in Latvia - to develop cooperation with entrepreneurs, municipalities and other entities in implementation of the new technologies -to raise the level of awarenes among residents on possibilities to save the energy in households	impact on the national decision making is limited	-to fortify the impact of the associations and other organizations in the decision making at national level; - to promote cooperation between entrepreneurs and research institutions in EU funded investment and other projects; - support to motivation of energy end users to implement energy efficiency measures; - promotion of rational use of energy in households

3.3 The Problems

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.1. ENERGY EFFICIENT REFURBISHMENT OF RESIDENTIAL BUILDINGS		
3.3.1.1. **The majority of houses are old, of poor quality and are not being refurbished improving the insulation, due to different level of paying capacity of residents, mostly low** Situation is better in cities, but in rural areas residents are mostly retirees, there are few young families, therefore energy efficient refurbishment projects are not started, residents' solvency is not sufficient. In rural areas some apartments are even not occupied, heating is expensive as they all have to be heated.	It is important to continue the intensive support program for improvement of energy efficiency of the existing living fund, especially for multiresidential houses where the return of the support would be the greatest. Search for other technological solutions, such as purchase and installation of microgenerations for production of heat or electricity in residential buildings from renewable energy resources. Promotion of good practices from Latvia, EU. To support the poor so that their low paying capacity would not delay the renovations of the houses.	„The most energy efficient renovated multi residential building in Latvia 2010" : 1.Jelgava, K.Helmana street, 2.Riga - Kurzemes prospekts 14 and Bebru Street 4, 3.Ventspils, Lielais prospekts 22 „The most energy efficient new apartment building 2010": "Dienvidu pakavs – 2", Riga, Vienibas gatve 192.
3.3.1.2. Lack of municipal funding for drafting of project applications Municipalities do not have financial means for co-funding the elaboration of energy audits and technical inspections of the multiresidential buildings.	Restore the national cofinancing for the energy audits and technical inspections before the submission of project applications for energy efficient refurbishments.	

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.1.3. Improvement of energy efficiency in individual residential buildings - low construction standards, the owners lack the financial resources and knowledge, how to renovate, to achieve greater economic benefit from the use of renewable energy	In the mid-term it would be good to include into support also single-apartment buildings providing an appropriate level of support for measures improving heating insulation for raising energy efficiency. To formulate the "fuel poverty[7]" threshold in Latvia, envisaging a special support to those below the treshold. Possible transfer of good practice from UK.	„The most energy efficient single-family building in Latvia – new building 2010": Single-family house "Lielkalni", Gipka, Roja district Good practice from North Staffordshire Warm Zone energy efficiency scheme (England) www.nswz.co.uk With the help of financial support scheme from Central government the improvement of house insulation was offered free of charge for inhabitants.Support through Warm Zone was announced granting refurbishment to 9000 private households.

[7] Heating/fuel powerty line for households is drawn in cases when residents of the household can not heat the building appropriately for reasonable price (England, Ireland) and to maintain 18-21°C temperature residents have to spend more than 10% of their income
http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx , http://fuelpoverty.eu

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
		Project ”Setting up of a „one stop shop” in the field of energy”, Schaerbeek, Belgium www.schaerbeek.irisnet.be The aim was to provide technical advice to citizens on environment friendly house renovation and available co-financing resources from national and regional programs. 200 feasibility studies were elaborated for the renovations and 200 loans for renovation at reduced interest rate issued. Part of the loans were granted to marginalized households with specific support.
3.3.1.4. Currently (2012) in Latvia individual households are not motivated to sell the produced energy in the grid if they would like to. Therefore smart energy systems with double sided meters are not widely used	To elaborate motivating legislation for introduction of smart energy systems with double sided meters and selling energy in the grid in the case of small energy generators (households etc.)	German Energy Law, the Croatian example.
3.3.2. **IMPROVEMENT OF ENERGY EFFICIENCY IN PUBLIC AND INDUSTRIAL BUILDINGS**		

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.2.1.Wear and low energy efficiency of municipal public buildings	State support for energy audits and technical inspections before the submission of energy efficient refurbishment project applications.	The public buildings having won the title of energy efficient building after renovation in 2010: Riga 141st kindergarten “Kastanitis”, Riga, Sterstu Street 19; Ventspils 3rd secondary school, Targales Street 5. The public buildings having won the title of energy efficient building in 2010” – the new buildings: 1. Kindergarten “Bitite”, Ventspils 2. Valmiera primary school, Leona Paegles Street 40a.
3.3.2.2. Relatively low operational efficiency of small and medium enterprises	For support of energy efficiency in SME to promote energy audits, as particularly in this group low activity has been observed in decision making regarding implementation of energy efficiency measures. It is important to activate the role of industry associations in promotion of energy efficiency, Promotion of cooperation between enterprises and research institutions.	The Cooperation Memorandum "Live warmer!" (“Dzivo siltak!”-latv.) One of the tasks is to promote cooperation and mutual education between industry associations to ensure the flow of information on current developments in the industry;

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.2.3 The small impact of the industry associations on decision making at national level.	Activate the role of industry associations in the improvement of energy efficiency and in the national decision-making. Develop and implement demos / pilot projects.	The Cooperation Memorandum "Live warmer!" (“Dzivo siltak!”-latv.) One of the tasks is to promote cooperation and mutual education between industry associations to ensure the flow of information on current developments in the industry;
3.3.2.4.Low energy efficiency of production units and technologies of industrial sector	It is necessary to improve the energy efficiency of industrial buildings, manufacturing equipment and technologies, support to industrial sector in implementation of energy efficiency solutions.	In Gabrovo municipality, Bulgaria, project “Energy efficiency strategy to reduce CO2 emissions” , an energy efficiency zone was created. Several demonstration projects were drafted during the project, including energy-efficient renovation demo projects for: Regional hospital “D-r Tota Venkova” Secondary school “Otets Paisii” Large panel residential houses Industrial building (“Mehatronika” plc) Administrative building (Town hall) Also, for example, warehouse in a tile factory, Stoke-on-Trent, England, – lighting equiped with motion sensors – lighting activated only when

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
		someone enters the warehouse.
3.3.2.5.In the existing building standards the newest energy policies are not incorporated, these could provide effective achievement of energy efficiency objectives	Determination of quality and energy efficiency criteria and establishment of control system in accordance with national energy policy. Review and improvement of minimum energy requirements for buildings, development of quality control system for energy audits and quality control system for energy efficient renovations. .	The Cooperation Memorandum "Live warmer!" (“Dzīvo siltāk!”-latv). One of tasks is to inform about the conditions of high quality renovation process, to inform about the quality standards of construction materials and technologies for their installation;
3.3.3. IMPROVEMENT OF ENERGY EFFICIENCY IN HEAT PRODUCTION		
3.3.3.1 Improvement of energy efficiency in district heating are hindered by the necessary large amount of investment needed as well as by the limited possibility of enterprises and / or local governments to take a loan. Therefore in many cases the heat production is ineffective.	To improve credit terms, EU projects, it would be advisable to increase the number of house connections to the district heating, thus increasing the heat load and improving the efficiency of district heating system. Advisable to use high-efficiency biomass (wood, straw) CHPs and boiler plants. In the existing district heating systems heat production efficiency would have to be improved.	

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.3.2. The heat produced in the CHP in the process of electricity generation would be usefel to use for heating, but it is not done in all cases	Complex solutions desirable – planning on where the generated heat will be used, produced as side-product in electricity production process.	Use of industry by-product - heat in district heating system in Orebro (Sweden) Within the project district heating company concludes a contract with the factory on purchase of waste-heat at a low price. The factory (Korsnas) receives money for industrial by-product - heat. Results – better use of resources, saved energy and reduced amount of CO2. The project was funded by the National Environmental Protection Board, private investment and local energy company.
3.3.3.3. Heat losses in heat supply and distribution networks, network management costs. (Auce county)	With the muncipail support and EU fund projects to do the renovation/change of district heating networks and modernization of boiler plants to reduce heat consumption and losses.	
3.3.3.4. Economic situation in rural areas, low capacity heat production objects. In many populated areas district heating systems are destroyed. (Rundale county, Dobele county)	In the conditions of non-exisent district heating systems one solutions would be to provide support to the use of renewable energy in the household sector; Or to support purchase and installation of microgenerations	

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
	for production of heat or electricity in residential buildings from relatively cheap renewable energy resources.	
3.3.3.5. In calls for proposals/projects - documentation is complicated Sometimes requirements of project application change during the stages of tender – new documents have to be prepared (Rundale county, Viesite county)	When there is a second call for proposals of the EU co-financed projects, it would be good if the actual requirements would not change, then applicants who have not been supported in the first round, could apply. Otherwise it is impossible to qualify for financing in the second call.	
3.3.3.6. Increase in construction costs, lack of qualified construction professionals, having impact on quality of work. (Jelgava county)	Training programs, state support for education of more highly qualified construction professionals.	
3.3.4. INSTALLMENT OF EFFECTIVE LIGHTING INFRASTRUCTURE IN MUNICIPAL TERRITORIES		
3.3.4.1. Shortage of municipal budget – in attempt to economize, street lighting at night is not always provided. (Viesite county, Dobele county)	Investments of EU funds and national programmes in perspective and environmentally friendly technologies, such as automatic lighting systems and light emitting diodes, that in long-term would reduce the municipal costs for electricity and maintenance of lighting systems.	Gabrovo municipality in Bulgaria www.energymodel.eu After the implementation of a project of energy efficient reconstruction of the street lighting system and automated lighting control systems significant energy savings have been achieved. Within the project of "Energy-

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
		efficiency strategy to reduce CO2 emissions" , an energy-efficiency zone was created in Gabrovo municipality, Bulgaria. Several demonstration projects were elaborated during this project, including: Energy efficient renovation of street lighting system
3.3.4.2. Unfavorable project conditions for the change of street lighting systems (Akniste county)	More favorable conditions of EU fund and governmental programs for the reconstruction of street lighting and new construction projects.	
3.3.4.3. In many cases lighting infrastructure is old, inefficient, consume a lot of energy and municipalities don't have sufficient financing to renovate the networks to the necessary extent.(Jelgava county)	In the support measures of the next planning period, for instance in ERDF activities, would have to be included complex reconstruction of lighting - reconstruction of lighting networks, lighting posts, replacement of bulbs.	
3.3.5. PROMOTION OF RATIONAL USE OF ENERGY IN HOUSEHOLDS		

Problems and solutions		
Theme:	**Energy Efficiency Measures**	
Problems	**Solutions**	**Benchmarks from Good Practices in Europe and Latvia, Examples**
3.3.5.1. Insufficient public awareness on possibilities to save energy in households and implementation of energy efficiency measures	To promote education of the residents and awareness on energy saving opportunities, Within the framework of EU funds to provide financial support to energy end-users in implementation of energy efficiency measures.	The Cooperation Memorandum "Live warmer!" (“Dzivo siltak!”-latv.) One of the tasks is to promote access to high-quality services, by informing the public about the latest actualities and providing information to apartment owners. ZREA information activities. Gabrovo municipality, Bulgaria www.energymodel.eu

3.4 The proposed measures in energy efficiency (EE) to be supported

3.4.1. Regional measures

3.4.1.1. Activities facilitating the implementation of the Local Action Plan, coordination of the implementation and monitoring[8], including:
- Work at national level for creation of preconditions, provision of support to energy projects of Zemgale municipalities for financing at national level, representation of interests of the region in the energy efficiency;

- Work at regional level, regional initiatives, coordination of measures;

- Monitoring of LAP implementation.

3.4.1.2. Information and educational activities in Zemgale region on energy efficiency – for end users, house maintenance companies, advisory services, activities to save the energy in households and public spaces.

3.4.1.3 Energy planning at regional level, including energy efficiency measures, and monitoring – keeping of data base, elaboration of energy planning documents, energy projects, and support to elaborators of energy project application in the region, elaboration of energy audits**.**

3.4.1.4. Promotion of energy efficient renovations of multi residential buildings in Zemgale municipalities.

3.4.1.5. Inclusion of an energy chapter in municipal planning documents – RES, EE, transport etc.[9]

3.4.1.6. Pilotprojects in use of new EE technologies, dissemination of results of the pilot projects and replication. Transfer of the best EU practicesm, training and transfer of good practices projects in energy.

3.4.2.General measures in EE

3.4.2.1. Support to educational establishments for improvement of study process and programmes in the area of construction specialists in EE, and education of engineers with qualification in energy efficiency in production processes.

3.4.3. Energy efficiency in heat production

3.4.3.1. Reconstruction of the existing boiler plants for the transition to more energy efficient equipment and renewable energy sources and for the conversion to CHP plants (both the gas boiler plant transition to gas cogenerations and the transition to use of renewable energy sources);

[8] Corresponds to the same measure in RES part of the LAP, as measures are to be implemented in both areas –RES and EE
[9] Corresponds to the same measure in RES part of the LAP, as measures are to be implemented in both areas –RES and EE

3.4.3.2. Support to the construction of new CHP plants transfering to renewable energy sources (wood biomass, etc.);

3.4.3.3. Support to the purchase of thermal energy from CHP plants using renewable energy sources;

3.4.3.4. Support to the use of thermal energy from CHP plants (for heating, etc.)

3.4.3.5. Support to the purchase and installation of microgeneration technological equipment for production of heat or electricity in residential buildings, to ensure heat production from RES.

3.4.4. EE in heat transmission

3.4.4.1 Support to the reconstruction and renovation of heat supply network, for the connection of new consumers and boiler plants;
3.4.4.2. Change of heat distribution knots and risers (pipes) in residential buildings (project applicants - house maintenance companies);
3.4.4.3. Renovation of district heating systems of the house groups in rural areas.

3.4.5. Buildings and structures

3.4.5.1. Improvement of energy efficieny in municipal public buildings - offices of rural municipalities, schools, kindergartens, hospitals, houses of culture, etc.;
3.4.5.2. Improvement of heat insulation in multiresidential houses, support to the preparation of the technical documentation;
3.4.5.3. Support to the construction of low energy consumption buildings and to the reconstruction of existing buildings into buildings with low energy consumption;
3.4.5.4. Support to the increase of energy efficiency in individual residential buildings combined with the renewable energy sources.

3.4.6. Street lighting

3.4.6.1. Support to the reconstruction street lighting networks;
3.4.6.2. Support to the construction of new street lighting networks;
3.4.6.3. Support to the replacement of the lighting infrastructure - replacement of bulbs with more energy efficient bulbs (LEDs etc.); replacement of Latvenergo "ST" type, reinforced concrete and wood poles with the galvanized steel poles, etc.;
3.4.6.4. Support to the implementation of remote management systems;
3.4.6.5. Support to the implementation of new, environmentally friendly, energy efficient technologies.

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
3.5.1. Regional initiatives						
	ZPR	Activities facilitating the implementation of the Local Action Plan, coordination of the implementation and monitoring[10], including: - Work at national level for creation of preconditions, provision of support to energy projects of Zemgale municipalities for financing at national level, representation of interests of the region in the energy efficiency; - Work at regional level, regional initiatives, coordination of measures; - Monitoring of LAP implementation.	To improve the energy efficiency in Zemgale Region by 20% by 2020	Improved energy efficiency per 20%	Number of included projects in the National Development Plan	EU funds, national programmes, ZPR
	ZPR ZREA	Information dissemniation and educational activities in Zemgale region on energy efficiency – for end users, house maintenance companies, advisory services, activities to save the energy in households and public buildings	Reduction of the CO2 emissions, Reduction of energy consumption, Improvement of energy effciency per 20%	Informed society; improved situation in energy efficiency in Zemgale region, energy efficiency improved per 20%	Number of events: Number of study visits; Number of seminars, open doors events; Number of publications; number of consultations	EU funds, national programmes, ZRR, ZREA
	ZPR	Energy planning at regional level, including	Reduction of the	Energy planning	Plans, projects,	EU funds,

[10] Corresponds to the same measure in RES part of the LAP, as measures are to be implemented in both areas –RES and EE

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	ZREA	energy efficiency measures, and monitoring – keeping of data base, elaboration of energy planning documents, energy projects, and support to elaborators of energy project application in the region, elaboration of energy audits**.**	CO2 emissions, Reduction of energy consumption, Improvement of energy effciency per 20%	and monotoring at regional level, improved situation in energy efficiency in Zemgale region	number of energy audits, the reached energy indices per years	national programmes, ZPR, ZREA
	ZREA	Promotion of energy efficient renovations of multi residential buildings in Zemgale municipalities.	Reduction of the CO2 emissions, Reduction of energy consumption, Improvement of energy effciency per 20%	Energy efficient multi residential buildings	Reduced CO2, t; The number of energy necessary for heating, kWH/year; saved amount of energy in % and kWH/year; number of renovated buildings	EU funds, national programmes, ZREA
	ZPR	Inclusion of an energy chapter in municipal planning documents – RES, EE, transport etc.[11]	Improvement of energy effciency per 20%, reduction of CO2 emissions per 20%	Energy efficient municipal buildings , energy efficient transport	Number of municipalities having signed the Covenant of Mayors, Number of municipalities having included the energy part in their Development Programmes	ZPR, budgets of municipalities

[11] Corresponds to the same measure in RES part of the LAP, as measures are to be implemented in both areas –RES and EE

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	ZPR, ZREA	Pilotprojects in use of new EE technologies, dissemination of results of the pilot projects and replication. Transfer of the best EU practicesm, training and transfer of good practices projects in energy. For instance – idustrial exellency in energy – specific activities per sectors SME, with the neccesarry information/ training programmes and elaboration of the relevant initiatives (financing for energy efficiency investments, financing for energy audits etc.). Solutions stimulating the change of behaviours in specific consumer groups (young people, specialists of public sector etc.)	Improvement of energy effciency per 20%, reduction of CO2 emissions per 20%	Informed, proffessional specialists of Zemgale; preconditions created for use of energy efficient technologies, energy efficient behaviour;	Number of projects, Number of events	EU funds, national programmes, ZPR, ZREA
		Introduction and popularization of the good management practice, for instance, saving of energy at work etc.	Improvement of energy effciency per 20%, reduction of CO2 emissions per 20%	Saved energy, energy efficient management	1 project	EU funds, ZPR
3.5.2. Energy efficiency in heat production						
3.5.2.1.Energy efficiency measures in the boiler plants	Akniste county	Reconstruction of the remaining heating networks, energy efficient renovation of the boiler plant.	Reduction of heat losses in heat supply networks, to increase the efficiency of heat production	Renovated / reconstructed heat supply networks, km; reduced amount of heat losses, %	Reduced heat losses,%; Reduction of CO2 emissions, t/ year The necessary kWh/year for heating, reduction in %;	EU funds, CCFF a.o. national programmes, municipal co-financing
	Bauska county	Reconstruction of the main boiler house in Garoza willage, reconstruction of heat supply	To increase the efficiency of energy	Reconstructed boiler house and	Improvement of efficiency	EU funds, national

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		networks	production and supply	heat supply networks	coefficient; production costs of 1MWh	programmes, Cofinancing of municipality
	Dobele county	Replacement of the old boilers to more environmentally friendly boilers, modernization of the equipmen of the existing heating systems (installation of energizers), etc.	To increase the efficiency of the heat production	Reconstructed energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU funds, CCFF a.o. national programmes, municipal co-financing
	Iecava county	If the construction project of the music school will be implemented in the neighborhood "Dartija", the reconstruction of the boiler plant in Grafu laukums 5 is to be done: - installation of a new higher capacity circulation pump and a frequency converter. - reconstruction of a gas control equipment to increase the capacity. - replacement of the two old boilers RK - 1.6 with more energy efficient boilers, - reconstruction of the roof of the boiler plant, -construction of rainwater drainage system.	To increase the efficiency of the heat production	Reconstructed energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU funds, national programmes, municipal co-financing
	Jekabpils county	Change of boilers in Dunava rural municipality boiler plant. Transition to woodchip boilers and construction of woodchip storage in Abelu rural municipality. Change to a wood pellet boiler in Mezgale boiler house, Leimani rural municipality. Change of a boiler in kindergarten in Rubene rural municipality in 2012.	To increase the efficiency of the heat production, Replacement of fossil fuels with renewable energy sources	Reconstructed energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU funds, national programmes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Jelgava county	To continue reconstruction of boilers and boiler plants by replacing the fossil fuels with renewable energy sources	To increase the efficiency of the heat production, Replacement of fossil fuels with renewable energy sources	Reconstructed energy efficient boiler plant; Elaborated technical documentation	Improvement of efficiency coefficient; production costs of 1MWh	EU funds, national programmes, municipal co-financing, entrepreneurs
	Jekabpils county	Reconstruction of a boiler plant of Children and Youth Center. Renovation of a boiler plant of Pils house maintenance administration building. Modernization of a boiler house of "Jekabpils regional hospital, Ltd.: the boiler with 3 MW capacity fueled by renewable energy sources, reconstruction of the building of the boiler plant, installation of a heating block for linkage to a gas heating system and installation automatic energy management system. Modernization of "Jekabpils siltums" Ltd. boiler plants, replacement of boilers	To increase the efficiency of the heat production, Replacement of fossil fuels with renewable energy sources	Reconstructed energy efficient boiler plants	Improvement of efficiency coefficient; production costs of 1MWh	EU funds, CCFF a.o. national programmes, municipal co-financing
	Koknese county	Following the implementation of the project "Irsu energija" it will be possible to supply heat for Irsi village in the future, or heat for preparation of hot water. Reconstruction of a boiler plant in Irsi. Reconstruction of a boiler plant inKoknese village	To increase the efficiency of the heat production, Replacement of fossil fuels with renewable energy sources	Reconstructed energy efficient boiler plants	Improvement of efficiency coefficient; production costs of 1MWh	EU co-financing, CCFF a.o. national programmes, municipal co-financing, private funding

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Krustpils county	Change of boilers and reconstruction of the boiler plants in Variesu, Kuku, Spungenu, Jaunas muizas, Antuzu un Mezares villages.	To increase the efficiency of the heat production	Reconstructed energy efficient boiler plants	Improvement of efficiency coefficient; production costs of 1MWh	EU co-financing, CCFF a.o. national programmes, municipal co-financing
	Ozolnieki county	Provision of a local heating in Garoza primary school and Salgale primary school.	To increase the efficiency of the heat production, Replacement of fossil fuels with renewable energy sources	Energy efficient local heating system constructed	production costs of 1 MWh	EU funding, CCFF a.o. national programmes, municipal co-financing
	Skriveri county	Change of 2 boilers transfering to smaller capacity wood pellet boilers	To increase the efficiency of the heat production	Energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU funding, CCFF a.o. national programmes, municipal co-financing
	Viesite county	Improvement of energy efficiency of Viesite boiler house, approhimate budget – 300,000LVL	To increase the efficiency of the heat production	Energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU funding, national programmes, municipal co-financing
	Vecumnieki county	„Musu saimnieks" Ltd.renovation of the boiler house: 1. Change of the pump to a higher capacity circulation pump and frequency converter. 2. Replacement of old boilers to more energy	To increase the efficiency of the heat production	Reconstructed energy efficient boiler plant	Improvement of efficiency coefficient; production costs of 1MWh	EU co-financing, CCFF a.o. national programmes,

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		efficient boilers. 3. Full renovation of a boiler plant.				municipal co-financing, private funding
3.5.2.2. Construction of CHP plants and energy efficiency solutions	Aizkraukle county	Construction of CHP plant with heat capacity of 8 MW -for residential buildings.	To increase the efficiency of the heat production; Construction of high efficiency CHP plant;	Energy efficient CHP plant	Production costs of 1 MWh	„Aizkraukles siltums" Ltd
	Akniste county	To use the by-product - heat of the CHP plant to establish a greenhouse complex and a heat storage station.	To increase the efficiency of the heat production	Efficiently used energy	Improvement of efficiency coefficient; Costs of 1 MWh of heat for greenhouses	Private funds. Restriction – quota (Ministry of Finance) for the production of electricity
	Akniste county	Construction of a CHP plant for residential buildings ~ 1 MW electricity, 2,4 kW heat (or 1 kW electricity, 2,4 kW heat)	To increase the efficiency of the heat production; Construction of a high efficiency CHP plant	Energy efficient CHP plant	Improvement of efficiency coefficient; production costs of 1 MWh	Municipal land reserved for a rent to entrepreneur; attraction of entrepreneurs
	Auce county	Construction of wood biomass CHP plant in Bene rural municipality, use of the produced heat in the district heating system.	To increase the efficiency of the heat production; Construction of a high efficiency CHP plant	Energy efficient CHP plant	Production costs of 1 MWh	EU funds, national programmes, municipal or private co-financing
	Dobele	Modernization of the CHP plant	To increase the	Energy efficient	Improvement of	Attraction of

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	county		efficiency of the heat production	CHP plant	efficiency coefficient; production costs of 1 MWh	private investments; feasibility study ongoing
	Dobele county	Research and feasibility study on the possible heat supply from the biogas plants in the county to the nearest populated areas - Kronauce, Auri, Lejasstrazdi and Biksti.	To increase the efficiency of the heat production, supply and use	Energy efficient heating	Costs of heating per 1m2	EU funds, national programmes, municipal or private co-financing
	Jekabpils county	Modernization of the existing „Jekabpils siltums" Ltd. CHP plant, increase of capacity; Replacement of 2 wood boilers to pellet boilers in Zasa rural municipality for the production of electricity	To increase the efficiency of the heat production	Energy efficient CHP plant	Improvement of efficiency coefficient; production costs of 1 MWh	EU funds, national programmes, municipal or private co-financing
	Plavinu county	Construction of 2,7km gas pipe to enable construction of cogeneration stations for two boiler houses of Plavinu town.	To increase the efficiency of the heat production and supply	Energy efficient energy supply, constructed gas pipe 2,7km	Gas pipe 2,7km	EU funds, national programmes, municipal cofinancing
	Rundale county	Reconstruction of a boiler plant of Pilsrundale village district heating system into a CHP plant	To increase the efficiency of the heat production; Construction of a high efficiency CHP plant	Reconstructed, energy efficient CHP plant	Improvement of efficiency coefficient; production costs of 1 MWh	EU funds, CCFF a.o. national programmes, municipal co-financing
	Sala county	Construction of a CHP plant in Sala village, Skolas street 2	To increase the efficiency of the heat production;	Energy efficient CHP plant	Production costs of 1 MWh	EU funds, national programmes,

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
						private funding
	Viesite county	Construction of a CHP plant of 6,8MWh capacity.	To increase the efficiency of the heat production; Construction of a high efficiency CHP plant	Energy efficient CHP plant	Production costs of 1 MWh	EU structural funds -50%, private funding
3.5.2.3. Alternative solutions	Dobele county	Feasibility study on development of alternative ways of heat generation in Dobele county (solar energy, ground source heat); Research on optimal use of geothermal resources of Dobele city	Lower costs for the used electricity and heat; Improvement of housing quality and sustainability	Obtained data on use of solar technologies, ground source pump technologies for heating	Data: the possible reduction of CO2 emissions, t / year	EU funds, national programmes private funding, municipal co-financing
	Iecava county	From 2012 - purchase of thermal power for the needs of "Iecavas siltums" Ltd. from the bio-CHP plant - about 8000 MWh	To increase the efficiency of the heat production; Replacement of fossil fuels with renewable energy sources	Green energy used; reduced amount of CO2	Reduction of CO2 emissions, t / year	Municipal enterprise of Iecava county
	Jelgava county	Feasibility study on development of alternative ways of heat generation in Jelgava county district (solar energy, ground source heat); Research on optimal use of geothermal resources of Jelgava county	To increase the efficiency of the heat production; Replacement of fossil fuels with renewable energy sources To obtain data whether the use of	Obtained data on use of solar technologies, ground source pump technologies for heating	Reduction of CO2 emissions, t / year	Private capital, EU funds, national programmes, municipal cofinancing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			RES is feasible			
3.5.3. Heat Supply Networks						
3.5.3.1. Heat supply networks	Akniste county	Reconstruction of the existing heat supply networks in Akniste, connection of additional customers	To reduce the heat losses in the heat supply and distribution systems; To improve the operational efficiency of the company; To reduce the costs of heat supply	Reconstructed heat supply networks, km; Increased number of customers	Reduced heat losses, %; Reduced CO2 emissions, t / year; Reconstructed heat supply networks, km	National programs, EU funds, if budget is sufficient. Currently financial menas are not sufficient, quota has been used, ERDF financing is available to Ltds only - 40%, municipality doesn't have possibility to influence.
	Auce county	Replacement of the old heat supply pipes in Auce city and Vecauce rural municipality; Improvement of the heat insulation of the heat supply pipes in Lielauce and Bene rural municipality.	Reduction of the heat losses in heat supply and distribution systems; Reduction of the costs of heat supply	Reconstructed heating pipes, km	Reduced heat losses, %; Reduced CO2 emissions t / year; Reconstructed heating pipes, km	National financing and the financing of Auce city council
	Bauska county	Development of the effective heating system - installation of the digital meters SCADA in the heating knots	Reduction of the heat losses in heat supply and distribution systems; Reduction of the	Installed digital SCADA meters in the heating knots	Reduced heating losses, %	EU funds, national programes, municipality financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			costs of heat supply			
	Iecava county	Installation of 32 new hot water heat exchangers with the total heating load/capacity of 6000 KW	Reduction of the heat losses in the heat supply and distribution systems; To improve the data accounting and adjusting	Reconstructed heating units (knots)	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, national programes, municipality financing
	Jelgava county	Reconstruction of the heating units and change of heating pipes, to ensure full efficiency of the heat supply network	Reduction of the heat losses in the heat supply and distribution systems	Rennovated/ reconstructed heating units and heating pipes	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, CCFF and other national programes, municipality cofinancing
	Jekabpils county	Replacement of a heating pipe (280 m) in Dunava rural municipality. Replacement of the heating units and risers in residential buildings of Abeles rural municipality. Improvement of heat insulation of a heating pipe (150 m) in Leimani rural municipality. Change of a heating pipes (3000m) in Zasa rural municipality. Change of heating pipes up to the house heating units („Jekabpils siltums" Ltd.) Change of risers in multiresidential buildings (house maintenance companies)	Reduction of the heat losses in the heat supply and distribution systems;	Renovated/ reconstructed heating pipes, km; Reconstructed heating units, Changed risers	Reduced heat losses, %; Reduced CO2 emissions t / year	EU financing, CCFF and other national programes, municipal co-financing
	Koknese county	Change of the heating networks for the needs of Vecbebri village boiler plant	Reduction of the heat losses in the heat supply and distribution systems;	Renovated/ reconstructed heating pipes, km	Reduced heat losses, %; Reduced CO2 emissions t / year	EU financing, CCFF and other national programes,

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
						municipal co-financing
	Krustpils county	Reconstruction of the heat supply networks in Antuzu, Kuku, Jaunas Muizas, Variesu and Spungenu villages	Reduction of the heat losses in the heat supply networks; To increase the efficiency of the heat supply	Renovated/ reconstructed heating pipes, km	Reduced heat losses, %; Reduced CO2 emissions t / year	EU financing, CCFF and other national programes, municipal co-financing
	Ozolnieki county	Reconstruction and modernization of the heating networks, connection to the district heating system: The social care center „Zemgale” House of culture Clinic Households of Ozolnieki	Reduction of the heat losses in the heat supply and distribution systems; To improve the operational efficiency of the company	Renovated/ reconstructed heating pipes, km; Increased number of customers	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, national programes, municipal co-financing
	Plavinu county	Reconstruction and modernization of the heat supply networks: 1) Reconstruction of 2km heat supply pipe by Raina street boiler house; 2) Installation of 6 heating units (knots) in Vietalva for multiresidential houses.	Reduction of the heat losses in the heat supply and distribution systems; To improve the operational efficiency of the company	Renovated/ reconstructed heating pipes, km; Installed heating units, pieces	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, national programes, municipal co-financing
	Rundale county	Change of heat supply networks in Saulaine village with pipes with better insulation	Reduction of the heat losses in the heat supply and distribution systems;	Renovated/ reconstructed heating pipes, km;	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, CCFF projects a.o. national programes, municipal co-

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
						financing
	Rundale county	Re-establishment of the district heating system of Berstele village multiresidential and individual residential buildings	Energy efficient heat supply system	Energy efficient heat supply system	The number of the connected buildings; Production and supply costs of 1 MWh	EU funds, CCFF a.o. national programes, municipal co-financing
	Sala county	Change of the heat supply pipes in Susejas Street 5, 10, 12,14 (120m)	Reduction of the heat losses in the heat supply and distribution systems	Renovated/ reconstructed heating pipes, km	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, CCFF projects a.o. national programes, municipal co-financing
	Skriveri county	Change of the heat supply pipes with paipes havig better insulation:300m	Reduction of the heat losses in the heat supply and distribution systems	Renovated/ reconstructed heating pipes, m	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, national programes, municipal co-financing
	Vecumnieki county	Reconstruction of heating units (knots)	Reduction of the heat losses in the heat supply and distribution systems	Renovated/ reconstructed heating units	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, CCFF projects a.o. national programes, municipal co-financing
	Viesite county	Change of heat supply pipes so that all the pipes would be energy efficient.	Reduction of the heat losses in the heat supply and distribution systems	Renovated/ reconstructed heating pipes, km	Reduced heat losses, %; Reduced CO2 emissions t / year	EU funds, CCFF projects a.o. national programes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Viesite county	Connection of individual buildings having local boiler plants to the district heating (for example, the house of culture). Prior to project to elaborate a feasibility study to analyze if the project is economically viable.	Energy efficient heat supply system	Energy efficient heat supply system	The number of the newly connected buildings; Production costs of 1 MWh	EU funds, CCFF projects a.o. national programes, municipal co-financing
	Viesite county	Connection of the Culture House to the district heating system	Energy efficient heat supply system	Energy efficient heat supply system; Constructed heating pipes, km	Production and supply costs of 1 MWh	EU funds, CCFF a.o. national programes, municipal co-financing
3.5.3.2. Gas supply (in the case of biogas production)	Tervete county	(If joint-stock company „Agrofirma Tervete" constructs the biogas plant) Provision of heating for Kronauce village (the project has been mentioned also in the RES part of the LAP)	Supply of biogas for heating purposes, Use of RES for heating	Biogas pipes, km	The amount of biogas supplied, m3; Reduced amount of CO2 emissions t/ year; cost of heating kwh/m2	EU funds, CCFF a.o. national programes, private financing
3.5.4. Buildings and structures – end consumers – improvement of energy efficiency						
3.5.4.1. Energy audits and renovations (including improvement of heat insulation) of municipal properties (schools, kindergartens, libraries, houses for elederly etc.)	Aizkraukle county	Renovation and improvement of energy efficiency of municipal buildings: Municipal administration buildings in Lacplesa Street 1 and 1a	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	Municipal financing, ERDF, means from urban priority

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Akniste county	Energy efficient renovation of Akniste Children and Youth Centre and the social house.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	CCFF a.o. national programes, municipal financing is not sufficient
	Auce county	Within the next planning period – 2012-2014 it is planned to do the energy efficient rennovations of educational institutions (improvement of heat insulation of schools, kindergartens)	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	Municipality has allocated LVL 560000,00 in the investment plan
	Bauska county	Elaboration and implementation energy efficient renovations of Bauska county educational establishments within the framework of CCFF project: elaboration of the Technical Designs and implementation of the energy efficient renovations of Bauska State Gymnasium, Bauska Elementary School, the old building and extention of Bauska Secondary School No2, unit of Uzvara Secondary School “Lacitis”, and unit of Griku Elementary School “Dzirnavinas”.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds and national programmes, municipal cofinancing
	Bauska county	Elaboration and implementation of energy efficient renovations of Bauska county	Reduction of heat and electricity	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/	EU funds and national

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		educational establishments. Elaboration of the Technical Designs and implementation of the energy efficient renovations of Bauska Elementary School, Uzvara Secondary School, Griku Elementary School, Mezotne Elementary School, 2 buildings of Mezotne Boarding School, Ozolaine Elementary School, Vecsaule Elementary School and to part of it – Jaunsaule Elementary School, Code Elementary School, Music School, one building of kindergarten “Pasaulite”.	consumption; Economy of financial means for maintenance of buildings		year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	programmes, municipal cofinancing
	Bauska county	Energy efficient renovation of Islice rural municipality administration building, plastering.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds and national programmes, municipal cofinancing
	Bauska county	Energy efficient renovation of Erglu Social Centre	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds and national programmes, municipal cofinancing
	Bauska	Improvement of energy efficiency of Bauska	Reduction of heat	Renovated energy	Reduction of CO2	EU funds and

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	county	county municipal buildings.	and electricity consumption; Economy of financial means for maintenance of buildings	efficient buildings	emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	national programmes, municipal cofinancing
	Dobele county	Energy efficient renovations of schools, kindergartens, culture house, hospital, Dobele Adult Education and Information Center building etc.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds CCFF a.o. national programmes, municipal co-financing.
	Iecava county	To continue improvement of energy efficiency of municipal public buildings – Iecava Health and Social Care Center, Iecava Boarding School and boarding-school, Red School, Dzimtmisa Primary School etc.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds,CCFF a.o. national programmes, municipal budget is limited.
	Jaunjelgava county	Improvement of energy efficiency of schools, kindergartens and municipal administrations of Jaunjelgava county.	Reduction of heat and electricity consumption; Economy of financial	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of	EU funds, CCFF a.o. national programmes,

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			means for maintenance of buildings		energy consumption MWh/m2; Cost of heating for 1m2	municipal co-financing
	Jelgava county	To continue improvement of energy efficiency of municipal institutions, complex solutions – improvement of heat insulation, change of heating system, reconstruction of lighting, use of RES for production of hot water, heat and electricity. Construction of passive buildings.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings Elaboration of Technical Documentation, Feasibility study	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds, CCFF a.o. national programmes, municipal co-financing, cooperation with entrepreneurs
	Jekabpils county	Energy efficient refurbishment of Abelu rural municipality school building and the roof. Energy efficient refurbishment of Leimanu rural municipality Mezgale boarding-house. Energy efficient refurbishment of Zasa rural municipality Children Play and Development Centre;Change of roof of Zasa old clinic, improvement of heat insulation of it's walls. Energy efficient refurbishment of Kalna rural municipality Dubultu Culture House. Renovation of 3rd Secondary School including improvement of heat insulation. Renovation of 2nd Secondary School dormitory including improvement of heat insulation. Energy efficient renovation of pre-school educational institution „Kapecitis"	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU financing, CCFF a.o. national programmes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		Energy efficient renovation of Culture House. Energy efficient renovation of house in Brivibas Street 258. Energy efficient renovation of Jekabpils Primary School. Energy efficient renovation of pre-school educational institution „Berzins”.				
	Jelgava	Improvement of energy efficiency of Jelgava 4th Elementary School; Improvement of energy efficiency of Jelgava 6th Secondary School; Improvement of energy efficiency of Jelgava 1st Gymnasium; Improvement of energy efficiency of Jelgava 1st Sanatorium Boarding School; Improvement of energy efficiency of pre-school educational institution "Gaismina"; Improvement of energy efficiency of Jelgava Special Boarding School; Reconstruction of Jelgava city municipal pre-school educational institution „Spriditis” to the standards of low energy consumption; Improvement of energy efficiency of Children and Youth Centre "JUNDA" on Skolas Street 2; Improvement of energy efficiency of Children and Youth Centre "Junda" on Pasta street 32; Energy efficient renovation of Spidola Gymnasium; Energy efficient renovation of administrative building of Jelgava municipal police.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds, CCFF a.o. national programmes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Koknese county	In Koknese rural municipality: Improvement of energy efficiency of Koknese council building, I.Gaisa Koknese Secondary School, Koknese Special Boarding Primary School – Development Centre, pre school educational institution „Gundega", Family Support Day Centre. In Irsu parsih: Renovation of Perse Primary School to meet the high energy efficiency standards using environmentaly friendly construction materials. Improvement of the heat insulation of the walls of the medical service point, change of windows and doors, construction of the access ramp for the disabled, change of electricity installations – in bebru and Irsi villages.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU structural fonds, CCFF a.o. national programmes municipal co-financing
	Krustpils county	Renovation and improvement of energy efficiency municipal buildings: - Adminisitration building of Krustpils county (Riga Street 150a, Jekabpils); - Vipe Elementary School and sports hall; - Variesi kindergarten (in future – Variesi Elementary School); - Administration building of Mezare rural municipality (Culture House, adminisitration, library); - Antuzi Culture House; - Club House of Vipe rural municipality – "Valodzites" - Building in Laukezera Street 4, Zilani, Kuku rural municipality, where Culture	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU structural fonds, state investment, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		House, Social Service and library is situated; - Building in Liepu Street14A, Atasiene village, where rural municipality administration, library is situated; - Kuku rural municipality administration building; - Vipe rural municipality administration building; - Building in Kuku 36, Kuku rural municipality, where Kuku library is situated; - Building in Madonas street 21; - Building of "Kalmites' in the centre of Spungenu rural municipality.				
	Krustpils county	Construction of multifunctional centre (for culture events, sports etc.) in Zilanu village complying of standards of nearly 0 energy building.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Multifunctional centre complying to standards of nearly 0 energy building	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU structural fonds, state investment, municipal co-financing
	Krustpils county	Change of internal lighting objects in the municipal buildings to energy efficient lighting objects.	Reduction of electricity consumption; Economy of financial means	Energy efficient lighting in municipal buildings	Economy of energy consumption MWh/m2;	EU funds, state investment municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
	Ozolnieki county	Improvement of energy efficiency of Ozolnieki central library, clinic in Rigas Street 29, Social care center „Zemgale", Ozolnieki Secondary School, Tetele Primary School	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds, state programmes, municipal co-financing
	Plavinu county	Energy efficient refurbishment of Plavinu Pension -3 buidlings, Youth Centre " Ideja", kindergartens: "Jumitis", "Ziluks", "Rukitis"; Culture Centre, Art School, Music school, municipal buildings in Daugavas street 43-45 and Dzelzcela Street 11.	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds, state programmes, municipal co-financing
	Rundale county	Energy efficient renovation of 3 municipal buildings	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	EU funds, state programmes, municipal co-financing
	Skriveru county	Energy efficient renovation of Culture Centre, kindergarten "Spriditis"	Reduction of heat and electricity consumption;	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year;	EU funds, state programmes, municipal co-

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			Economy of financial means for maintenance of buildings		Economy of energy consumption MWh/m2; Cost of heating for 1m2	financing
	Tervete county	Energy efficient renovation of pre-school educational institution „Zvanins", pre-school educational institution „Spriditis", Anna Brigadere Primary School	Reduction of heat and electricity consumption; Economy of financial means for maintenance of buildings	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	CCFF, EU funds, municipal co-financing
	Tervete county	Energy efficient renovation of Social care center „Tervete" buildings to maximize heat economy.	Reduction of CO2 emissions by increasing energy efficiency in municipal buildings and reducing heat consumption;	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	Expected funding of the project – LVL 120 000 including VAT and municipal co-funding (25%)
	Vecumnieki county	To continue improvement of energy efficient refurbishment of municipal public buildings: Vecumnieki Culture House, Vecumnieki Arts and Music School , Skaistkalne Secondary School and Primary School, Misa kindergarten, Valle pre-school educational institution, Vecumnieki	Reduction of heat and electricity consumption; Economy of financial means for maintenance of	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption	EU funding CCFF a.o. national programmes, municipal budget is

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		Secondary School.	building. Reduction of CO2 emissions		MWh/m2; Cost of heating for 1m2	limited.
3.5.4.2. Energy audits and energy efficient renovations of multiresidential buildings	Aizkraukle county	Renovation of multiresidential buildings and improvement of energy efficiency	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating for 1m2	ERDF, national programmes, private funding
	Auce county	Energy efficient renovation of multiresidential buildings in all rural municipalities, for instance, 4 buildings in Lielauce.	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme, private cofinancing.
	Dobele county	Energy efficient renovation of ~ 10 multiresidential buildings	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme "Infrastructure and services", activity 3.4.4.1 „Measures for improving heat insulation of

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
						multi residential buildings)
	Iecava county	Energy efficient renovation of all multiresidential buildings in the county, updating of energy audits.	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme "Infrastructure and services", activity 3.4.4.1 „Measures for improving heat insulation of multi residential buildings. Such programme would be necessary also in the next planning period.
	Jaunjelgava county	Energy efficient renovation of multiresidential buildings in Jaunjelgava county	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme "Infrastructure and services", activity 3.4.4.1 ; Co-financing of apartment owners
	Jelgava county	Energy efficient renovation of multiresidential buildings in Jelgava county	Smaller costs for electricity and heat; Improvement of	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year;	ERDF and national programme;

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			housing quality and sustainability; Reduction of CO2 emissions		Economy of energy consumption MWh/m2; Cost of heating per 1m2	Co-financing of apartment owners
	Jekabpils county	Energy efficient renovation of multiresidential buildings: 3 buildings (18 apartments in each) in Dunava rural municipality, „Vārpas" (12 apartments) in Dignaja rural municipality; Aldaunes 7 Abelu rural municipality, Change of the roof in residential building Aldaunes Street 2 Abelu rural municipality. Multi residential building in Leimanu rural municipality; 2 multi residential buildings in Zasa rural municipality, Transfer from district heating to individual heating for one residential building in Vidsala, and 2 residential buildings in Dubulti - Kalna rural municipality; Elaboration of the technical documentation for the refurbishment projects.	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 ; Co-financing of apartment owners
	Jelgava	Renovation and improvement of energy efficiency of multiresidential buildings 2010-2020	Smaller costs for electricity and heat; Improvement of housing quality and sustainability;	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy	ERDF and national programme activity 3.4.4.1 ; Co-financing of

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			Reduction of CO2 emissions		consumption MWh/m2; Cost of heating per 1m2	apartment owners
	Koknese county	Energy efficient renovation of ~ 20 multi residential buildings in Koknese county, renovation of ~ 10 buildings, including energy audits for all the mentioned buildings.	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 ; Co-financing of apartment owners
	Krustpils county	Energy efficient renovation of 50 multi residential buildings	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme; Co-financing of apartment owners
	Ozolnieki county	Strated preparation of tehcnical documentation (including energy audit) for energy efficient renovation of multiresidential buildings: Melioracijas Street 21 Melioracijas Street 23 Melioracijas Street 6 Rigas Street 21 Kastanu Street 9	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating	ERDF and national programme activity 3.4.4.1 ; Co-financing of apartment owners

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		Parka street 1, Ozolnieki			per 1m2	
	Plavinu county	1)Energy efficient renovations for the multiresidential houses: Raina Street 6 Riga Street 30 Dzirnavu Street 3 6 houses in Vietalva rural municipality 2) Changing of windows for all the apartments owned by the municipality 3) Installation of heat meters and water meters in all the apartments owned by the municipality	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 ; Co-financing of apartment owners
	Rundale county	Energy efficient renovation of 9 multi residential buildings	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 „Measures for improving heat insulation of multi residential buildings” ; Co-financing of apartment owners
	Sala county	Measures for improving heat insulation of multi residential buildings - 10 apartment buildings in Sala village and 8 buildings in Birzu village	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2;	ERDF and national programme activity 3.4.4.1 „Measures for improving heat insulation of

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
					Cost of heating per 1m2	multi residential buildings" ; Co-financing of apartment owners
	Skriveri county	Energy efficient renovation of 2 multi residential buildings	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 „Measures for improving heat insulation of multi residential buildings" ; Co-financing of apartment owners
	Viesite county	Energy efficient renovation of 7 multiresidentail houses,including renovation of heating systems. Installation of heating units(knots) in 20 multiresidential houses. Approximate budget – 1,200,000 LVL	Smaller costs for electricity and heat; Improvement of housing quality and sustainability; Reduction of CO2 emissions	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of energy consumption MWh/m2; Cost of heating per 1m2	ERDF and national programme activity 3.4.4.1 Co-financing of apartment owners
	Vecumnieki county	Energy efficient renovation of all the apartment buildings in the territory of the county, update of energy audits	Smaller costs for electricity and heat; Improvement of housing quality and	Renovated energy efficient buildings buildings	Reduction of CO2 emissions kg /m2/ year; Economy of	ERDF and national programme activity 3.4.4.1 "

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			sustainability; Reduction of CO2 emissions		energy consumption MWh/m2; Cost of heating per 1m2	Co-financing of apartment owners. Such activity would be necessary also in the next planning period.
3.5.4.3. Activities on rational use of electricity and gas in the households	Dobele county	Information disemination activities for society (articles, brochures, information in media), popularization of „green thinking”	Promotion of rational use of energy in the households	Rationally used and saved energy, new habits for energy saving developed	Saved energy, kWh, gas – m3	To produce the materials within the framework of project publicity activites
	Krustpils county	Information disemination activities for society (articles, brochures, information in media), popularization of „green thinking”	Promotion of rational use of energy in the households	Rationally used and saved energy, new habits for energy saving developed	Saved energy, kWh, gas – m3	To produce the materials within the framework of project publicity activites
3.5.5. Street lighting						
	Aizkraukle county	Increase of the number of LED lanterns	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the	The number of lanterns (bulbs) installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The number of lanterns (bulbs) installed	EU funds, KPFI a.o. national programmes, municipal cofinancing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			network			
	Akniste county	Installation of lighting in Asare and Ancene villages, expansion and reconstruction of lighting in Akniste city.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; New lighting networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The number of lanterns (bulbs) installed	EU funds, KPFI a.o. national programmes, municipal cofinancing More favourable EU fund terms for reconstruction of street lighting and new construction projects would be necessary.
	Auce county	Installation of 20 new lanterns in Lielauce	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The number of lanterns (bulbs) installed	EU funds, national programes, municipal co-financing
	Bauska county	Reconstruction of Berzkalne village street lighting: Reconstruction of street lighting in Cesu street, elaboration of Technical Desgin and construction works (1110m)	Reduction of CO2 emissions and electricity consumption in the municipal lighting	Reconstructed lighting networks, km; The number of lighting bulbs	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh;	EU funds, CCFF and other national programes, municipal co-

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		Reconstruction of street lighting in Parupes Street, elaboration of Technical Desgin and construction works (640m) Reconstruction of street lighting in Rozu Street, elaboration of Technical Desgin and construction works (425m) Reconstruction of street lighting for the road leading to Musa river, elaboration of Technical Desgin and construction works (200m)	infrastructure; Economy of financial means in the maintenance of the network	installed;	The length of lighting network reconstructed, km; The number of lanterns (bulbs) installed	financing
	Dobele county	Change of 247 DRL250 lamps to more energy efficient lamps; construction of lighting networks in streets and parks, where the lighting is non existent. Replacement of concrete and wood posts, gradual change of Latvenergo ST posts.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km The number of lanterns (bulbs) installed	EU funds, national programes, municipal co-financing
	Dobele county	Dobele city: 1. In 2012 continuation of construction of bicycle road lighting – 3km, equipping it with Na70W bulbs; 2.Construction of lighting network in Pumpura Street, by constructing the cable line, 6 posts	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure;	Reconstructed lighting networks, km; Constructed new ligthing networks, km;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of	EU funds, CCFF a.o.national programes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		and LED70W bulbs; 3.In 2013 construction of lighting for the pedestrians path by Castle Ruins along Berze river, by constructing the cable line, posts and energy efficient bulbs; 4. By 2020 to change all the DRL250 bulbs on Latvenergo ST posts and to construct new cable lighting networks with LED bulbs; 5. By 2021 to change all the concrete and wood lighting posts; Auru rural municipality: 1. By 2015 in Auru village to change air network line on Latvenergo ST posts and to construct new lighting cable line with 20 galvanized metal posts and energy efficient LED70W bulbs; 2. By 2020 in Kirpene and Gardene to change the air lighting line on Latvenergo ST posts and to construct new lighting cable line with metal posts; Berze rural municipality: In 2013 change of DRL250 bulbs to more energy efficient bulbs; Naudite rural municipality: In 2012 to change 7 DRL250 bulbs in Apgulde village to more energy efficient bulbs; Jaunberzes rural municipality:	Economy of financial means in the maintenance of the network	The number of lighting bulbs installed;	lighting network reconstructed, km; The length of new lighting network constructed, km The number of lanterns (bulbs) installed	

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
		By 2020 to change 22 concrete lighting posts, to reconstruct the lighting cable lines and install energy efficient bulbs; Penkule rural municipality: By 2017 to change DRL250W bulbs on Latvnergo ST posts to more energy efficient; Krimunu rural municipality: 1.In 2012 in Arhitektu, Livanu, Stirnu Streets partly change 10 DRL250W bulbs to Na halide 70W bulbs. 2. By 2014 to contruct new lighting line to the rural municipality administration building with LED bulbs, cable line and new metal posts; Dobele rural municipality: By 2020 to construct street lighting in Skolas Street equipping it with energy efficient bulbs.				
	Iecava county	Completion of installation of street lighting in Cesinieku lica residential area. Installation of new street lighting lines in Gedules lica residential area. Changing of all the the lighting lines on posts to underground cable lines. Change of internal bulbs to more efficient in all the muncipal institutions.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network	EU funds, CCFF a.o.national programes, municipal co-financing. It would be advisable to include support to such activities also in

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
					constructed, km The number of lanterns (bulbs) installed	the next programming period as municipal budget is limited.
	Jelgava county	Further development of distant mangement of lighting. Keeping of the current construction and reconstruction rate of the lighting networks. Use of the new lighting and lighting management systems and development of the basis of the elaborated feasibility study.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km The number of lanterns (bulbs) installed	EU funds, CCFF a.o.national programes, municipal co-financing.
	Jelgava county	Reconstruction of lighting in all the rural municipalities	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the	Reconstructed lighting networks, km; The number of lighting bulbs installed; Technical dosucmentation	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km;	EU funds, CCFF a.o.national programes, municipal co-financing.

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			network		The number of lanterns (bulbs) installed	
	Jekabpils county	Change of 15 lanterns in the center of Dignaja rural municipality. Extension of the existing street lighting line in Abelu rural municipality for 500 m. Change of 20 existing lanterns in Leimanu rural municipality with more energy efficient. Installation of street lighting (1000m) in Vidsala, Kalna rural municipality. Introduction of remote management system in all the lighting points. Installation of LED lighting lanterns. Reconstruction of air lines, transition to installation of underground cables in cooperation with “Latvenergo Distribution Networks” during the reconstruction of Latvenergo power stations.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	EU funds, CCFF a.o.national programes, municipal co-financing.
	Koknese county	Replacement of 95 lighting bulbs in Koknese. In Vecbebri – construction of a new street lighting system with economical lighting bulbs, for example, LED. Completion of street lighting installation in Irsu village.	Reduction of CO2 emissions by change of 95 bulbs; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km;	EU funds, national programes, municipal co-financing. The total costs planned 52682,65 LVL

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
					The number of lanterns (bulbs) installed	
	Krustpils county	Construction and reconstruction of energy efficient lighting in villages and inhabited places of Krustpils county, transfer to LED bulbs.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	EU funds, national programes, municipal co-financing.
	Ozolnieki county	LED type lighting in Skolas street, Ozolnieki (number of units - 65)	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km;	EU funds, CCFF a.o. national programes, municipal co-financing.

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
					The number of lanterns (bulbs) installed	
	Plavinu county	LED type lighting in Stukmani, Riteri, Vietalva, Odziena, Plavinu town, Kriskalni, Kugi (number of units – 1365)	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	EU funds, CCFF a.o. national programes, municipal co-financing.
	Rundale county	Change of existing lighting with energy efficient lighting to reduce the energy consumption. Construction of new, energy efficient street lighting systems.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km;	EU funds, national programes, municipal co-financing.

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
					The number of lanterns (bulbs) installed	
	Sala county	In Sala village – change of 150 lanterns in Abelu, Meza and Zala street	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The number of lanterns (bulbs) installed	EU funds, CCFF a.o. national programes, municipal co-financing
	Skriveri county	Seminars on new technologies in lighting, changing practices.	Improvement of energy efficiency in street lighting	Knowledge on the new technolgies	Number of seminars, number of mastered technologies	EU funds, national programes, municipal co-financing
	Skriveri county	Change of DRL type bulbs to LED, reconstruction and extension of street lighting network by changing wood poles and envisaging construction of cable network	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the	Reconstructed lighting networks, km; Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km;	EU funds, national programes, municipal co-financing

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			network		The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	
	Skriveri county	Continuation of extension of street lighting network and introduction of energy efficient lighting (LED type) – 120 pieces	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Constructed new ligthing networks, km; The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	EU funds, national programes, municipal co-financing
	Tervete county	Change of old lighting bulbs with LED type lighting bulbs.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	The number of lighting bulbs installed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The number of lanterns (bulbs) installed	EU funds, CCFF a.o. national programes, municipal co-financing
	Viesite county	Development of lighting networks of the streets, roads and territories. Approximate budget 1,000,000LVL	Reduction of CO2 emissions and electricity	Reconstructed lighting networks, km;	Reduction of CO2 emissions, t/ year; Electricity	EU funds, national programes,

3.5.Table of activities

Theme:		Energy Efficiency Measures				
Activity	**The main partner**	**Description**	**Objectives**	**Results**	**Indicators**	**Sources of funding**
			consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Constructed new ligthing networks, km; The number of lighting bulbs installed;	consumption, kWh; The length of lighting network reconstructed, km; The length of new lighting network constructed, km; The number of lanterns (bulbs) installed	municipal co-financing
	Vecumnieki county	To finish the installation and reconstruction of street lighting in Vecumnieki county. Changing of all remaining air cable lines with underground cable lines. Gradual replacement of indoor lighting bulbs in all municipal institutions with more energy efficient lighting bulbs.	Reduction of CO2 emissions and electricity consumption in the municipal lighting infrastructure; Economy of financial means in the maintenance of the network	Reconstructed lighting networks, km; The number of lighting bulbs installed and changed;	Reduction of CO2 emissions, t/ year; Electricity consumption, kWh; The length of lighting network reconstructed, km; The number of lanterns (bulbs) installed and changed	EU funds, national programes, municipal co-financing. To find the opportunity to provide support for such activities in the next planning period, municipal budget is limited

4. Political Statement and Signatures

Zemgale Planning Region undertakes to carry out the necessary activities facilitating the implementation of the Local Action Plan, coordination of the implementation and monitoring, including:

1. Work at national level, creation of preconditions that the planned projects could be promoted and implemented;

2. Work at regional level, regional initiatives, coordination of measures;

3. Monitoring of implementation of Local Action Plan.

Director of Zemgale Planning Region Stanislavs Skesteris

Chairman of the Development Council
of Zemgale Planning Region Guntis Libeks