



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



## **Report on the Implementation of the First Action Plan Phase in the Target Regions**

**T4.2, D4.2**

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## Introduction

The aim of the BioRegions project is to support creating of “bioenergy regions” in the rural areas of Europe. According to the definition of this project a “bioenergy region” gets at least 1/3 of its energy (excluding transport) by fuels produced from regional and sustainable bioenergy sources, with main focus on solid biomass.

Action Plans for establishing new bioenergy regions in five BioRegions project target countries (Bulgaria, Czech Republic, France, Ireland and Latvia) were developed. Action Plans has been formally adopted by the relevant public authorities and since that, the implementation of the first Action Plan phase has started.



Figure 1: Five target regions (red) and two best practice regions (yellow) of BioRegions project

This report describes first specific steps that have been taken in each target country to promote the establishment of bioenergy regions and results achieved in the first Action Plan implementation phase.

# 1. First specific steps for establishment of the bioenergy region in Bulgaria

## 1.1. Action Plan adoption in Bulgaria

Sredna Gora region in Bulgaria is composed of the territories of six municipalities – Panagurishte, Strelcha, Hissarya, Brezovo, Karlovo and Ihtiman. The Action Plan for Sredna Gora region was adopted in Brezovo on 3<sup>rd</sup> August 2012.

City of Plovdiv is the second largest city in Bulgaria and the centre of South Central Region of Bulgaria. Plovdiv is not a part of the target region Sredna Gora, however, it is an economic, academic and business centre of the region and therefore some of the actions are implemented in Plovdiv.

## 1.2. Summary on the first step activities in Bulgaria

The summary on the first step activities foreseen in the Sredna Gora region Action Plan is given in the table below:

No.	Activity and actions	Responsible	Financing	Timeframe
1	<b>Development of a data base of EE and RE projects implemented up to date in the region:</b> <ul style="list-style-type: none"> <li>- Information collection,</li> <li>- DB development</li> <li>- Data analysis,</li> <li>- Preparation of info materials,</li> <li>- Presentation of shining example cases to national workshop in Sept, 28</li> </ul>	EAP	BioRegions	Apr.-Dec. 2012
2	<b>Development of a poster and other info materials (leaflet)</b> - comparison primitive/modern biomass - amount of energy, fuel, energy price for a heating season, emissions in residential buildings <ul style="list-style-type: none"> <li>- Dissemination of info materials to the National workshop in Sept. 28</li> </ul>	Municipalities of Plovdiv, Karlovo, and Panagurishte	BioRegions	Oct. 2012- Apr. 2013
3	<b>Knowledge and awareness raising – modern biofuels use campaign</b> <ul style="list-style-type: none"> <li>- Organization of a stand and National workshops September, 28 2012 and April within International fair of Plovdiv,</li> <li>- Preparation of an info materials material</li> </ul>	Municipalities of Plovdiv, Karlovo, and Panagurishte	EAP/ BioRegions	Sept.-Oct. 2012, Dec. 2012- Jan. 2013, Mar.- Apr.2013
4	<b>Adoption of the Biomass action plan (BAP)</b> <ul style="list-style-type: none"> <li>- Dissemination of draft BAP to the municipalities in the Sredna Gora Regions,</li> <li>- Press conference,</li> <li>- Presentation to the National Conference Introduce broad public with final BAP</li> </ul>	Municipalities of Plovdiv, Karlovo, and Panagurishte	BioRegions	Apr.-Dec. 2012
5	<b>Promotion of establishment of Biomass trade centre (BTC) and Solid Biofuels Testing Laboratory (SBTLab)</b>	EAP	BioRegions	Sept.-Oct. 2012, Mar.-Apr.

No.	Activity and actions	Responsible	Financing	Timeframe
	- Promotion of the services of BTC, - Promotion of the services of SBTLab, - Study on biofuels use barriers to the local market			2013

### 1.3. Overview on the implementation

#### 1.3.1. Data base of EE and biomass related projects implemented in the region

EAP collected and evaluated data of new installations and biomass related activities in the target region in order to assess the impact of the BioRegions project in Bulgaria. Information was collected from the stakeholders and partners, from the events organized by EAP and other organizations. The database consists of information about the location, the size of installations, building type, description of the overall project and photos. All installations were visited and validated.

The data base has been prepared (see Annex BG\_1).

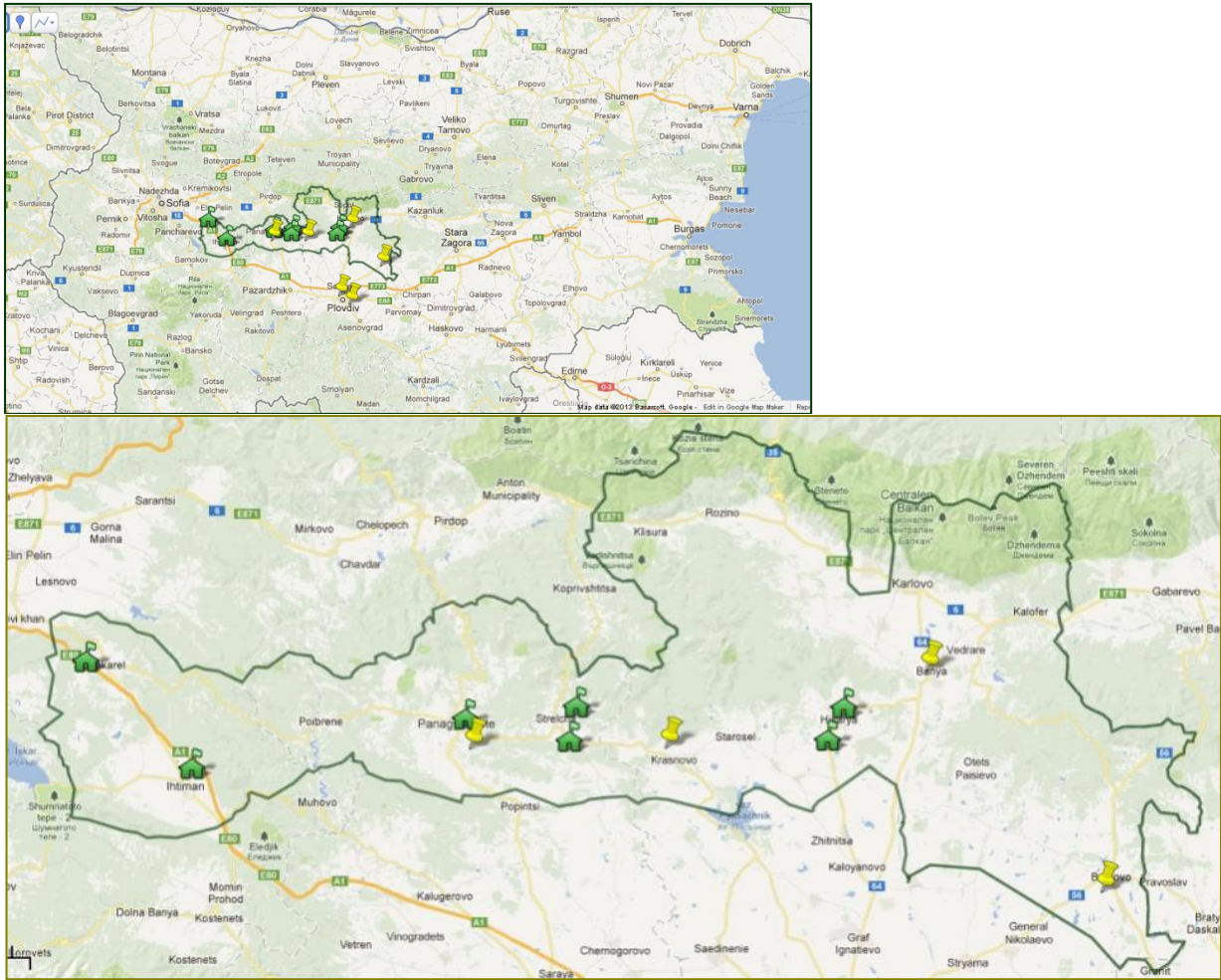
#### 1.3.2. Development of information materials

The following information materials have been developed by Energy Agency of Plovdiv:

- 1) BioRegions banner has been developed, designed and made to be used with different presentations and in the promotional events. (see Annex BG\_2)
- 2) Several information materials have been developed, designed and printed:
  - Poster “Primitive biomass vs. modern biomass (biofuels and heating systems)” that contains comparison of primitive and modern biomass in regard to the amount of energy, properties of fuels, energy price for a heating season, and emissions in residential buildings; (see Annex BG\_3)
  - Poster “Air quality in Plovdiv”; (see Annex BG\_4)
  - Poster “Air quality – primitive biomass vs. modern biomass” (see Annex BG\_5);
  - Poster “Modern biofuels in comparison with wood and coal” (see Annex BG\_6);
  - Poster “Bio Region Sredna Gora” (see Annex BG\_7).

EAP has developed a map with locations of new implemented bioenergy projects in BioRegion Sredna Gora (please see Figure 2). Map is available via Google Maps using link: <https://maps.google.com/maps/ms?msid=214755820553964705895.0004d2efb6e2e70e692c3&msa=0&ll=42.571287,24.274292&spn=0.94053,2.724609>





**Figure 2: Map indicating locations of bioenergy projects in Sredna Gora regions**

- 3) Members of the EAP's team and the key partners of BioRegions project have written more than 10 articles for the national and local newspapers, journals, etc. (see Annex BG\_7)
- 4) Three presentations (in Bulgarian language) of Biomass Utilisation Plan in Sredna Gora Region have been developed for events in Bulgaria; another two presentations in English have been prepared for International events (see Annex BG\_8).



**Figure 3: From Wastes to Energy Conference, Sofia, 14.11.2011**



**Figure 4: Biomass Conference – Sofia, 02.2012**



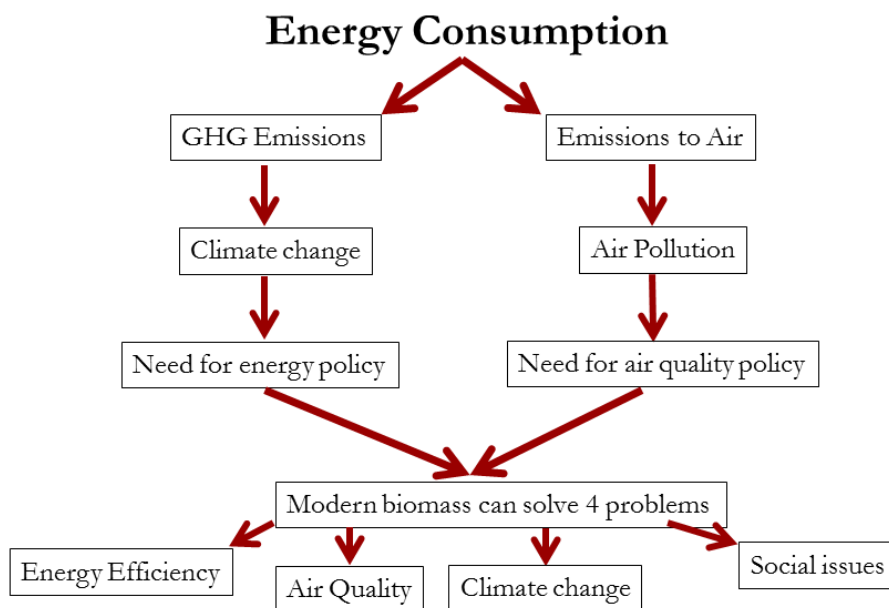
European Pellet Conference , Wels 28.02.2013 within World Energy Days, Austria – participation of Vasil Zlatev, EAP with a presentation – BioRegions project was presented as good practice.

**Figure 5: EBRD consultation meeting, Sofia 03.04.2012**

### 1.3.3. Modern biofuels use campaign

During the modern biofuels use campaign number of information and dissemination activities was implemented. Dissemination activities were focused on modern biofuels, creation of biomass infrastructure according to the Biomass Action Plan for municipalities in the Sredna Gora Region. Campaign involved regional stakeholders as well as national institutions and experts.

Significant focus of the campaign was given to air quality issues. Analysis of the PM<sub>10</sub> and PM<sub>2.5</sub> emissions by different sectors (see Annex BG\_9) were made to accelerate and boost replacement of primitive biomass in Plovdiv and other Bulgarian cities. Promotion of biofuels as solution for air quality and climate change problems has been planned and organized by EAP. The need for common policies has been communicated with the municipalities, Ministry of Environment, other national institutions as well as with the expert community.



**Figure 6: Example from the promotional material developed in modern biofuels use campaign**

During the campaign EAP has organized number of events and presentations:

- Three press conferences with a focus on the use of modern biofuels – on 26.09.2011, 29.03.2012, 25.09.2012 (see Annex BG\_10);
- National Conferences and Dissemination workshop – on 27.09.2011, 30.03.2012, 26.09.2012 (see Annex BG\_11);



Figure 7: Participants of the National Conference on 27.09.2011



Figure 8: Participants of the National Conference on 30.03.2012



Figure 9: Participants of the National Dissemination Conference on 26.09.2012



- Promotional stand at the International fair of Plovdiv in the Green Energy Pavilion on 24-29.09.2012;



**Figure 10: Promotional stand at the International fair of Plovdiv in the Green Energy Pavilion**

- Several promotional materials have been developed and disseminated;
- Participation in TV broadcasting on 27.09.2011, 30.03.2012, 26.09.2012 (NTV);
- Participation with presentation at the 10 years SOFENA National Conference on May 9, 2012 (see Annex BG\_12);
- Participation with presentation at the Regional Investment Forum – Plovdiv, 06.06.2012 “Air quality challenges of Bulgarian Municipalities” (see Annex BG\_13)
- Participation with poster in Energy Forum Varna – 17.06.2012
- Participation with presentation in Uzana Fest Event – 14.07.2012 (see Annex BG\_14)
- Participation with 2 presentations at the National Conference of municipal ecologists on 30.01.2012 in city of Dobrich (120 participants) (see Annex BG\_15 and Annex BG\_16);



**Figure 11: Presentations at the National conference of municipal ecologists**

- Presentation of BTLab to the Round table “Innovations green services for EE, green energies and biofuels” (see Annex BG\_17).
- Presentation in the National Conference in Smolyan, 22.04.2012 where broad public were introduced to the final Bioenergy Action Plan of Sredna Gora region;



Figure 12: Presentation in the National Conference in Smolyan

#### 1.3.4. Adoption of the biomass action plan

The Biomass Action Plan for Sredna Gora region was adopted in Brezovo on 03.08.2012.

After adoption, the action plan has been presented on 26.09.2012 at the National Conference (presentation of Biomass Utilisation Action Plan 2020 of the BioRegion Sredna Gora).

#### 1.3.5. Promotion of establishment of BTC and SBTLab

Solid Biofuels Quality Testing and Certification Laboratory (SBTLab) is under establishment. The idea of the SBTLab has been developed and presented on various occasions:

- SBTLab was presented within Green Energy Days at the International Fair of Plovdiv, discussed at the Round table “Green Synergy Cluster” – 28.09.2012;
- The executive director of EAP participated and presented SBTLab at the Award Ceremony of the Competitiveness Operational program on 15.12.2012. This program has provided funding for the establishment of SBTLab The Laboratory will be established in the second half of 2013.



**Figure 13: Presentation of SBTLab at the Round table “Green Synergy Cluster” within Green Energy Days at the International Fair of Plovdiv – 28.09.2012**



**Figure 14: Presentation of BioFuels Lab at Award Ceremony on Dec. 17, 2012 (the Minister of Economy, Energy and Tourism Mr. Delyan Dobrev and the Prime Minister Mr. Boyko Borisov)**

- Workshop in cooperation with the Ministry of Environment and Waters has been organized on 22.02.2013 to promote SBTLab.

### **1.3.6. Other activities**

Other activities following the action plan implementation process include:

- A pre-feasibility study on small biomass plant (0.5MW) that will supply three municipal buildings in Brezovo has been prepared based on the heat supply contracting (see Annex BG\_18). Project proposal for application for financing has been developed and submitted by EAP;
- As part of the Covenant of Mayors initiative municipality of Karlovo and municipality of Ihtiman adopted Sustainable energy action plans (SEAP) 2020 developed by EAP. Most of the measures of Biomass action plan have been integrated into those plans (see Annex BG\_19 and Annex BG\_20);
- Support to the pilot project for establishment of BTC.

- Support with feasibility study to the Municipality of Harmanly for establishment of BTC. (see Annex BG\_20)
- Support to the Municipality of Smolyan for establishment of BTC though participation in environmental expert council, studies, information provision and communication (see Annex BG\_21).

#### **1.4. Conclusions and lessons learnt in Bulgaria**

In order to develop biofuels market in the target region Sredna Gora as well as in other municipalities, the priority should be set on creation of biomass infrastructure. Otherwise the vicious circle “there are no biofuels, therefore biomass heating can not be introduced” will remain the main barrier to municipalities to take actions. Successful implementation of Biomass utilisation plans needs a pilot BTC establishment to break successfully the walls of oil corruption.

Both primitive biomass (i.e. firewood in stoves) and electricity are the ultimate alternatives for household heating. They have the main share in final energy consumption at local level. The use of primitive biomass is the main reason for air pollution in cities and towns. Reducing the pressing air pollution, the most visible environmental problem, modern biomass also contributes to the climate change issues. Offering affordable household heating, modern biomass offers strong synergy between energy efficiency, air quality, climate change and social issues. There is appealing need for common air quality and climate change policies.

Electricity has 33% share in the national energy balance compared to 17% EU average. The transition from primitive to modern biomass is the only alternative for restructuring the energy balance in Bulgaria. Electrical boilers for hot water and inefficient electrical heaters “burning” electricity cause dramatic energy poverty in Bulgaria. Biomass boilers can cover the demand for heating and hot water and replace both primitive biomass heating and inadequate use of electricity for heating and hot water.

#### **1.5. Next planned activities beyond the BioRegions project**

Among the next planned activities after the BioRegions project the following activities can be mentioned:

EAP will continue to promote modern biomass and the transition from the primitive biomass. The main focus will be on public and residential buildings.

EAP will continue to support municipalities with biomass utilisation planning, bioenergy potential and market assessment as well as to accomplish feasibility studies on innovative heating plants and installations using biomass.

EAP will continue to involve more stakeholders in implementation of biomass projects and will facilitate close cooperation among key stakeholders (municipalities, private sector and EAP) on local biomass projects.

EAP will continue to attract funding:

- for the establishment of a pilot Biomass Logistics Centres in Bulgarian municipalities,
- for biomass heating plants to apply biomass systems and long term heat supply contracting.

EAP will work closely with the Local Action Groups to help them to support small biomass projects.

The biofuels testing and certification laboratory (SBTLab) will be established in the second half of 2013. The SBTLab will perform tests according to all IS CEN/TS/ applicable standards and Technical Specifications for Solid Biofuel. It will also provide technical support for industrial processing of raw biomass. The following normative and informative parameters will be tested to discover mechanical, physical, and chemical properties of different forms of solid biofuels:

- Moisture content,
- Ash content,
- Amount of fine particles,
- Additives,
- Net calorific value,
- Mechanical durability,
- Sulphur content,
- Nitrogen content,
- Chlorine content,
- Other major and minor elements,
- Bulk density.

This laboratory will perform research and different studies in order to measure technical biomass characteristics. The studies should be applied to forest and agricultural residues, waste from the agro-industrial activities and wood transforming industry of forest products, and special species of plants dedicated to energy production.

Currently the laboratory is working at adapting to the new European Standards for the characterization of solid biofuels. The short-term aim is to accredit on these testing methods.

Currently EAP is developing a concept for expanding the laboratory activities in the field testing of biodegradable wastes and compost. Following parameter will be tested: nitrogen content, carbon content, moisture, conductivity, heavy metals content, and microbiological analysis.



## 2. First specific steps for establishment of the bioenergy region in Czech Republic

### 2.1. Action Plan adoption in Czech Republic

Czech target region located in the south-east part of the Zlin Region consists of two town districts - Brumov-Bylnice and Slavičín with two towns and eleven villages. The Action Plan for the region was adopted in Slavičín on 25<sup>th</sup> April 2012 and in Brumov-Bylnice on 26<sup>th</sup> April 2012.

### 2.2. Summary on the first step activities in Czech Republic

The summary on the first step activities foreseen in the Brumov-Bylnice and Slavicin regions Action Plan is given in the table below:

No.	Activity and actions	Responsible	Financing	Timeframe
1	<b>Adoption of the Biomass action plan (BAP)</b> - Hearing and adoption of BAP in Town Councils of Brumov-Bylnice and Slavičín, - Press release (briefing), - Introduce broad public with final BAP	Municipalities of Brumov-Bylnice and Slavičín, EAZK	-	Apr.-Sept. 2012
2	<b>Establishment of Biomass trade centre (BTC)</b> - Extend the services of municipal company, Brumov Bylnice services (BBS), - Promote new services provided by BTC, - Involvement of local biomass supplier, public and private biofuel consumers	BBS	BBS budget	Jun. 2012- Apr. 2013
3	<b>Renewable energy sources (RES) promotion</b> - Initialize of new RES installation, - Operating and promotion of new biomass boiler by municipal company BTH in Slavičín, - Installation of biomass boilers in public buildings	EAZK, BTH, municipalities	Municipal budgets	Apr.2012- Apr.2013
4	<b>Collection /evaluation of data about energy situation in target region</b> - Collecting data about production /consumption of biomass, - Collecting data about RES installed/planned in target region	EAZK, BTC	-	Apr.2012- Apr. 2013
5	<b>Awareness raising</b> - Promotion of effective forest residues utilisation, - Consultancy providing	EAZK, (BTC)	-	Apr.2012- Apr.2013

## 2.3. Overview on the implementation

### 2.3.1. Adoption of the biomass action plan

The hearing and adoption of the biomass action plan (BAP) was done by Town Councils of Brumov-Bylnice and Slavičín in April 2012 (see Annex CZ\_1). Afterwards, the goals of adopted Biomass action plan were presented on press conference in the seat of the regional government with attendance of Governor of the Zlin Region on 26<sup>th</sup> June 2012 (see Annex CZ\_2). Furthermore, the BioRegions project and BAP were promoted in regional radio (ČESKÝ ROZHLAS BRNO) (see Annex CZ\_3), on municipal internet pages and in local magazine (see Annex CZ\_4).



Figure 15: Press conference on the Action Plan adoption

### 2.3.2. Establishment of Biomass trade centre

The main aim of the Biomass trade centre (BTC) is to serve as a mediator between local biomass potential and biofuels demand generated by bio-energy projects in the target region. BTC can cover whole biomass logistic from collection of raw biomass in forests to biomass processing (drying, woodchips or pellets producing) and marketing. Establishment of BTC in the Czech target region is being made by extending services of municipal company Brumov Bylnice Services (BBS) and introducing new services for citizens.

The utility company BBS was established as an allowance organization of the Brumov-Bylnice municipality to provide facility services for the municipality and its organisation, to operate local heating plant and the district heating system in Družba residential area, to carry out municipal waste collection and to provide green areas and municipal road maintenance. However, the legal status of BBS determinate by its Found charter limited its independence in the area of making contracts with (fuel) suppliers. Since BBS had to have agreement of the Town council to make/change contracts with fuel suppliers, the BBS was not able to act as a flexible BTC. Engagement of the municipality in the BioRegions project supported adoption of the Amendment to the Found charter of the BBS which (point 3.3.) provides independence of the company to make/change contracts with fuel suppliers and to provide new services for its customers (i.e. selling wood pellets) (see Annex CZ\_5).

Originally, the BBS was responsible for municipal waste collection and running a civic amenity site for simple waste separation whereas waste biomass was not used for energy purposes. For instance, waste biomass from orchard or garden maintenance was not collected and, unfortunately, often burned under open sky on the site. Inspired by the best practices within

the project, the municipality and BBS choose active approach towards citizens and introduced new service target on waste biomass collection: citizen who has waste biomass from orchard or garden maintenance calls BBS which will provide him/her container for the waste biomass and if necessary chip the branches or bushes on the site. Afterwards, BBS move fulfilled container to the boiler house in Družba residential area (site of BTC). Described service is free of charge because the costs are covered from standard waste tax (see Annex CZ\_6).

The dissemination activities of the BTC (BBS) have been started by reconstruction of one room in its premises for promotion purposes. Moreover, the number of excursions to the BTC premises has risen up to four in last year (further grow is expected). Excursions from local schools are very important for establishing long-term relationship between local people and BTC which is necessary for its stability and sustainable development. Furthermore, interesting school visit to the biomass boiler plant enriches environmental education programmes and support positive reputation of biomass as local fuel for space heating by next generations (see Annex CH\_7).



Figure 16: School visit to the biomass heating plant

Nowadays, BTC is not an independent legal body but an integral part of BBS which does a research in Brumov-Bylnice and its vicinity targeting on identification biomass boilers (old and new ones) in households, their annual fuel consumption and potential interest to become a client of BTC. BBS is negotiating with wood pellets suppliers as well.

Another activity of BBS is focused on increasing local energy self-sufficiency by installing new CHP units. Although first new CHP unit utilise imported natural gas, experiences gained by running this unit are significant for planning a CHP utilising local biomass (see further).

### **2.3.3. Renewable energy sources promotion**

The Energy agency of the Zlin region (EAZK) has closely cooperated with municipalities and their utility companies in the target region which resulted, for example, in installation of a new large biomass boiler (1 MW) in a district heating system (DHS) of Slavičín during the BioRegions project (more detail in the Czech case study: “Reconstruction of district heating system in Slavicin”) (see Annex CZ\_8).

Collaboration with Slavičín municipality (owner of the DHS operator) led to the preparation of 7 new projects based on building refurbishment and energy efficiency increase. The agency has also closely cooperated with municipalities on another bioenergy projects in the target region.

For instance, the project focused on refurbishment of the municipal office in the village of Petřůvka is complemented with replacement of old coal boilers (2x58 kW) by a new wood pellet boiler (29 kW) with automatic fuel stoking.

Similar project is "Reconstruction of the House for children and youth in Brumov-Bylnice" (building refurbishment with replacing old coal boiler by wood pellet boiler). Realisation of above mentioned projects is planned in 2013 (see Annex CZ\_8).

Closer partnership between most of the municipalities in the target region and EAZK started after initial workshop of the BioRegions project. Collection and evaluation of local energy data provided information for selecting public buildings suitable for refurbishment into higher energy standard with the support from The Operational Programme Environment (OPE) (see Annex CZ\_9).

#### **2.3.4. Collection and evaluation of energy data**

Nowadays, EAZK collects and evaluates energy data of the target region from different sources (data from DHS operators, official statistical data). This activity reassumes on questionnaire researches implemented in the target region during the BioRegions project. However, current situation in the field of space heating in the target region has been influenced by national Green Savings Programme (further Programme; 2010-2012).

This Programme supported refurbishment of family and apartment houses (energy efficiency increase) and installation of small renewable energy sources (biomass boilers, heat pumps, solar thermal systems) for space heating. At the project workshops, representatives of municipalities repeatedly expressed their opinion highlighting necessity of replacement of old boilers and stoves used for household space heating. Therefore, EAZK was providing, with assistance of municipalities, energy consultation services for citizens aiming to draw the support from the Programme for energy investments in households in the target region. Special effort was paid to promotion biomass boilers as required in BAP.

First results of the Programme, available in June 2012 (SEF CR - administration body of the Programme), show that 6% of family houses and 8% of apartment buildings were refurbished within the Programme in the target region (average of the whole Zlin region: 5% of family houses and 4% of apartment buildings). Furthermore, in total 54 biomass boilers with average output of 28.8 kW (in total 1.533 MW) were installed within the Programme in the target region.

#### **2.3.5. Awareness raising**

Promotional activities and training for the professional and lay public in the field of quality and sustainability of biofuels will be carried out by the EAZK and, afterwards, by the BTC in the target region.

Implementation of the BioRegions project has evoked a change of the approach to the bio-energy utilisation in the target region and its vicinity. Local stakeholders (municipalities and private companies) started to think about biomass as a real available cheap energy source under local conditions and new relationships based on mutual confidence between local stakeholders and EAZK were established within the project. However, continuing awareness raising activities are necessary to ensure stability of arranged contacts and support trend of energy efficiency and bio-energy utilisation increasing. Currently EAZK provides consultancy focused on energy efficiency increase and RES installation for municipalities, private companies and citizens. Moreover, EAZK is searching for information and experiences with optional bioenergy sources like “energy compost” and waste biomass from landscape management (meadows in reserved areas).

### 2.3.6. Other activities



Figure 17: Dissemination workshop in Hostětín

The first dissemination workshop took place in Hostětín, the Czech Republic, on 19<sup>th</sup> February 2013. Participants of this workshop were introduced to the BioRegions project and Biomass action plan. The main part of the agenda was targeted on sustainable local energy planning based on experiences gained during the BioRegions project (see Annex CZ\_10).

The second national dissemination workshop takes place in Zlín, Czech Republic, as a part of traditional regional civil construction fair on 21<sup>st</sup>-22<sup>nd</sup> March 2013. The workshop is designed for representatives of municipalities, energy experts, facility companies and citizens from the whole Czech Republic. Agenda of this workshop consists of presentations from new energy legislation and low energy designing to best practices including practical experiences from target region. This workshop will be complemented with personal energy consultations for citizens (see Annex CZ\_11).

## 2.4. Conclusions and lessons learnt in Czech Republic

The hearing and adoption of the Biomass action plan including its public promotion was done in spring and summer of 2012. Afterwards, first steps to establish Biomass trade centre (upgrade of current municipal utility company) has been implemented in Brumov-Bylnice. The proposed increase of biomass share on target region energy needs is going to be covered by increasing energy efficiency (refurbishment of public and private buildings) and installation of new renewable energy sources.

One large size biomass boiler (capacity 1 MW) was launched during the BioRegions project and installation of two other smaller biomass boilers in public buildings is proposed in 2013.

Growing number of small biomass boilers for heating private houses supported by national Green Savings Programme has been determined by energy data collection and evaluation carried out by EAZK. Experience sharing and dissemination activities are provided mainly by EAZK until the BTC will achieve its full planned functionality.

Recently, one of the most important woodchips consumer in the Czech Republic, located out of the target region, has dramatically reduced its demand and, as a result, the saw mill in the target region has unexpected biofuel excess. However, the surplus amounts of biofuel due to contacts built in BioRegions project was transferred to local district heating system operators.

Described situation is demonstrating benefits to local biomass market introduced by adoption of BAP and highlighting importance of mutual communication/relationships between key stakeholders in the target region.

Another experience confirmed during the first phase of BAP implementation links to the project preparation as described i.e. in the Czech case study: “Reconstruction of the House for children and youth in Brumov-Bylnice”. Selected approach from energy efficiency increase to installation of new RES applications evokes positive synergy effect (new lower energy consumption requires lower installed output) which cuts down investments costs.

## **2.5. Next planned activities beyond the BioRegions project**

Among the next planned activities after the BioRegions project the following activities can be mentioned:

- Continuous upgrading of the existing capacities of BBS into new Biomass trade centre;
- Close cooperation among key stakeholders (municipalities, private sector and EAZK) on local projects aiming to increase energy efficiency and use of RES. For example, a new CHP unit was launched in Staré Město (within the Zlin region but out of the project target region) by a private saw mill, which is in touch with EAZK. Although, there is a lack of experience with running the pyrolysis technology, the new unit using woodchips and waste wood seems to be suitable for the target region due to its small scale ( $70 \text{ kW}_{\text{el}}/100 \text{ kW}_{\text{th}}$ ) and lower cost.
- One of the additionally required bioenergy sources could be “energy compost” that is a product of modified compost technology. Nowadays, the “energy compost” is produced at municipal waste dump in the City of Zlin where waste biomass from green area maintaining is processed in EWA fermenting units with container configuration. The EWA unit can produce standard compost for gardening and recultivation purposes or “energy compost” with fuel quality (lower moisture content) suitable for fluidized-bed technology boilers in heat plant supplying heat for district heating system in Zlin.

However, this product is a low-quality biofuel suitable only for large size boilers and existing compost plants in the target region are not equipped with EWA technology.

- Another potential new bioenergy source is waste biomass from landscape management (hay, bushes) processed into pellets. Unfortunately, pellets production from described waste biomass is connected with several complications (fluctuating moisture content, complicate chemical composition).
- EAZK joined a Central Europe project DanubEnergy ([www.danubenergy.eu](http://www.danubenergy.eu)) focused on testing and promotion of new technology combining biogas and pellet production.

### 3. First specific steps for establishment of the bioenergy region in France

#### 3.1. Action Plan adoption in France

French target region Trièves is located in south of Grenoble and composed of 28 communes. The Action Plan for Trièves region was adopted on 3<sup>rd</sup> September 2012 by the CDC Trièves council after a presentation and discussion. The BAP was adopted solid voted by the council.



Figure 18: Information about the BioRegions project in French newspaper

#### 3.2. Summary on the first step activities in France

The summary on the first step activities foreseen in Trièves region Action Plan is given in the table below:

No.	Activity and actions	Responsible	Financing	Timeframe
<b>Implementation of cable crane logging</b>				
1	<ul style="list-style-type: none"> <li>- Identifying areas,</li> <li>- Cooperation between ONF (national forest office) and Communes,</li> <li>- Harvesting</li> </ul>	ONF – CDC Trièves	Isère dept. Region (PSADER)	Sept. 2012- Apr.2013
<b>Identifying and mobilizing biomass from disengaged areas of communal forests</b>				
2	<ul style="list-style-type: none"> <li>- Identifying and marking areas in fieldwork,</li> <li>- Harvesting</li> </ul>	ONF – CDC Trièves	LEADER and PSADER	Jan. 2013- Apr. 2013



No.	Activity and actions	Responsible	Financing	Timeframe
3	<b>Intensifying bioenergy use in municipalities</b> by increasing the existent DHS and upgrading or implementing new equipment - Enlarging existing DHS and increasing woodchips boiler supply and its power	CDC Trièves Concerned municipalities	CIMA POIA Psader, Isère dept.	Mar.2013- Apr.2013
4	<b>Communication and awareness raising for private sector</b> in order to stimulate them to increase the efficiency of their heating systems - Information activities: forums, questionnaire, mailing	CDC Trièves	ADEME Isère dept. CDRA	Dec.2012- Apr. 2013
5	<b>Feasibility study about organic waste digestion project</b>	CDC Trièves	Europe (?) CIMA Poia Leader	Apr.2013
6	<b>Changing forest management</b> in order to optimize the using of harvesting by-products for bioenergy	CDC Trièves Isère department	PSADER Cima Poia	Sept.2012- Apr.2013

### 3.3. Overview on the implementation

#### 3.3.1. Implementation of cable crane logging

As Trièves' forest is mostly situated in steep slopes, the cable crane logging harvesting technology should be applied because it permits on the one hand more accessibility to the forest and decreases on the other hand the overexploitation of the forest and its biodiversity in the few existing accessible areas. Implementation of the cable crane logging pilot action started in September 2012 in the public forest of Chichilianne.

Trièves is supposed to become a "cable crane logging pilot region" for a national forest office project, financed by territorial (CG38), regional (COFOR) and national (ONF) funds (see Annex FR\_1).

The logging will start in 2014 and it permits to "optimize" the management of cable crane companies in a few regions nearby. One of the biggest challenges of this project is the valorisation of bioenergy from harvested wood timber, as this kind of forest management is not yet well implemented in France (see Annex FR\_2 and FR\_3).

#### 3.3.2. Identifying and mobilizing biomass from disengaged areas

Action of identification and mobilization of biomass from disengaged areas is proceeding and the public tender for implementation of this action has been launched. The financial plan for to start this activity was adopted by the CDC Trièves council on 28<sup>th</sup> January 2013 (see Annex FR\_4).

The first step (the study) will start in May 2013. The activity is entirely financed by the Leader and Psader (regional funds) programs (see Annex FR\_5).

### **3.3.3. Intensifying bioenergy use in municipalities**

The project of the intensification of the bioenergy use in municipalities is on the agenda and will be implemented as soon as the financial situation of the municipality allows for it. Focus of the program will be on renovation of existing and construction of new school buildings. This will gradually increase the use of bioenergy and heating load of already existing district heating systems.

### **3.3.4. Communication and awareness raising for private sector**

Communication and awareness raising activities for the private sector are done in the close cooperation with the district council (Isère department). Several meetings already took place, where residents, policy makers, representatives from industrial, energy and construction sectors were invited. The main outcome of the organised meetings was a new project idea to establish an energy-information-point in Trièves. The energy information point will serve to provide information and organise communication in order to foster energy efficiency in residential buildings and public buildings.

As part of the implemented activities, a workshop was organised by CDC Trièves on 15<sup>th</sup> April 2013. The workshop was dedicated to the future Forest Charta and also included the presentation of the BioRegions project best practice region Achantal (see Annexe FR\_6).

### **3.3.5. Feasibility study about organic waste digestion project**

Pre-feasibility study for the organic waste digestion project started in October 2012. During the study also good practice visits to the nearby biogas plants were organized.

The whey of the dairy company which causes pollution and stocking problems and what is at the origin of the reflexions about biogas generation will be finally delivered to farmers AD Plant project, which will be built up in one to two years. Synergies created between the industrial wastes of the dairy company and existing biogas plant will allow increasing the biogas generation amounts on the farmer's site.

Further, several houses in the neighbourhood will be heated by a small DHS and the greenhouse of a farmer nearby will be supplied from the heat generated in the biogas CHP unit.

The project will be financed by investment return from electricity sales (0.20 €/kWh for a 40 kW cogeneration plant), and partly from the district, national and regional subsidies and private investment.

### **3.3.6. Changing forest management**

Introducing changes to existing forest management activities is partly related to the implementation of the Forest Charta and further development of cable crane logging pilot project in the region. Those two measures will introduce positive changes in the present forest

management practices, which is basically focused on the valorisation of timber wood and wood for industrial purposes (paper production).

A new kind of forest management (“en régie” or « vente de bois façonné ») will valorize the use of bioenergy. The action is already partly implemented by the department council (CG38) in strong cooperation with the national forest office (ONF) and the communes via the CDC Trièves.

### **3.3.7. Other activities**

Trièves will be involved in a national landscape saving program and will join the regional project “Territoires à Energie Positive” (Positive Energy Territory Project).

This project will foster the use of renewable energy sources (and here BioRegions’ bioenergy use will find continuity) and the optimization of energy efficiency on the territory in a horizon 2050.

## **3.4. Conclusions and lessons learnt in France**

The action, which has the most concrete and positive impacts for the Trièves’ habitant is clearly action 3.3.4: Communication and awareness rising for the private sector in order to stimulate energy efficiency and upgrade their heating systems or stoves.

The most advanced action is action on identification and mobilization of biomass from disengaged areas that will start soon. Starting the action requires effort in administrative work and communication; however, good preparation is very important to be able to secure bioenergy supply for three public biomass boilers.

The fact that Trièves will become a target region for a cable crane-logging project is due to the BioRegions action plan. This action will also provide security in local bioenergy supply for the existing boilers.

The AD plant project action became highly important but this is also due to cooperation between stakeholders from different sectors: farmers, industry, policy makers, engineers, and the CDC Trièves. The other important motivation came from the economical and environmental problem caused by the whey.

## **3.5. Next planned activities beyond the BioRegions project**

Thanks to the new Forest Charta that will start in Trièves in January 2014, all BioRegions Project actions concerning the wood branch (actions 3.3.1 to 3.3.6) will find continuity.

The AD-Plant-Project will naturally continue as it is a public private partnership project between the farmers, the industry and CDC Trièves (mainly concerning the animation) (see Annex FR\_7).

The five main lines of the forest Charta are:

- 1) Valorising the wood potential for bioenergy and timber wood => mobilizing wood; management; accession and forest roads (workshop foreseen on 2<sup>nd</sup> April, 2013)
- 2) Valorising the local sources and economic network (workshop on 8<sup>th</sup> April, 2013)
- 3) The forest as a biodiversity reserve => awareness rising for the inhabitants and tourists (workshop on 9<sup>th</sup> April, 2013)
- 4) Job creation in wood sector, promoting energy efficiency and the use of bioenergy locally (workshop on 15<sup>th</sup> April, 2013 with participation of BAT)
- 5) Forest and tourism (workshop in May, 2013)

## 4. First specific steps for establishment of the bioenergy region in Ireland

### 4.1. Action Plan adoption in Ireland

Irish target region County Westmeath is situated in the centre or midlands of Ireland with two towns – Mullingar (the counties administrative centre) and Athlone. The Action Plan for Westmeath was presented to the Board of Westmeath Community Development on 20<sup>th</sup> June 2012. It was officially adopted by the County Council and several stakeholders on 12<sup>th</sup> July 2012.

### 4.2. Summary on the first step activities in Ireland

The summary on the first step activities foreseen in County Westmeath Action Plan is given in the table below:

No.	Activity and actions	Responsible	Financing	Timeframe
1	<b>Promotion, guidance, advise and supportive actions to forestry sector</b> - Guidance and advise, - Developing and carry out two no surveys, - Forestry Research Trials, - Field Days, Site Visits, - Dissemination	TEAGASC Local agricultural advisory office	-	Apr.2012- Apr.2013
2	<b>Coordination of bioregion project, promotional activities to the bioenergy sector, financing specific projects, dissemination</b> - Co-ordination, - Developing promotional material, literature, web resources, - Workshops and training, - Financial support	Westmeath Community Development	-	Sept.2012- Apr.2013
3	<b>Developing supportive measures in policy and planning guidance, and promoting Energy Efficiency and Bioenergy within council stock</b> - Review planning policy and guidance, - Prepare RES paper, - Prepare in house EE Action Plan, - Develop EE programme to wider community, - Undertake Feasibility Study , - Pilot Biomass Boilers	Westmeath County Council	-	Apr.2012- Apr.2013
4	<b>Promotion of Bioenergy and Energy Efficiency, Initiation AD Study</b> - Promotion of Bioenergy, - Initiate a feasibility study into small scale on farm biogas	Irish Farmers Association	-	Aug.2012- Apr.2013
5	<b>Promotion of Bioenergy and Biomass Trading Centres</b> - Promotion and Dissemination, - Host BTC Workshop in Midlands, - Participate in BTC Feasibility Study in Midlands	Irish Bioenergy Association	-	Aug.2012- Apr.2013

No.	Activity and actions	Responsible	Financing	Timeframe
<b>Development of Forestry Growers Group</b>				
6	<ul style="list-style-type: none"> <li>- Establish formal structure,</li> <li>- Engage specialist consultant,</li> <li>- Undertake Inventory of Stock,</li> <li>- Commission Study on Harvest options and Route to Market,</li> <li>- Explore clustering options</li> </ul>	Westmeath Forestry Growers Group	-	Aug.2012- Apr.2013
<b>Promotion, support and dissemination</b>				
7	<ul style="list-style-type: none"> <li>- Promotion,</li> <li>- Dissemination of info amongst network</li> </ul>	Mullingar Chamber of Commerce	-	Aug.2012- Apr.2013
<b>Promotion of Forestry and SRC to Energy Fuel for co-firing</b>				
8	<ul style="list-style-type: none"> <li>- Promotion of Biomass for Co-firing,</li> <li>- Promotion of Forestry Harvesting and Forestry to Biomass,</li> <li>- Offering Contracts for SRC Plantation,</li> <li>- Promotion of Energy Efficiency in the community</li> </ul>	Bord Na Mona	-	Aug.2012- Apr.2013
<b>Development of AD Plant</b>				
9	<ul style="list-style-type: none"> <li>- Grid Connection,</li> <li>- Securing Finance,</li> <li>- Tendering,</li> <li>- Commencing Works</li> </ul>	Thomas Flynn	-	Aug.2012- Apr.2013
<b>Developing CHP power plant and network of SRC plantations</b>				
10	<ul style="list-style-type: none"> <li>- Planning Application,</li> <li>- Securing Finance,</li> <li>- SRC Plantation Contracts</li> </ul>	Biotricity	-	Aug.2012- Apr.2013
<b>Promotion, support and development of community scale biomass heating system</b>				
11	<ul style="list-style-type: none"> <li>- Promotion,</li> <li>- Liaison with community groups,</li> <li>- Develop project proposal,</li> <li>- Grant aid and finance application</li> </ul>	Next Gen Heat	-	Aug.2012- Apr.2013

### 4.3. Overview on the implementation

#### 4.3.1. Promotion, guidance, advise and supportive actions to forestry sector

Local agricultural advisory office of (TEAGASC), who are the agriculture and food development authority in Ireland, have been active in on-going provision of advice and guidance to farmers in the private forestry sector, many of whom have forestry assets that are reaching first thinning's. They have carried out forestry research trials and a number of site visit and field days. 32 people attended local forestry tree planting clinic in Westmeath in January and February 2013 as part of 60 clinics held nationwide. Forestry Thinning and Firewood research questionnaires have been drafted and TEAGASC are planning an extensive arrange of promotion and guidance events planned for the year (see Annexe IE\_1).

### 4.3.2. Promotional activities to the bioenergy sector within BioRegions project

Westmeath Community Development (WCD), who are a not for profit rural development company, responsible for managing a number of development schemes including LEADER, have continued to play a co-ordination role within the BioRegions project. They hosted a national workshop on promoting Bioenergy Regions on Thursday 7<sup>th</sup> March 2013 at conference facilities in the Bloomfield House Hotel, Mullingar, Co Westmeath, with 38 delegates excluding speakers and 10 expressions of interest forms received (see Annexes IE\_2, IE\_3 and IE\_4).



Figure 18: Delegates at the final Bioregions workshop promoting Bioregions concept to other regions in Ireland

WCD have as part of a Community Sustainable Energy Initiative working with four small rural communities have organised four stakeholder meetings and 4 community workshops and a public seminar on sustainable energy seeking to promote and activate community energy efficiency and renewable energy projects in the county. Workshops and seminars included promotion of bioenergy sector and solutions at local level including anaerobic digestion (AD), Biomass Community Heating and biomass heating (see Annex IE\_5).



Figure 19: County Westmeath and the four pilot communities engaging a Community Sustainable Energy Initiative

Schedules of Stakeholder meetings and Community Workshops as part of the Community Sustainable Energy Initiative:

Stakeholder Meetings				
CSEI Area	Loughegar	Emper	Rosemount	Rahugh
Date	29/11/2012	06/12/2012	13/12/2012	10/01/2013 (TBC)
Time	7pm to 9 pm	7pm to 9 pm	7pm to 9 pm	7pm to 9 pm
Venue	Loughegar National School	Emper National School	Rosemount Community Hall	Rahugh Community Hall (TBC)

Community Workshop and Seminars				
CSEI Area	Loughegar	Emper	Rosemount	Rahugh
Date	07/02/2013	14/02/2013	21/02/2013	28/02/2013
Time	7pm to 9 pm	7pm to 9 pm	7pm to 9 pm	7pm to 9 pm
Venue	Loughegar National School	Emper National School	Rosemount Community Hall	Rahugh Community Hall

WCD have conducted a study visit to the Fahringer dairy farm in Austria and drafted a Case Study of Small Scale Biogas Digester including schematics for circulation to Irish famers via Irish Farmers Association (IFA) and are hosting a seminar on small scale on farm AD in their County on 29<sup>th</sup> April 2013. WCD published a call for feasibility study funding to explore on farm biogas solutions (see Annexes IE\_6, IE\_7).

#### **4.3.3. Supportive measures to Energy Efficiency and Bioenergy within council stock**

Westmeath Count Council (WCC) who are the local authority/municipality have updated the Bioenergy section in the revised draft of the County Development Plan to be more supportive of developments and projects.

In relation to promotion of energy efficiency awareness campaigns the Council have held two information seminars to Tidy Town Groupings included in Energy Awareness module (April, 2013), organised a Poster Competition for National & Secondary Schools on Energy Consumption theme (February, 2013), held a Public & Staff Energy Awareness Day hosted at Co Buildings (December, 2012) and held Energy Awareness Workshops for 5 National Schools (March, 2013).

The Council have prepared and adopted their in house EEAP (Energy Efficiency Action Plan) to identify the measures necessary to achieve energy savings of 30% with the organisations activities and facilities and are planning to review progress in preparation for new/updated EEAP later this year.

The Council are continuing a programme of energy efficiency retrofit works to social housing stock to achieve a BER (building energy rating) of C1 minimum (corresponding to the energy



consumption less than 150 kWh/m<sup>2</sup>/year). In 2012 - 14 deep retrofits were complete and in 2013 six deep retrofits complete are planned and 15 insulation only upgrades planned.

As part of this retrofit programme, Westmeath County Council has installed eight biomass



stoves/boilers into social houses. Feedback from the tenants to date has been positive in terms of fuel cost, operation and heating. Tenants have also been positive about the ease of fuel budgeting and purchase of smaller units as compared to minimum oil deliveries. The council have also been positive with little need for technical support to date. The supply and install cost to the council was €3620 ex VAT, which included technical support to tenant. Operation costs are averaging 7 to 10kg bags per week, at €21, which is well within the social fuel allowance of €29 per week. Over a 40 week heating season this would equate at €21 per week to €840 per year.

Figure 20: Typical stove/boiler inset into existing fire place

#### **4.3.4. Promotion of Bioenergy and Energy Efficiency with Irish Farmers Association**

The local office of the Irish Farmers Association (IFA), who are a national association for farming in Ireland, is providing on going advice to farmers in the promotion of Bioenergy. Due to limited funding, IFA have been unable to support a planned feasibility study into small scale AD but have liaised with WCD to initiate such as study. WCD have advertised a call for applications for technical assistance for feasibility study into small scale on farm biogas and are hosting a seminar to promote same.

#### **4.3.5. Promotion of Bioenergy and Biomass Trading Centres**

The Irish Bioenergy Association (IrBEA), who are a national association of bioenergy producers, suppliers and companies, have continued to promote the Bioenergy sector and supported dissemination of Bioregions information and WCD events and case studies. IrBEA have hosted a number of workshops on wood fuels and promotion of BTC acting as partners with the IEE project Biomass Trade Centres II. Wood Fuel Workshop and Demonstration, in neighbouring county Laois: A one day workshop and demonstration event was held on the 11<sup>th</sup> of July 2012 in the HeritageHotel Killinard followed by a site visit to Worrell Woodchip. 36 people attended the event (see Annex IE\_8).

#### **4.3.6. Development of Forestry Growers Group**

The forestry growers group in Westmeath, who are a voluntary interest group of farmer/foresters in the county, are expanding and continue to meet to discuss and plan the management of their stock. In particular a number of sub- project are developing:

##### 1. Mini Forwarder project

Seven private forestry growers in County Westmeath at first thinning stage (planted in the late 1980, early 1990's), realizing the potential of the biomass market have decided to work together in a joint community initiative trading as Falcon Cluster Ltd. The group is proposing to purchase a mini forwarder from a local machinery manufacturer who has started manufacturing units for this niche market.

To make the extraction of small scale thinning timber commercially viable it must involve a mini extraction unit which is presently not available in the region. The proposed mini-forwarder is ideally suited for hardwood biomass extraction and for mopping up after industrial thinning of softwoods when a vast quantity of biomass product is often left on the forest floor.

Purchase of mini-forwarder which will also facilitate the group to provide the services of extracting forestry thinning to other private foresters that will be coming to first thinning stage over the next few years. This type of service is presently not available in the area. This option of extracting will allow the farm forester etc. new control and access to previously inaccessible and commercially non-viable areas.

The cluster group itself has in excess of 250 ha immediately ready for thinning.

##### 2. Thinning progress

TEAGASC continues to run information evenings and arrange farm forestry walks with good attendances. A second cluster group is at inception stage. Two of the forestry growers in the first cluster group have completed their first thinning. Both were softwood plantations and results from the exercise are being evaluated by members of the cluster group.

##### 3. Feasibility Study on Anaerobic Digestion

Plans are underway to undertake feasibility study to investigate the possibility of utilising the Low Temperature Anaerobic Digestion process to harness energy from cattle slurry and to determine if digestion is a technically and financially viable option for converting cattle slurry to energy in a Westmeath farm context. The study will further investigate uses for the gasses identified on site with specific emphasis on heat requirements. Identifying the amount of heat available and the most productive uses from a practical and economical viewpoint will be the objective of this study.

Undertaking this study should result in the creation of a blueprint for the development of a demonstration Low Temperature Anaerobic Digestion unit. With over 6 million cattle and 700,000 ha of forest in the country the future development of a demonstration unit for Westmeath would be a blueprint for replication throughout the country and should prove to be a valuable resource to be used for educational purposes by TEAGASC and the Universities.

#### **4.3.7. Promotion, support and dissemination with Mullingar Chamber of Commerce**

Mullingar Chamber of Commerce, a town business association/network, has continued to disseminate BioRegions information and events through its email data base.

#### **4.3.8. Promotion of Forestry and SRC to Energy Fuel for co-firing**

Bord Na Mona, (BNM), a semi-state company in Ireland, with responsibility for the mechanised harvesting of peat, primarily in the Midlands, continues to promote Biomass for Co-firing and is extending their biomass storage area. Co-firing of biomass with peat is increasing at Edenderry. 197,200 tonnes of biomass was used in 2012. Target for 2015 is 300,000 tonnes.

Bord na Móna has continued with its campaign – “Farming Energy From the Land” - to try and encourage farmers and other landowners within 100 km of the Edenderry station to grow willow for co-firing at the station. The programme is linked in with the Department of Agriculture’s Bioenergy Scheme, which provides a 50% establishment grant for energy crops. Bord na Móna is willing to provide the other 50% of the establishment costs, and also offers 20-year biomass off-take contracts. However, the programme has not been a resounding success. After three years of the campaign, the total area of willow under contract is 300 ha.

Bord na Móna purchased 20 kt of pulpwood logs from the private forest sector in 2012. These logs were then stored on BnM’s cutaway areas, allowed to dry, chipped and hauled to the station. The target for 2013 is 25 – 30 kt of pulpwood logs.

As an energy product supplier, BnM is an obligated party under the Better Energy programme and has been set a target for energy savings of 22 GWh over the period 2011-2013. Significant energy savings have been achieved by working with a number of companies in the Better Energy Workplaces programme, and it is expected that the 22 GWh target will have been exceeded when final audited and verified figures are available (see Annex IE\_10).

#### **4.3.9. Development of AD Plant and BTC**

Thomas Flynn and Sons, who are a local business providing farm machinery, goods, animal feeds and heating oil, have been developing new business plans in the AD and Biomass supply fields.

In relation to their the planned 1 MW AD plant, trading under Bio Agrigas Ltd, planning permit from the local authority is in place, grid connection permit has recently been received and waste licence application was submitted in June 2012 and permit for same is awaited. They are

now progressing with applications for financing and progressing design and construction details with company shortlisted to build the facility.

Thomas Flynn and Sons plan to use the excess heat from the AD plant to dry biomass as part of a biomass trading and logistics business they are developing. They are currently securing timber supplies from Caoilte (Semi state forestry company) and have converted some of the premises for Biomass Storage. They are also trailing a plantation of willow as a supply chain for future business.

#### **4.3.10. Developing CHP power plant and network of SRC plantations**

Biotricity, who are a bioenergy power generation start up business, are closing off on finances for their 15MWe Combined Heat and Power Biomass Plant in Rhode in the neighbouring county of Offally, which is now forecast to begin mid summer 2013. Preparatory works are underway on the site. The plant has been re-designed for straw based fuels, rather than SRC as originally planned. Biotricity have continued to develop SRC contracts with 200 farmer contractors signed up. They have also diversified their fuel mix to straw and have 700 farmers signed up for straw energy supplies.

#### **4.3.11. Promotion of community scale biomass heating system**

Next Gen Heat, who are a local biomass boiler supply and installer start up, continues to promote and supply biomass heating systems into the region. They are seeing a steady increase in demand for biomass boilers and stoves, with savings compared to oil being a key driver.

They have secured a contract for the delivery of biomass stove-boilers in eight local authority houses and have already supplied four of same. Next Gen have co-operated with WCD in developing proposals and budget costing for a community scale heating system in a small dispersed rural community.

Next Gen have worked with a client to apply for financial support for an 80 kW straw based boiler.

### **4.4. Conclusions and lessons learnt in Ireland**

Despite economic recession and significant public cutbacks there has been some development in the sector. There is investor interest in power generation and entrepreneurship continues.

Most importantly oil price differences to biomass still makes biomass an attractive option to those who can afford or access finances, and this is perhaps the most significant driver for development.

Access to lending finance is challenging for commercial projects. In the domestic sector the Credit Union is playing a key role in providing loans for boiler changeover to biomass.

The project has brought together the first multi stakeholder approach and strategy to promoting the sector on a region scale. Base line calculations for the energy profile of the county highlighted the lack of robust local data for same, and also indicated significant energy inefficiency compared to other best practice regions, making bioenergy penetration targets more challenging.

The bioenergy resource study highlighted the significant gap between available bioenergy resources and the energy consumption making the 33% bioenergy target a much longer term strategy and calling into question the viability of national bioenergy targets. It also highlighted a different strategy needed to be developed in the county compared to the other best practice and target regions which were forestry dominated as opposed to Westmeath which was cattle and pasture dominated. As such promotion of biogas and AD technology at various levels was seen as essential.

Access to finance is a key challenge, which is inhibiting growth in the sector.

**4.5. Next planned activities beyond the BioRegions project**

WCD will continue to play a co-ordination role amongst the reference group and will continue to actively promote the sector. Plans are in place to develop promotional literature, local case studies, field trips and a web site promoting bioenergy. The Community Sustainable Energy Initiative may lead to local bioenergy projects and has generated interest in communal heating.

WCD are in process of drafting up case study material on various bioenergy resources, forestry, thinnings, wood chipping, and biomass heating. They are also planning seminars on small scale AD plant, SRC plantation and Biomass heating. WCD are examining applications for funding toward a BTC and Large scale Straw Bale Boiler.

WCD will be hosting Breakfast Briefings in conjunction with Chamber of Commerce on Energy, Waste & Water (tentative date – May 2013).

Forestry Growers Group and the business cluster will continue to develop their business plans and projects.

TEAGASC will be actively engaged in promotion and guidance. Preview of TEAGASC Forestry Events 2013 organised in association with the Forest Service, Department of Agriculture, Food and the Marine is provided in the table below:

Date & Time:	Event:	Venue:
January 28-	<a href="#">Afforestation / Tree Planting Clinics</a>	38 venues
February 8	"One 2 One Consultations"	nationwide
	600 responded – almost 60 clinics had to be held to respond to the need	
	32 attendees in Westmeath alone	

<b>April 19</b>	Conifer Thinning Research Trials <i>for members of the Society of Irish Foresters</i>	Frenchpark, Co Roscommon
<b>April 15-26</b>	Forest Management Walks	15 venues nationwide
<b>May 10-11</b>	Irish Forestry, Woodland & Bioenergy Show	Stradbally, Co Laois
<b>TBC</b>	Teagasc Bioenergy Conference	Midlands
<b>June</b>	Broadleaf Management Event <i>Focus on broadleaf mixtures and CCF</i>	Tipperary
<b>July</b>	Ash & Hurling Conference / Workshop <i>In association with Guild of Hurley Makers &amp; GAA</i>	TBC
<b>August 11</b>	Tullamore Show, Forest & Energy Village	Offaly
<b>September</b>	Timber Marketing Events <i>In association with Forest Industry</i>	North west South west
<b>September 24-26</b>	National Ploughing Championships	Ratheniska, Co Laois
<b>October</b>	Broadleaf Management Event <i>Focus on remedial action – poor performing sites</i>	Mayo
<b>November</b>	National Forest Owner Groups Workshop <i>In conjunction with forest owner groups</i>	TBC

Bord Na Mona will continue to develop their co-firing capacity.

The key Commercial Enterprises, will continue expanding and developing their projects. Construction is due to commence on the Biotricity plant, and Design and Tender should commence on the AD plant with Thomas Flynn, who will also begin to store and trade biomass this year.

Next Gen Heat will continue to expand their Biomass Heating systems, including seeking to develop their first community heating system.

## 5. First specific steps for establishment of the bioenergy regions in Latvia

### 5.1. Action Plan adoption in Latvia

Latvian target region located in the northern part of Latvia consists of two town territories - Limbaži and Salacgrīva. The Action Plan for the region was adopted in Limbaži on 30<sup>th</sup> May 2012 and in Salacgrīva on 21<sup>st</sup> June 2012.

### 5.2. Summary on the first step activities in Latvia

The summary on the first step activities foreseen in Limbaži and Salacgrīva Action Plans is given in the table below:

No.	Activity and actions	Responsible	Financing	Timeframe
1	<b>Data base of EE and RE projects</b> implemented up to date in the region. Guidance and advise - Collecting information - Developing data base, - Data analysis (for municipality projects), - Data presentation to public, - Data monitoring	Limbaži municipality (Division of development), Salacgrīva municipality, Ekodoma	BioRegions	Apr.2012- Dec.2012
2	<b>Data base of specific energy consumption in multi-apartment buildings and public buildings.</b> Information is made available for local population - Collecting information, - Developing data base, - Data analysis and data monitoring - Data presentation to public	Limbaži municipality (Division of development), Salacgrīva municipality, Ekodoma	BioRegions	Mar.2013- Apr.2013
3	<b>Knowledge and awareness raising</b> - Organization of two workshops for different stakeholders, - Preparation of an informative material	Limbaži and Salacgrīva municipalities, Ekodoma	Municipal budget, BioRegions	Sept.2012- Oct. 2012, Jan. 2013- Feb. 2013, Apr.2013
4	<b>Involvement of Limbazi city in Covenant of Mayors initiative</b> - Introduction to Covenant of Mayors initiative, - Signing the Covenant of Mayors, - Development of sustainable energy action plan	Limbaži municipality, Ekodoma	Municipal budget, BioRegions	Aug.2012- Apr.2013
5	<b>Updated information on municipality website 'Green energy'</b> - What information is necessary? - Preparation of informative material, - Publication	Limbaži and Salacgrīva municipalities, Ekodoma	Municipal budget, BioRegions	Nov.2012- Jan.2013
6	<b>Establishing a building EE fund</b> - Planning and establishing the fund	Salacgrīva municipality	Municipal budget	Apr.2012- Apr.2013
7	<b>Bioenergy Tourism</b> - Development of 'Green energy' route - Preparation of informative materials and promoting activities	Salacgrīva Tourism Information centre	TIC budget	Oct.2012- Apr.2013

### **5.3. Overview on the implementation**

Due to the lack of the natural gas grid in the region, the heating in the region is mainly wood based. However, energy sources are only one part of the energy system. There is still space for improvements in energy generation, transmission and end user sides. Rational use of energy (and wood resources) and energy efficiency of the end user has been set as a priority of the bioenergy action plan in Limbaži region.

#### **5.3.1. Database of EE and RE projects in municipalities**

One of the first step activities in the Bioenergy Action Plan was to prepare the database of energy efficiency and renewable energy projects implemented in both municipalities. The aim of this action was to prepare an inventory of so far implemented projects in the region to be able to analyse the local experiences and draw conclusions.

Normally this task would have been prepared by a regional energy agency. However, since there is no energy agency in the region, the database was prepared by Ekodoma as a part of BioRegions project activities. Database will be regularly updated and analysed by the energy education and consultation centre (planned to be established by Limbaži municipality as a result of BioRegions project). This centre will have several functions similar to regional energy agency (data collections and analysis, promotion activities, consultancy, educational activities etc.).

Database contains information about projects that has been funded by through various support programs and grants available in Latvia. Database includes information about both – public and private projects (see Annex LV\_1).

#### **5.3.2. Database of specific energy consumption in buildings in municipalities**

Database and calculation tool of the specific energy consumption in municipal buildings was prepared as a part of the first step Bioenergy Action Plan implementation activities. Specific energy consumption is an indicator describing annual energy consumption per m<sup>2</sup> of heated area. The use of the specific energy consumption indicator allows municipality to follow energy consumption in each building and to compare it with consumption in other buildings.

Buildings are grouped according to their function – schools, kindergartens, administrative buildings, residential buildings, etc. The average indicator for respective type of buildings is given and the same types of buildings are compared with each other (benchmarking).

The following information should be provided by the user:

- Heated area of the building (m<sup>2</sup>)
- Monthly energy consumption for space heating (MWh/month)
- Monthly energy consumption for hot water (MWh/month)



- Monthly average outdoor temperature (°C)
- Monthly average indoor temperature (°C)
- Starting date of the heating season (date)
- End date of the heating season (date)

This tool is used by the building managers and housing companies (see Annex LV\_2). First results will be available by the end of the year 2013 when data of the full year performance will be collected.

### 5.3.3. Knowledge and awareness raising

Limbaži region Bioenergy Action Plan was presented on three various occasions.

#### 1. Workshop in Riga, 25 January 2013

The first national workshop took place in Riga on 25/01/2013. It was organised in cooperation with Riga Planning Region administration and Intelligent Energy Europe project “Conurbant” (*An inclusive peer-to-peer approach to involve EU CONURBations and wide areas in participating to the CovenANT of Mayors*). The target group of the workshop was executive directors of the municipalities in Riga Planning Region.

Two presentations from BioRegions project experiences were given:

- 1) BioRegions activities in Limbaži region (by Ekodoma)
- 2) Lessons learnt and next planned activities in the region (by Limbaži municipality).



**Figure 21: Executive director of Limbazi municipality giving presentation**

#### 2. Study visit and workshop in Limbaži, 20 February 2013



**Figure 22: Study visit**

A study visit to Limbazi region combined with a workshop was organised for other interested municipalities, municipal companies and administrations. During the study tour a typical village of Limbaži region (Viļķene) was explored with the main focus on various parts of energy system – energy generation, transmission and use.

After the study tour a short round table discussion was organised and study tour

participants discussed with representatives of Limbaži municipality the main problems that they have identified. The following sites were attended in the study tour:

- Administration building of the municipality with a local heating system
- Public building that is connected to the above mentioned local heating system
- Elementary school with the sports hall and local heating system (a showcase of BioRegions project)
- Two multi-apartment residential buildings with individual heating stoves in each flat
- Kindergarten and library building.



**Figure 23: Discussions after the study visit**

A follow up workshop to discuss solutions for Viļķene village was organised a month later – on 20 March 2013 in Riga.

### 3. Workshop in Riga, 20 March 2013

The workshop in Riga was organised as a follow-up after the study visit in Viļķene. It was decided that besides study visit participants, representatives from other rural municipalities in Latvia will be invited in order to benefit from BioRegions activities and encourage them to follow example of Limbaži region.



**Figure 23: Follow-up national workshop participants**

During the first part of the workshop the BioRegions project was presented and existing energy situation in rural communities in Latvia was discussed. Discussion and presentation was based on example of Viļķene village. Study visit participants contributed by commenting on some issues that they have noticed and where they see improvements.

In the second part of the workshop a representative from the Ministry of Economics of Latvia was invited to share information about the upcoming grants and financing possibilities for energy efficiency and renewable energy projects in rural communities (see Annex LV\_3).

#### **5.3.4. Involvement of Limbazi city in Covenant of Mayors initiative**

In order to extend BioRegions activities besides biomass and energy sector, Limbazi city has decided to join the Covenant of Mayors initiative. The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% CO<sub>2</sub> reduction objective by 2020.

Limbazi city council approved the decision of joining Covenant of Mayors initiative on 24 January 2013. In order to translate their political commitment into concrete measures and projects, Covenant signatories notably undertake to prepare a Baseline Emission Inventory and submit, within the year following their signature, a Sustainable Energy Action Plan (SEAP) outlining the key actions they plan to undertake (see Annexes LV\_4, LV\_5).

SEAP is the key document in which the Covenant signatory outlines how it intends to reach its CO<sub>2</sub> reduction target by 2020. It defines the activities and measures set up to achieve the targets, together with time frames and assigned responsibilities. The baseline study preparation will start in April 2013 and it is expected that SEAP for Limbaži region will be ready by the end of 2013. Actions from the BioRegions action plan will be directly transferred to the respective sections of SEAP.

#### **5.3.5. Updated information on municipality websites about 'Green energy'**

Information about BioRegions activities and download of the Action Plan has been made available by updating the website of both Limbazi and Salacgriva municipalities. Each municipality have a dedicated section on their website where information and materials in relation to green energy and energy efficiency are published.

These sections now contain information about main characteristics of biomass situation in each municipality and also contain a link to the biomass action plan download.

After establishment of energy education and information centre, websites will be integrated in the website of the new organisation (see Annex LV\_6).

#### **5.3.6. Establishing a building EE fund**

In Latvia around 60% of population live in multifamily buildings made in series. Apartments where built, maintained and provided nearly for free for citizens. There was no rent or ownership. In last 20 years ownership of nearly all apartments has been transferred from municipalities or state to the occupants. Vast majority of owners today have low/medium incomes. Elder generation does not fully understand the implications of ownership.

Until 20 years ago people had never heard of mortgages and still have low financial sophistication (no private long-term capital schemes such as pensions). Vast majority of

buildings have no Home Owners Association or other functioning collective decision-making structure.

In recent years people have started to pay a very significant part of their income (20-30%) for heating and maintenance. Many (especially older generation) think that privately you own nothing but collectively you belong to something which will somehow take care of everything. This leads to unrealistic and unfulfilled expectations. Responsibility of property ownership are not understood and not clearly prescribed by law.

The mass privatization of individual apartments without the introduction of a robust framework for maintenance, capital formation and decision-making has resulted in the total neglect of nearly all multi-apartment buildings made in series from the 1950-ies. Most flat owners are financially, technically and organizationally not equipped to fully bear the responsibility of collective ownership:

- They cannot prepare proper renovation and maintenance plans,
- They cannot organize the decision-making process,
- They are afraid of poorly understood financial and technical risks and opportunities,
- They are afraid of bank loans,
- Many who have tried to renovate have ended up receiving poor quality works for inflated prices,
- Collectively residents are conservative and very risk averse,
- Some buildings (especially in rural areas) lack access to financing.

In order to start solving this problem, many municipalities in Latvia are introducing building energy efficiency funds. There are experiences from Cēsis, Daugavpils, Jelgava, Kuldīga, Lielvārde, Liepāja, Rīga, Salaspils, Valmiera, Ventspils and other municipalities in Latvia. All these experiences were collected and analysed by Limbaži municipality.

There are different approaches used to support and motivate residential sector towards implementation of energy efficiency measures in multi-apartment buildings. Some municipalities are paying energy audit costs, some municipalities support also preparation of technical documentation. Recently many municipalities have introduced a requirement that at least a certain share of energy efficiency measures listed in energy audits should finally be implemented. Otherwise the costs for energy audit are not refunded. In other municipalities buildings could get a fixed amount of subsidy (covering preparation of technical documentation) only after the renovation was completed.

Limbaži municipality has decided to support the preparation of energy audit, technical documentation and preparation of the grant application for energy efficiency projects in multi-apartment buildings. The condition was that residents of the building should establish their own house management entity or alternatively they should make a contract with another building management company to establish a collective decision making structure. If this

condition has been fulfilled, then municipality have granted to the building 5000 LVL (7114 EUR) as initial investment to be used for preparation of energy audit and other necessary documentation to be able to implement energy efficiency project in building. After the initial study, building management company applied for investment grant given by the European Structural Fund and administrated by the Investment and Development Agency of Latvia. Remaining part of investment was covered with a bank loan.

In this way almost all buildings in Ozolaine village has been refurbished.



**Figure 24: Buildings in Ozolaine village (Limbazi region) after the renovation**

### 5.3.7. Bioenergy Tourism

Developing synergies between bioenergy and tourism activities in the region is an interesting option that has been emphasized in BioRegions best practice region – Achental (Germany). Salacgrīva municipality and the tourism information centre of Salacgrīva has been very interested in replication of some of the ideas and to introduce green energy route and forestry demonstration routs in their tourism offers package.

#### 1. Excursion around “Green” Salacgrīva

In the excursion route around “Green” Salacgrīva number of renewable energy projects is included. During about 2 hours it is possible to see around 10 objects in Salacgrīva and its surroundings. The total length of the route is 24 km. Following objects can be seen during the excursion:

- Solar PV park in “Minhauzena muža”,
- Ground heat pump in camping “Rakari”,



**Figure 25: Solar PV in “Minhauzena muiža”**

- Ground heat pump combined with solar collectors in administration building of the North Vidzeme Biosphere Reserve,
- Ground heat pump in shopping mall “Maxima”,
- Wind generators combined with solar PV in the children play ground “Nākotnes parks”,
- Coast and sandy beach of the Baltic Sea,
- Ground heat pump in Lielsalaca protestant church,
- Sea water heat pump and heating of Salacgrīva secondary school and kindergarten “Vilnītis” buildings,
- Ground heat pump in recreation complex “Kapteiņa osta”,
- Wind generators in Ainaži.

In 2012 the major interest in taking this excursion route was demonstrated by representatives of other municipalities in Latvia. In average 3 visits per month has been organised.

## 2. Sustainable forestry demonstration route

In order to maintain sustainable forestry management in the region and to demonstrate a good practice in forestry management, a demonstration forest has been established in Salacgrīva municipal territory.

Demonstration territory was developed in private forest by the initiative of the private forest owner. Every year two or three new demonstration objects are made in the demonstration territory. These objects are made to demonstrate various types of forests, different age and structure plantings.



**Figure 26: Demonstration event**

The farm involved in the demonstration project in Salacgrīva area is a private forestry farm “Kraukļi”. Demonstration is done in regard to selective cuttings and improvement cuttings. Concrete solutions for sustainable forest management are demonstrated in practice. Step by step regeneration of forests can be seen in earlier implemented cuttings, trees that will be cut are marked and information on implemented and planned management works is provided to interested people.

In 2012 three practical demonstrations was organised on the farm by WWF. Main target group attending the demonstrations and lectures on sustainable forest management is both private and state forest managers and forest management students.

### 5.3.8. Other activities in the region

Other activities related to the implementation of Bioenergy Action Plan for Limbaži region are the following:

## 1. Flue gas condenser installation project in Limbaži boilerhouse

As part of the BioRegions project, a feasibility study for installation of flue gas condenser in Limbaži boilerhouse has been performed. The objective of this project is to increase the efficiency of biomass use in Limbaži region by installation of flue gas condenser in municipality owned biomass boiler house.

Installation of a flue gas condenser allows increasing overall efficiency and reducing wood chips consumption by 10-15%. Flue gas condenser is installed in the flow of flue gases and allows partly recovering heat that is otherwise emitted into the atmosphere with flue gases and considered as heat losses. Additionally it allows improving air quality due to significant reduction of particulate matter emissions (up to 90%).

Ekodoma have prepared a feasibility study that was based on quotations from flue gas condenser manufacturers and traders. Inquiries were sent to six flue gas condenser technology suppliers and in September 2012 technical descriptions and quotations from three potential flue gas condenser suppliers were received.

More information about this project is given in a case study report "Installation of a flue gas condenser in district heating boiler house in Limbaži" developed by Ekodoma in BioRegions project.

According to the calculations, the project provides good economical feasibility. It is expected that project could be implemented in 2014.

## 2. Combined solution for reduction of CO<sub>2</sub> emissions in Viļķene elementary school

Another feasibility study prepared within the BioRegions project was "Combined solution for reduction of CO<sub>2</sub> emissions in Viļķene elementary school".

The project aims to realize the transition from technologies, using fossil energy resources (diesel), to technologies, using renewable energy sources (wood pellets), and to improve energy efficiency in buildings of Baumaņu Kārļa Viļķene elementary school.

Ekodoma has prepared two energy audits (see Annexes LV\_7, LV\_8) – one for the elementary school building and another one for the dormitory building that are located at the same territory. Based on the results of the energy audit, application for grant investments was prepared and submitted to the Climate Change Financial Instrument (CCFI) call "Complex solutions for GHG emission reduction". Applications were due to 02 November 2012. First results were announced in December 2012 and Limbaži municipality were required for clarifications. In March 2013 the application is directed for the further evaluation.

More information about this project is given in a case study report "Combined solution for reduction of CO<sub>2</sub> emissions in Viļķene elementary school" developed by Ekodoma in BioRegions project.

### 3. Biogas plants in Limbaži region – learning from experiences

During the BioRegions project, two biogas plants were built in Limbaži region. One is a farm scale biogas plant with capacity 0.5 MWe using 50% manure, around 30% grass silage and other feedstock. 85-90% of the feedstock is supplied by the farm and only 15-10% supply is external supplies based on contracts.



**Figure 27: Biogas plant in Farm “Jaundzelves”**



**Figure 28: Biogas plant in Farm “Gravas”**

Another biogas plant is located about 6 km away from Limbaži city centre in rural area. It is a large scale plant with a capacity 2.0 MWe and is using 100% energy crops (maize and grass silage) as feedstock. In total around 29 200 t of feedstock is annually necessary to operate this plant and almost the same amount of digestate must be transported from the plant to the fields. It turned out that digestate storage tanks on the plant are lacking storage capacity.

Biogas plant owner came with solution to build several temporary digestate storage lagoons in various parts of Limbaži region. That has caused many problems related to protests from local people and made difficult to obtain construction permits for installation of lagoons. In some cases lagoons were built without construction permit.

People and municipality also complain about damage to the road infrastructure caused by the biogas plant trucks running out and back with heavy feedstock and digestate loads. This experience has raised a lot of discussions about the sustainability of renewable energy projects.

### 4. Energy consultation and education centre

One of the tasks of the BioRegion project was to evaluate applicability of bioenergy trading and logistics centre (BTC) development in the target region. In case of Limbaži region the conclusion was that there is a potential for BTC, however at the moment it was not possible to find a key person in the region who is eager and ready to take this challenge. Therefore it has been decided that first step towards BTC development will be a virtual biomass trading and logistics platform that will be run by energy consultation and education centre.

Energy consultation and education centre of Limbaži region will have similar functions as regional energy agency. The idea about the format of the energy consultation and education



centre has been shaped after BioRegions study tour to Jonkoping (best practice region) where Limbaži region stakeholders have seen similar organisation in Sweden.

First meetings about setting up the energy consultation and education centre in Limbaži has been organised and discussion is ongoing regarding the legal form of the entity and role of municipality. Experiences from similar organisations in Latvia (regional energy agencies) have been collected (see Annex LV\_9) and work on investigation of funding options is continued.

#### **5.4. Conclusions and lessons learnt in Latvia**

Energy planning is new concept in Latvia and there is very limited experience regarding development and implementation of bioenergy action plans. National events and workshops that were organised within the BioRegions project show that there is a lot of interest from other municipalities in Latvia and they are ready to follow example of Limbaži region, started in BioRegions project.

BioRegions study visits have been a good inspiration for regional stakeholders and many useful ideas has been brought home from both visits – in Germany and in Sweden.

However, it should be mentioned that situation in each country is different and different approach should be used. Latvian target region is quite small, with a low population density and comparatively low income level. It is not easy to convince and motivate people in rural territories to change their habits, to pay more attention to wood fuel quality and their energy consumption. Resources (financial and administrative) in municipalities are limited. Population is aging and young people are leaving the region. In this situation it is difficult to find a young, motivated person who could take a lead in establishing the energy consultation and education centre.

Establishment of energy consultation and education centre is necessary to bridge the gap between abstract future ideas and real project implementations. Energy centre in the region would also help to solve a lack of reliable energy data at regional and local level. It has been identified as one of the main problems during the preparation of status quo analysis of bioenergy situation in the region. One of the tasks of the centre would be to collect and update energy statistics of the region on regular basis.

#### **5.5. Next planned activities beyond the BioRegions project**

Most of the activities from Limbaži region bioenergy action plan will continue beyond the BioRegions project. Municipality will continue to work on the establishment of energy education and information centre. At the moment politicians and the mayor of Limbaži city are supportive to this idea, however they are hesitating to make any significant decisions before the local government elections that will take place in summer 2013.

Limbaži region will continue their obligations after joining the Covenant of Mayors initiative and will prepare a baseline study and sustainable energy action plan.

Implementation of energy efficiency measures in buildings will be ongoing and municipality will also be working on replacing fossil fuels with wood biomass in heating. First step towards this target will be fuel switch from diesel oil to wood pellets in Viļķene elementary school heating system.

Limbaži municipality will continue to support the idea of biomass CHP plant in Limbaži city. Either it will happen with participation of private investor or it is not excluded that investment will be made by municipality owned district heating company "Limbažu siltums". Uncertainty with a future of the feed-in tariff system in Latvia at the moment has stopped any investment plans regarding biomass CHP in Limbaži.

## **Overall conclusions and lessons learnt**

Implementation of the first step activities have started in all five BioRegions project target areas. Since the baseline situation was different from region to the region, the proposed and implemented activities were designed and tailored according to regional specifics. For example in Bulgaria strong focus of activities in on the awareness raising measures, in Latvia that has long traditions for solid biomass use in heating, most of the actions were targeted to energy savings – both in energy end use and energy generation sites.

Experiences from BioRegions project shows that it is important to establish new structures (biomass trade centre, energy information and education centre, contact point etc.) that serve as a mediator between local biomass potential and biofuels demand side. Moreover, the actions implemented so far clearly shows that it is not possible to separate bioenergy from need of increased energy efficiency. Efficiency of energy system should be addressed as whole – not only by facilitating use of biomass, but also promoting energy efficiency in all parts of the energy system.

In order to ensure the continuation of the bioenergy action plan activities, it is important that foreseen activities are well integrated in existing bioenergy structures and are in line with agendas of the local organisations. Finding motivated persons and individuals is crucial.

## LIST OF ANNEXES

No.	Country	Name of the Annex
BG_1	Bulgaria	Data base of EE and RE projects
BG_2	Bulgaria	BioRegions banner
BG_3	Bulgaria	Poster "Primitive biomass vs. modern biomass"
BG_4	Bulgaria	Poster "Air quality in Plovdiv"
BG_5	Bulgaria	Poster "Air quality – primitive biomass vs. modern biomass"
BG_6	Bulgaria	Poster "Modern biofuels in comparison with wood and coal"
BG_7	Bulgaria	Poster "Bio Region Sredna Gora"
BG_8	Bulgaria	Presentations of Biomass Utilisation Plan in Sredna Gora Region
BG_9	Bulgaria	Presentation of Municipal Council - Plovdiv
BG_10	Bulgaria	Press conferences with a focus on the use of modern biofuels
BG_11	Bulgaria	National Conferences and Dissemination workshop
BG_12	Bulgaria	Presentation at the 10 years SOFENA National Conference
BG_13	Bulgaria	Presentation at the Regional Investment Forum – Plovdiv
BG_14	Bulgaria	Presentation in Uzana Fest Event
BG_15	Bulgaria	Presentation from the National Conference of municipal ecologists
BG_16	Bulgaria	Presentation from the National Conference of municipal ecologists
BG_17	Bulgaria	Presentation "Innovations green services for EE, green energies and biofuels"
BG_18	Bulgaria	A pre-feasibility study on small biomass plant
BG_19	Bulgaria	Covenant of Mayors initiative municipality of Karlovo and municipality of Ihtiman
BG_20	Bulgaria	Support with feasibility study to the Municipality of Harmanly
BG_21	Bulgaria	Support to the Municipality of Smolyan
CZ_1	Czech Republic	Adoption of the biomass action plan
CZ_2	Czech Republic	Press conference of the Zlin Region
CZ_3	Czech Republic	BioRegions project and BAP promotion in regional radio
CZ_4	Czech Republic	BioRegion project promotion in municipal internet pages and in local magazine
CZ_5	Czech Republic	Establishment of Biomass trade centre
CZ_6	Czech Republic	Announcement in local magazine
CZ_7	Czech Republic	The dissemination activities of the BTC
CZ_8	Czech Republic	Reconstruction of district heating system in Slavicin
CZ_9	Czech Republic	Collection and evaluation of local energy data
CZ_10	Czech Republic	Workshop in Hostětín
CZ_11	Czech Republic	Workshop in Zlín
FR_1	France	Implementation of cable crane logging
FR_2	France	Implementation of cable crane logging
FR_3	France	Implementation of cable crane logging
FR_4	France	The financial plan to disengaged areas
FR_5	France	The studies - mobilizing biomass from disengaged areas
FR_6	France	Workshop about future Forest Charta
FR_7	France	Biogas Plant Project
IE_1	Ireland	Promotional activities to forestry sector

<b>IE_2</b>	Ireland	Promotional activities to the bioenergy sector
<b>IE_3</b>	Ireland	Promotional activities to the bioenergy sector
<b>IE_4</b>	Ireland	Promotional activities to the bioenergy sector
<b>IE_5</b>	Ireland	Public seminar – Sustainable Energy in the Community
<b>IE_6</b>	Ireland	Case Study of Small Scale Biogas Digester
<b>IE_7</b>	Ireland	Seminar - Small scale AD case Studies
<b>IE_8</b>	Ireland	Woodfuel Workshop in County Laois
<b>IE_9</b>	Ireland	Busines Plan Cover
<b>IE_10</b>	Ireland	Promotion of Forestry and SRC
<b>LV_1</b>	Latvia	Database of EE and RE projects in municipalities
<b>LV_2</b>	Latvia	Calculation tool of the specific energy consumption
<b>LV_3</b>	Latvia	Proceedings of National Workshops in Latvia
<b>LV_4</b>	Latvia	Sustainable Energy Action Plan (Limbazi)
<b>LV_5</b>	Latvia	Sustainable Energy Action Plan (Salacgriva)
<b>LV_6</b>	Latvia	Information on municipality websites
<b>LV_7</b>	Latvia	Energy audits in Viļķene elementary school
<b>LV_8</b>	Latvia	Energy audits in the dormitory
<b>LV_9</b>	Latvia	Energy consultation and education centre