

Bioenergy Promotion 2: From strategies to activities

Project results 2014

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Bioenergy Promotion 2: **From strategies to activities**

Project results 2014

Brochure developed through involvement of partners of the Bioenergy Promotion 2 project which is part of the Baltic Sea Region Programme 2007-2013 and is partially financed by the European Union.

Bioenergy Promotion 2 – From Strategies to Activities aims to strengthen the development towards a sustainable, competitive and territorially integrated Baltic Sea Region by promoting sustainable production and use of bioenergy.

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Introduction

Bioenergy Promotion 2 - from strategies to activities

The aim of the project Bioenergy Promotion 2, co-financed by the EU Baltic Sea Region Programme, is to promote and increase the sustainable production and use of bioenergy in the Baltic Sea Region.

Bioenergy Promotion 2 is a follow-up to the Main stage project Bioenergy Promotion. The Main stage project started in 2009 and concluded in 2012. The initial project consortium consisted of 33 partners, who were involved in the project activities. The results of the Main stage, such as

- shared principles and criteria for sustainable bioenergy production in the Baltic Sea Region,
- regional Strategic Management Plans describing the bioenergy potential and strategy for further development,
- policy guidance documents providing recommendations on how to promote sustainable bioenergy production and consumption and
- examples of good practice for innovative and transferable bioenergy business concepts,
- form the main basis for the Extension phase of the project. The main results are presented in the next chapter.

Bioenergy Promotion 2 project team



The Extension stage was implemented from 2012 to 2014. Its aim was to increase the impact of the regional strategies for deployment of sustainable bioenergy. The partners implemented activities at various levels and

- provided input to the programming of the new Rural Development Policy and Regional, Structural and Cohesion Funds,
- created a dialogue with public and private utility companies with the aim of encouraging them to integrate sustainability principles in their corporate strategies,
- provided recommendations and thematic input to relevant transnational organizations and networks in the Baltic Sea Region, such as the Expert Group for Sustainable Development Baltic 21 under the Council of Baltic Sea States, the Nordic Council of Ministers or the Baltic Sea States Sub-regional Co-operation and
- provided direct support to so-called demo regions implementing bioenergy strategies and concepts developed during the Main stage.

The project also sought to encourage other regions to aim for full exploitation of their bioenergy resources and potentials. The concepts developed and applied in the demo regions have been promoted at workshops and information events in order to recruit “follower regions” interested in adopting and adapting the concepts to their specific needs.

The brochure at hand provides examples of good practice for innovative and transferable bioenergy concepts, and illustrates how the 13 partners have supported bioenergy strategy implementation in the demo regions and beyond.

Further information on the project is available on the project’s website www.bioenergypromotion.net.

Key outcomes and lessons from the Main stage project *Bioenergy Promotion (2009-2012)*

During the period 2009-2012 the consortium behind the Bioenergy Promotion project implemented many activities to promote sustainable bioenergy production and use in the Baltic Sea Region (BSR). The partners developed shared principles and criteria for sustainable bioenergy production in the BSR. In addition, they supported policy development at different levels of government, analysed sustainable biomass potentials, developed pilot projects and strategic concepts for the 17 demo regions, and prepared good practice projects, policies and business models relevant for the Baltic Sea Region and beyond.

Principles and criteria for sustainable bioenergy production in the BSR

Bioenergy production and use may provide multiple environmental and socio-economic opportunities and benefits. These include:

- significant reductions of greenhouse gas (GHG) emissions compared to the use of fossil fuels,
- improvements in energy security and foreign trade balances,
- business and job opportunities along the entire supply chain,
- opportunities for economic and social development particularly in rural areas,
- mitigation of waste disposal problems and better use of natural and other resources,
- synergies with other goals, such as water protection, the maintenance of biodiversity, business development, or tourism development.

On the other hand, the production, extraction, processing, transport and conversion of biomass into final energy can sometimes have adverse impacts for GHG balances, biodiversity, natural habitats and ecosystem services, as well as soil and water quality, on a global, regional or local scale.

In order to ensure truly sustainable development in the regions it is important to apply principles and criteria for sustainable bioenergy production and use. Within Bioenergy Promotion the project partners developed shared principles and criteria (P&C) for sustainable bioenergy production in the Baltic Sea Region. These provide guidance to multiple stakeholders, including biomass producers and users, investors, Non-governmental organizations (NGOs), energy companies, etc. In addition, the

criteria support public decision-makers when developing strategies for sustainable production and consumption of bioenergy and optimizing their policy frameworks and support schemes.

The principles and criteria developed in the Main stage project cover **all use of biomass for energy purposes** (not only biofuels and bioliquids) and include biodiversity, resource efficiency (including land use), energy efficiency, climate change mitigation efficiency, social well-being and economic prosperity.

Bioenergy Promotion stands out from many other sustainability initiatives in this field by its emphasis on **resource efficient and energy efficient** bioenergy production and use. However, in most cases, the principles and criteria (P&C) developed by the project consortium remain on a general level. Only in a few cases were the partners able to agree upon **operational, quantitative guiding values**. For instance, with regard to solid and gaseous biomass used in electricity, heating and cooling, the project consortium recommends minimum **lifecycle GHG emission savings of 80 per cent compared to the use of fossil fuels**. This target takes into account the proposed calculation methodology set out in the European Commission's Biomass Sustainability Report COM(2010)11.

The most promising pathways to achieving more sustainable development are those that use locally available biomass residues from forestry, forest industry as well as from agricultural sources, by-products from related industries and biogenic waste streams that employ highly efficient conversion processes and technologies.

The ambitious 80% target clearly favours the utilization of residues from European forests and agricultural land, and related processed residues. It excludes many pathways using tropical/sub-tropical feedstock, pathways with high fossil energy inputs, but also certain pathways utilizing annual energy crops like maize for biogas production. The partners consider that ambitious GHG saving requirements are necessary to achieve the EU aspiration of an 80-95% GHG emission reduction by 2050.

Biomass is in principle a local or regional resource, which - from an energetic point of view - is used most efficiently close to its production site. Large-scale transcontinental transport of bioenergy carriers, particularly from tropical feedstock, is disapproved of by the majority of project partners, not least due to the risks of deforestation and forest degradation. Instead, the project consortium supports local and regional uses of biomass minimizing transportation requirements. Biomass imports carry their own risks of insecurity and unreliability. Intensified biomass and nutrient export affect the forest ecosystem and especially the biodiversity and carbon and nutrient balances in both short and long-term perspective. Consideration must also be given to the fact that demand for renewable energy sources including biomass might increase in the biomass exporting countries in the future.

Summary - Strategic plans and concepts for the demo regions

During the Main stage project the partners performed a number of interrelated activities directly targeting the 17 demo regions. These activities comprised the establishment of regional network points, assessments of regional biomass potentials taking into account sustainability criteria, regional business and industry analyses, technology assessments and the preparation of pilot projects. In ten of the regions, these activities resulted in the preparation of strategic plans and concepts to further promote sustainable bioenergy production and use in the demo regions

These plans and concepts were rather heterogeneous in character. In some cases they were prepared as supplements to already existing regional development plans; in other cases they were more in the nature of informal concepts and recommendations. Nevertheless, those plans, concepts and recommendations served as the starting point for the implementation activities under the Extension stage project.

Logging residues close to Vilani in the region of Latgale (Latvia)



The Extension stage project 2012-2014: From strategies to activities

The overall objective of the Extension stage of Bioenergy Promotion (2012-2014) was to strengthen key outcomes and results of the Main stage. The **sustainability principles and criteria**, as well as the **strategic plans** and **concepts** prepared for the demo regions, provided the main foundations for the Extension stage project.

The Extension stage project aimed to

- support the implementation of the **strategic plans** and **concepts** developed for the demo regions through **demonstration, awareness raising, mobilization, and training activities**;
- **transfer** good practices and concepts developed during the Main stage to other demo regions and non-partner **regions outside the project**;
- “**test**” the sustainability principles and criteria developed during the Main stage;
- feed corresponding findings into higher level **policy and programme development**, particularly for the new EU funding period 2014-2020.

In the Extension stage seven of the initial 17 demo regions started to **implement** the regional **strategic plans and concepts** drawn up during the Main stage. The implementing activities included awareness-raising, mobilization and training of local stakeholders and decision-makers, and the adoption of complementary strategies.

*Michael Krug - Freie Universität Berlin Environmental Policy Research Centre, Germany.
Project final conference in Riga, Latvia, 18 October, 2013*



The Extension stage project also comprised bilateral “twinning” activities between demo regions, e.g. between the regions of Zealand (Denmark) and Skaraborg (Sweden), and the region of Zealand and Gdynia (Poland). Some of the partners entered into a dialogue with non-partner **regions outside the project** and discussed opportunities **to transfer** experiences, good practices and strategic concepts (joint Danish-German transfer initiative in the region of Latgale (Latvia)).

The Extension stage project envisaged the “**testing**” of the sustainability principles and criteria developed during the Main stage. For this purpose the partners entered into a dialogue with energy utility companies and the European Commission about sustainability criteria for solid and gaseous biomass used in electricity, heating and cooling, and held a joint workshop in Brussels during the Sustainable Energy Week organized by the Polish project partners.

The project partners also prepared assessments and recommendations to consider sustainability principles and criteria in the **framing of the new EU funding programmes** including the EU Baltic Sea Region Programme, the Central Europe Programme, and the forthcoming national and regional programmes under the European Cohesion and Rural Development Policies 2014-2020.

Finally, the partners deepened the dialogue with the **Council of Baltic Sea States Expert Group on Sustainable Development “Baltic 21”** and other policy actors in the Baltic Sea Region to feed project results into policy and programme development at the macro-regional (BSR) level, including the **EU Strategy for the Baltic Sea Region** and its **Action Plan**.

Project final conference in Riga, Latvia, 18 October, 2013



Project final conference

On 18 October 2013, the “Latvian Environmental Investment Fund” organized the Baltic Sea Region Programme project “Bioenergy Promotion 2” international bioenergy conference “*From strategies to activities – Good practice examples of regional bioenergy promotion*”. The conference was linked to the international fair “Environment and Energy 2013” in Riga, Latvia. The conference was attended by more than 100 participants.

The conference was opened by Alda Ozola, Deputy State Secretary at the Ministry of Environmental Protection and Regional Development in Latvia, who highlighted the huge potential for local and sustainable biomass in Latvia. Furthermore, she emphasized that utilization of this resource should meet environmental goals as well as provide local business opportunities.

“I appreciate such projects like “Bioenergy Promotion 2” which demonstrates multiple benefits of the use and production of local bioenergy. There is a need to promote bioenergy production in a sustainable way and find how we can build on synergies between social and economic development at the local level while preserving environment,” said Alda Ozola.

Aino Martikainen – project Bioenergy Promotion 2 coordinator



From strategies to activities in the demo regions and lessons learned

This chapter describes the key demonstration, awareness raising, mobilization, and training activities that have been undertaken by the Bioenergy Promotion 2 partners in the corresponding demo regions. The chapter will also summarize the main results and the lessons learned.

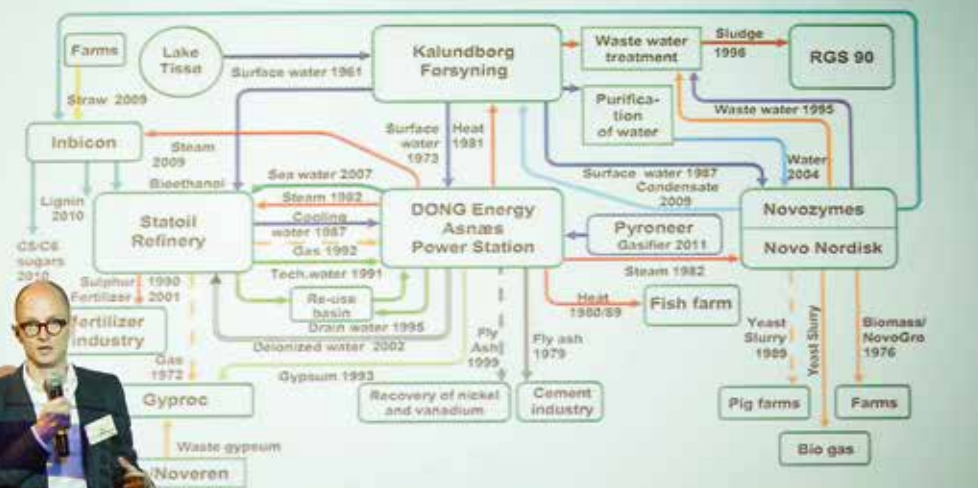
Experience in the demo region of Kalundborg (Denmark)

The Danish energy system is being redesigned as fossil fuel is phased-out and replaced with renewable energy sources. The national target is to phase-out fossil fuels from heat and electricity production by 2035.

The Kalundborg demo region consists of three municipalities: Kalundborg, Odsherred and Holbæk. Kalundborg municipality hosts the Kalundborg industrial symbiosis. The symbiosis is a system in which a group of nine public and private enterprises exchange waste and by-products and thereby reduce overall resource consumption and environmental strain.

The figure below illustrates the more than 30 different by-product exchange systems that were in operation by spring 2013. The dates indicate when the exchange systems were implemented.

Thomas Budde Christensen - Roskilde University, Denmark



The industrial symbiosis in Kalundborg is organized around the coal-fired power station. Production at this power station has been scaled down. A process has been started to identify alternative renewable energy sources to coal. This process of greening the symbiosis requires integration between the companies involved in the industrial symbiosis and the renewable energy base in the region. The region is primarily agricultural, with a concentration of industries in the municipality of Kalundborg. The renewable energy base is therefore associated with agricultural by-products and industrial by-products.

The alternatives to coal include biogas fermentation of industrial waste and agricultural by-products as well as straw and wood chip boilers.

The project Bioenergy Promotion 2 has assisted this greening process by generating data on waste flows between, and greenhouse gas emissions from, the companies involved in the industrial symbiosis. This data has been fed into the transition process.

Furthermore, the project has generated data about local and regional bioenergy resources. The Danish Bioenergy Promotion team has compiled information and data about locally available biomass resources from agriculture, industry and forestry in the region and in the three municipalities. This data has also been fed into the transition process.

Additionally, the project has identified potential technological conversion routes for the greening of the industrial symbiosis in collaboration with local stakeholders. This work included suggestions for a new design for the local energy system in the industrial symbiosis.

Pipes in the industrial Kalundborg industrial symbiosis



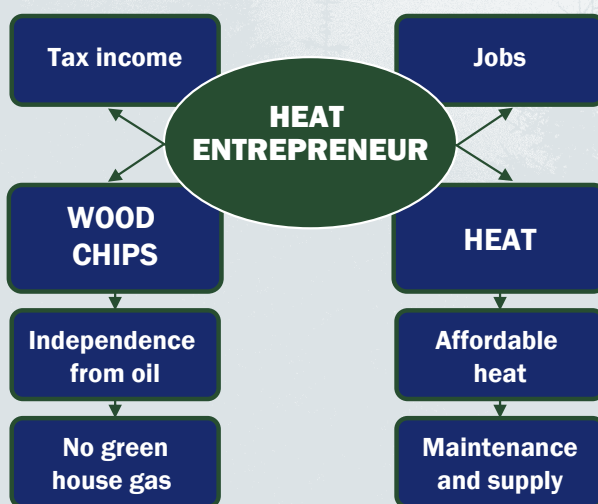
Experience in the demo region of North Karelia (Finland)

Forestry and forest-based energy production and use are one of key sectors in North Karelia. This is not surprising, given that 81% of North Karelia's land area is forested. Renewable energy constitutes approx. 63% of the primary energy consumption in North Karelia, and 81% of this is generated from wood biomass. North Karelia Climate and Energy programme went into effect in 2011. Programme targets are very ambitious (e.g. double the use of wood chips by 2020).

Since North Karelia is the most advanced region in Finland with regard to the use and production of bioenergy, it made a good demo region. It is especially famous for its so-called heat entrepreneurs. Heat entrepreneurs produce heat for local district heating systems or large buildings, like schools. They mainly use fuels based on wood originating from their own forests or other nearby forests. In addition to procuring fuels, heat entrepreneurs also operate the district heating systems (plants). The average boiler size is 800 kW, ranging up to 3 MW. Entrepreneurs' income derives from the heating bills paid by their customers.

The experiences gained in North Karelia were studied and promoted in several other regions in Finland. The results were presented in three other Finnish regions, namely the Municipality of Masku, Pirkanmaa region and North-Savo region. In Masku several potential locations for heat entrepreneurs were studied, and the political decision-makers received specific information about potential challenges. Altogether about 100 professionals and policy makers attended the events organized during the project.

Benefits of using local bioenergy produced by a heat entrepreneur



Heat entrepreneurs see that knowledge and information transfer is one of the most important things for successful small-scale heating businesses. They also pointed out that the quality of chips and information on how to achieve this is very important. Future growth potential is in small-scale combined heat and power production. There are still some legislative issues to be resolved in Finland in order to produce electricity in small biomass CHP-plants. Marketing, consulting and co-operation between the entrepreneurs are also important factors for the success of heating business.

The scale of the initial investment is one factor that could deter people from becoming heat entrepreneurs. Furthermore, the low price of energy in Finland is an obstacle to profitability. The attitude of officials towards the use of renewable instead of fossil fuels is important. The benefits of local heat entrepreneurship to municipalities are presented in the figure on the previous page.

The wood chips for heat entrepreneurs is supplied by forest machine entrepreneurs. Based on similar survey, the entrepreneurs were positive, but making a profitable business in the forest energy field (logging, transporting, chipping) remains difficult. The main obstacles were poor viability, availability of funding and own resources. The entrepreneurs themselves felt that they have good know-how about storing energy wood, environmental issues relating to logging and co-operation with other entrepreneurs, but wanted more training about subsidies, accounting, taxation and generation change.

Visiting power plant in Valtimo, North Karelia



Experience in the demo region of Rotenburg/Wümme (Germany)

Regional activities and co-operation

At the outset, the Main stage project was fortunate to have the opportunity to join an existing bioenergy network in the county of Rotenburg (Wümme). The bioenergy initiative here was founded in 2007 and focused on biogas and wood-based bioenergy. For the wood biomass sector, a working group was established, with stakeholders from private forestry, forestry professionals, environmental services, agrotechnical service contractors and regional planners. In the Extension stage project, results from Main stage were also disseminated to other regions outside the demo region of Rotenburg (Wümme).

The main activity, however, was the integration of recent research, carried out by the Northwest German Forest Research Institute, into the strategies that had been developed in the Main stage. Those new results referred to an exact assessment of the logging residues' potential, using parameters to be applied in the standing forests. The relevant formulas are now integrated into the standard forest inventory programme. Exact calculations for the potential, which can be expected in the next decade, are a crucial asset when attracting investment into wood biomass heat plants in the region. Previously, the only available rules of thumb came from Scandinavia. But these had been developed under forestry and management structures essentially different from those in the Rotenburg (Wümme) region.

Woody biomass from landscape elements and logging residues are a major resource for wood-based bioenergy in Rotenburg (Wümme) County. Recent research revealed new challenges to balance biomass extraction against sustainability of nutrient supply. Tailor-made biomass harvesting and woodash recycling have become key words in this demo-region. Photo: Bernd Heinrich



The same research work also highlights the role of nutrient extraction through biomass utilization, especially when thin twigs and needles are removed from the site. Tree species behave quite differently in this respect. The second factor here relates to soil properties. Strategies for the use of biomass from logging residues must consider the combination of species-specific parameters and the nutrient supply from the soil. On critical sites, wood ash recycling might alleviate this problem.

A central event was a conference with regional and national stakeholders, arranged in the Rotenburg (Wümme) county on 28 February 2013. The conference, with more than 70 participants, presented previous and current work of Bioenergy Promotion 2, the previously mentioned new research results and the challenge of how to include them in future forestry biomass strategies, forest policy, certification systems and transfer to the forest owner through the extension service.

The German regional project manager used various opportunities to communicate project results in neighbouring regions within the federal state of Lower Saxony. The main opportunity to exchange experiences, however, was a joint Danish-German transfer initiative and a corresponding transfer workshop held in April 2013 in the region of Latgale (Latvia) (cf. in more detail chapter Transfer actions and results in the region of Latgale (Latvia)).

Results, challenges, future plans

Future plans and challenges now involve the integration of biomass estimation equations into the forest inventory system, which, as a consequence, has to be kept updated. It will be a political challenge to secure financing for this measure in future. Parallel to this, an interface will be developed by researchers, which will allow nutrient extraction parameters to be applied to the forest soil mapping system. A major challenge here is that a full site inventory must be carried out in Rotenburg (Wümme). Once again, funding for this measure is a matter of political priorities. Additionally, the option of wood ash recycling must be explored in detail, since current approaches from Scandinavia are not applicable in North Germany. This is because, unlike Sweden and Finland, clear-cut logging is not utilized, and the amount of wood ash returned to the forests is rather low for each single operation. This reveals a demand for new technological solutions that are financially feasible.

Tasks for the future have also been identified in the field of hedgerow management along public roads, as current approaches are not feasible in financial terms. The Chamber of Agriculture now forms part of a consortium for a new project, dealing with biomass from landscape maintenance, and if approved, Rotenburg (Wümme) will again be the demo region.

Experience in the demo region of Tukums (Latvia)

The municipality of Tukums is located in the western part of Latvia, around 70 km from the capital Riga. The main activities performed within the project framework include an analysis of the Sustainable Energy Action Plan of Tukums and the organization of workshops and discussions to raise the awareness of sustainable production and use of bioenergy. Events such as the Energy Day of Tukums municipality, including workshops on the use of renewable energy supportive technology in the demo region, were carried out during the Extension stage.

Analysis of the Sustainable Energy Action Plan of Tukums

The municipal Sustainable Energy Action Plan, which was approved in 2011, envisages the complete replacement of fossil fuels in the district heating system by renewable energy sources. Until 2011, 30% of heavy fuel oil was used in boiler-houses. "Tukuma Siltums" is the largest heat energy supplier in the town of Tukums – owning four boiler-houses, with a total installed thermal capacity of up to 42 MW. The aim of the district heating company was to replace fossil fuels with renewable energy sources in the district heating system. The municipality and the district heating company prioritized this aim in 2011, and the decision to modernize the entire district heating system was included into the municipality's Sustainable Energy Action Plan. The boiler-houses have undergone several cycles of modernization and upgrade. The last one was finished at the end of 2011, and now all boilers operate completely on wood chips. In addition, fuel gas condensers have been installed in each of the new boilers, thus providing additional 15-25% of efficiency in terms of heat energy production. Since 2011, the average conversion efficiency has reached 80%. During modernization of the boiler-houses, two new buildings with two additional wood chip boilers (5MW+5MW) to provide a total heat output of 20 MW were commissioned, and

Biomass boiler-house in Tukums



the remaining share of heavy fuel oil in the municipal heat balance was completely replaced with RES. The wood chips are obtained mostly from the surrounding region, and are transported no further than 50-60 km. The municipal Sustainable Energy Action Plan was targeted to ensure 100% RES in the district heating system and this goal has been achieved.

The municipality of Tukums has initiated a number of other projects and plans applicable to a number of new design competitions. The municipality achieved considerable progress in modernizing street lighting and successfully participated in various national tenders, securing co-financing from the municipal budget. In the field of transport the municipality purchased energy-efficient vehicles and new buses and cars for various public services.

However the Sustainable Energy Action Plan of Tukums municipality needs to be revised. The activities implemented should be effectively monitored and evaluated in order to improve the sustainability of municipal actions in the field of energy.

Deputy State Secretary at the Ministry of Environmental Protection and Regional Development in Latvia Alda Ozola highlighted the huge potential of local and sustainable biomass in Latvia, and emphasized that *“Utilization of biomass as a renewable resource should meet environmental goals as well as provide local business opportunities.”*

Tukums Energy Day and workshop on renewable energy technologies

Within the framework of Bioenergy Promotion 2, the Latvian Environmental Investment Fund, in co-operation with the municipality of Tukums, organized an Energy Day in Tukums in April 2013. The main activity of the Energy Day was a workshop to increase the local capacity for Sustainable Energy Action Plan implementation, and to raise awareness on the regional and local level about the energy performance of buildings.

Workshop participants included municipal project managers, experts from the planning and construction sector, other experts and stakeholders in the field of energy-efficient construction, existing or future beneficiaries of the Climate Change Financial Instrument and interested members of the public. Different kinds of renewable energy supportive technology were presented by the experts of the field – heat pumps, solar panels and biomass boiler systems. There was also a presentation on how energy efficiency can be increased in buildings, with illustrative examples. Participants had the opportunity to become acquainted with the:

- experience and activities of the Bioenergy Promotion 2 project in the demo region;
- specific questions regarding technologies supporting the use of renewable energy resources directly from experts of the field.

After the workshop visits were arranged to selected project implementation sites, providing the opportunity to discover good practices in the municipality of Tukums both in the field of renewable energy (including bioenergy) and in the field of energy efficiency.

Experience in the demo region of Kaunas (Lithuania)

Bioenergy activity in the Kaunas demo region is funded by targeted EU structural funds and national programmes, and is driven by the initiative of district heating companies. Approx. 85 MW of bioenergy capacities have been installed in the region since 2010. Wood fuel is mainly used in households as the cheapest type of fuel, not only in Kaunas region, but in Lithuania as a whole. Further installation of large capacity wood-burning boilers in the district heating sector would raise the price of firewood. This is unacceptable from social point of view because the purchasing power of the population is low, especially in the countryside.

Support for fuel conversion to RES does not always consider issues such as sustainable development of the region, assessment of sustainable biomass potential and social issues, especially in rural areas. As a result, communities' attitudes to and support for such projects is different and varied. On the one hand the population expects a reduction in heating costs. On the other hand, a high concentration of biomass boiler-houses in the area (e.g. Dainava district in Kaunas City) increases local pollution in nearby residential districts.

Mayor Andrius Kupčinskas participates in the opening ceremony of the construction of the first biomass boiler-house in Kaunas City



Municipal and regional authorities strongly support these projects, expecting to solve social support problems which are a heavy burden for municipal budgets. However, despite the number of projects implemented or under implementation, and the emergence of new independent heat producers, one of the main strategic aims – a reduction of heat tariffs for residents – has so far not been achieved. One of the reasons for this is that the methodologies for defining heat tariffs and heat purchasing prices from independent producers are inadequate (bioheat purchasing prices from independent producers are currently set too high).

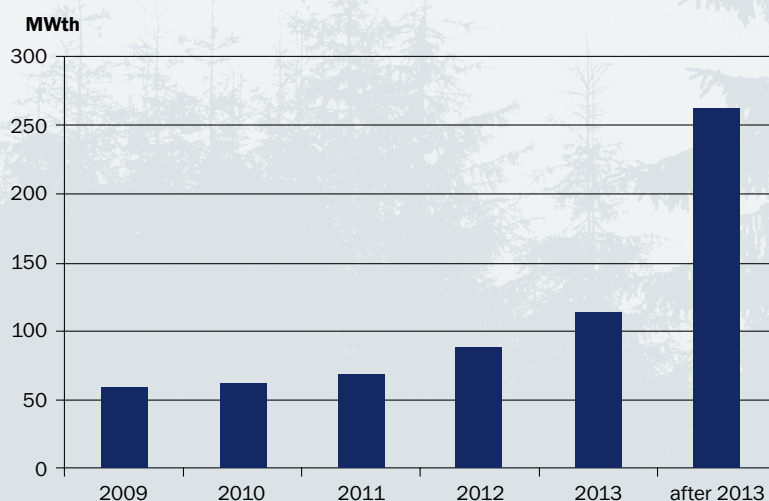
These issues are well reflected in public media statements, made by Andrius Kupčinskas, the mayor of Kaunas City:

“We promote and seek to establish competition in the municipal heat sector, which is extremely important for every resident of Kaunas City, for public institutions, organizations and businesses, which consume heat from district heating. We would like to support the development of “green” energy and provide the residents of Kaunas with opportunities to feel the advantages of biomass fuel.”

“The business of biomass boiler-houses is very attractive due to imperfect legal regulation: it is extremely profitable to generate heat from biomass fuel for independent producers and especially in large cities; maybe, not as much as in the drugs or arms trade, but close to that.”

The Strategic Management Plan of Bioenergy Sector for Kaunas Region was prepared within the framework of the Main stage of the Bioenergy Promotion project. Subsequently, contacts with the representatives of various municipalities of Kaunas region were maintained in order to offer advice and monitor implementation of Strategic Management Plan.

Installed thermal biomass capacities in Kaunas Region during period 2010-2013 and future projections



Bioenergy strategy implementation meetings in Kaunas region

There were three strategy implementation meetings arranged by Lithuanian Energy Institute (LEI) under the Bioenergy Promotion 2 project.

The first was arranged with Kaunas County Division of the Regional Development Department under the Ministry of Interior, which is responsible for developing, summarizing and co-ordinating implementation of regional and municipal plans. In the case of projects which apply for EU support, regional authorities provide support via selection and feasibility for the subsequent application process. Later, this authority monitors implementation of the plans via assessment of sustainability indicators for the region.

The second strategy implementation support meeting was a seminar on planning issues for municipalities "Aspects of Sustainable Development while Elaborating Municipal Renewable Energy Action Plans". This seminar was arranged by the Lithuanian Energy Institute with support from the Kaunas Regional Development Authority. Participants heard presentations by speakers from the Ministry of Energy, Kaunas Regional Development department and the Association of Local Authorities in Lithuania. Topics included dealing with sustainability principles and commonly

Romualdas Škëma - LEI seminar for local stakeholders: municipal and regional authorities, planners and experts



occurring problems in energy planning; main sustainability requirements in national operational programmes; complex assessment of the potential and use of RES; sustainability requirements for energy projects funded by the EU; the role and the activity principles of the biomass market; energy wood biomass resources; and sustainability principles and criteria in biomass production.

The third strategy implementation support meeting was a seminar/round table discussion “The Use of Biomass Fuel in Kaunas Region – current situation, problems and perspectives”. It was designed for bioenergy planners and focused on bioenergy practice and experience. Discussions showed that the situation and perspectives are less complicated in smaller municipalities, due to small scale boiler-houses. More complicated and efficient technologies, such as CHP plants are still too expensive for small-scale energy companies, and they use less efficient boilers. On the other hand, all companies, large or small agree that biomass prices are growing, and all investments are made on the assumption that biomass prices are about three times lower than those of natural gas. However, this situation is changing and the future is not so clear. The small heat producers agreed that entering into direct contracts with biomass fuel producers is a more appropriate way to buy fuel for them. Large companies, such as Kaunas City DH company buys fuel via Energy Exchange – Biofuel Trading system.

Experience in the demo region of Gdynia (Poland)

The activities in Demo Region Gdynia concentrated on the waste management system which complies with EU regulations. It is a serious problem, especially in new EU countries, which must be solved before 2020. The activities and related events addressed local decision-makers, authorities and agencies representing regional governments responsible for local energy policies, and renewable energy specialists. A series of seminars and workshops were organized in order to assess the best practices in BSR. Below are descriptions of the findings of these events.

The Polish-Swedish Seminar on the Swedish Model for Waste Utilization covered a wide range of different topics related to waste management in Sweden and in Poland, including both policies and specific measures for waste utilization. In particular, the discussion concerned the environmental objectives related to waste, principles for sustainable waste management, effective reuse and recycling, waste incineration and landfill gas systems, biogas and biofertilizer production from municipal waste, biogas as a fuel for city buses.

The goal of the Baltic Biogas Forum was to highlight the importance of energy security in Baltic cross-border regions by raising awareness of the sustainable management of existing biomass and biogas sources (both agricultural biomass and municipal waste). More than 100 attendees, representing different national and regional Polish

EcoValey - Gdynia recycling and waste utilisation plant



institutions engaged in activities connected with bioenergy, took part in the event. The guests from abroad (Norway, Sweden and Latvia) presented conditions and some specific solutions for bioenergy and biogas development in their countries.

The seminar on 'How to prepare investment process in ecoenergetics? The key actions to convince local stakeholders and the public', addressed local decision-makers, authorities and agencies representing regional governments responsible for local energy policies, and specialists in renewable energies. Presentations entitled 'The concept of locally based energy systems and the local economic and political benefits' and 'How to develop the energy system - technical solutions', with the examples for an effective stakeholder engagement process for new initiatives in renewable energy implementation, were given by professionals from Denmark. Some solutions concerning the local energy systems implemented under Danish conditions were presented. Discussion of the different aspects of planning and designing of local energy systems was initiated by the presentation 'The energy system and challenges with regards to energy supply and consumption in Gdynia'.

The Biogas Study Tour to Swedish biogas plants utilizing wet fermentation technology was attended by a group of ten Polish professionals from various public institutions. The study tour provided the participants with general knowledge on the Swedish 'biogas for transport' model of waste utilization. Participants visited several biogas plants in the Lidköping region. Similarly, a Biogas Study Tour to German biogas plants utilizing biowaste was very useful for planning further improvement of the waste management system in the Gdynia Region.

Key lessons in waste management

The Polish municipalities currently elaborating their strategies for waste management systems have to account the requirements of the Water Framework Directive and EU Decision (2011/753/EU) when planning new installations for thermal treatment of municipal solid waste. The installations for the combustion or gasification of dry combustible fractions of municipal waste, so-called 'pre RDF'- RDF - Refuse derived fuel (which means mainly combustible components of municipal waste such as plastics and biodegradable waste), should be designed properly (especially with regard to the installation size). Separated at source, organic fractions of municipal wastes of high moisture content should be subjected to aerobic or anaerobic processes, producing high-quality products that can be used as a fertilizer or soil improver. Then the processes of the waste thermal treatment can be considered in the EU recycling target calculation.

Experience in the demo region of Skaraborg (Sweden)

Although bioenergy is one of the main energy sources in Sweden, there is still a large potential for growth. This applies particularly in small and medium-sized heat and co-generation plants, and for biogas for CHP and vehicle fuel. The market is categorized by many different actors throughout the value chain, most of them small with limited development resources and financing capabilities. The approach has therefore been twofold, addressing the strategic development with respect to local and regional public bodies, and facilitating and support capacity building for actors in the market. In the strategic development context, the project has arranged or been involved in forums addressing regional growth, sustainability and rural development. Examples are the regional kick-off, a rural development conference and the regional authority's platform for a roadmap for sustainable development. All-in-all, these events have reached almost 300 participants and addressed sustainable bioenergy development as a key area for the Skaraborg region.

The Skaraborg regional experience is that it is crucial to have an understanding of related strategic areas, such as rural development, business development, job creation and overall sustainability. This is a prerequisite to capturing the interest and confidence of politicians and decision-makers. Today, there is a strategy for the region where bioenergy plays a vital role. A larger development project called "Green Process Area" has also been launched, in which the project has played a role, and is still considered an important contact point for identifying and implementing actions in line with their objectives.

Within the project, the Skaraborg region has been able to implement a range of supporting actions targeting stakeholders such as farmers, forest owners and SME's

The agricultural fair in March 2013 had 8146 adult visitors. Many of the visited the bioenergy square with 20 exhibitors



within the bioenergy value chain. An example of this is the initiative to set up and implement a “bioenergy square” at the first agricultural fair arranged in the region. The fair was held in March 2013, and attracted 8,146 visitors. They were able to visit almost 20 exhibitors in the bioenergy area and attend mini-seminars on bioenergy for heating, biogas and domestic energy solutions. Several articles were published in regional and local media in relation to the fair.

In addition, the project has been participating in and has arranged many meetings with stakeholders in areas such as bioenergy for grain drying, small bioenergy plants and district heating networks, bioenergy terminal and logistic development and farm-scale biogas plants.

Experience indicates that it is necessary to have a good network within the region before the project starts, and that other facilitating actions are needed in order to reach out. This is necessary to be effective and cost-efficient, but even more to avoid “over communication” with the target groups. Too much information and too many contact points can be a limiting barrier in itself.

In addition, the project has worked with transnational exchange activities to demonstrate the experiences and good examples from Skaraborg and to learn from others. This has mainly focused on the other project demo regions. Examples are a study tour from Poland displaying the biogas value chain from waste to wheel and the study tour to Kalundborg, Denmark, to learn about industrial symbiosis as a working method for sustainable solutions. Now four municipalities in West Sweden are actively working on the first stages of industrial symbiosis, and there are plans for further co-operation with the Zealand region in Denmark. A key experience in this context is to try to bring the same persons/functions from the two regions together.

Swedish delegation outside the Symbiosis Centre | Kalundborg, Denmark



Key conclusions and experiences

- Continued support and advice to businesses and stakeholders is vital to function as a regional network point. If this is established stakeholders contact you, and an overview of on-going and planned actions, initiatives and interests is continuously update. The Bioenergy Promotion project has been able to act as a regional network point. One example is the co-ordination of a “bioenergy square” at the regional agricultural fair, with over 8000 visitors, as well as participation in farming networks in the bioenergy field.
- Spatial planning and strategies in relation to bioenergy development are mainly carried out at local and regional level. The ability to take part in these processes, due to the Bioenergy Promotion project, has been very valuable. Through the project several municipalities have been given input and advice on bioenergy within energy planning, rural development and public initiatives, as well as in developing new building areas and investing in existing buildings, areas and utilities (district heating and electricity).
- Learning from others.
 - The opportunity to demonstrate success in developing biogas production and use for both CHP and vehicle fuel to the other demo regions has been positive for those concerned. The fact that they serve as a good example to others has empowered them to carry on their work even more. One example here is the study tour from Poland.
 - The study tour to Kalundborg to look at industrial symbiosis in action was really a door opener for the participating municipalities to adopt to this approach in their work with business and rural development. They are now all working with parts of the IS methodology as a driver for development.

Site visit and discussions at Hökerum 800 kW bioenergy heating plant



Transfer initiatives and activities

One of the key objectives of the project “Bioenergy Promotion 2” was to create a dialogue, both between **BP-2 demo regions** and between **BP-2 demo regions** and **non-partner regions** outside the project, in order to support the development of local and regional bioenergy strategies and to “transfer” knowledge and good practices. Among the non-partner regions which signalled an interest in entering into such a dialogue was the Region of Latgale in eastern Latvia. Below we will briefly summarize the corresponding transfer initiatives, actions and results.

Transfer initiative and activities in the region of Latgale (Latvia)

The most comprehensive transfer activity has been with the region of Latgale. This region borders the Russian Federation in the east, the Republic of Belarus in southeast, and the Republic of Lithuania in the south. According to the current administrative division, Latgale Region incorporates 19 counties.

Based on previous working contacts in Latgale, the Region of Zealand (Denmark) in co-operation with the Environmental Policy Research Centre (Germany) and the Latvian Environmental Investment Fund, started a transfer co-operation initiative which was later joined by the Chamber of Agriculture of Lower Saxony (Germany) and the University of Roskilde (Denmark).

First project transfer team visit to Latgale in October 2012. Mezvidi II, site of the future wood gasification plant



The comprehensive transfer concept used in the Latgale case was based on two basic principles:

- Interaction with local and regional actors in order to identify input for the recommendations on developing strategic bioenergy actions.
- Motivation for regional co-operation and encouragement for actors to take on co-ordinating responsibility.

The transfer comprised the following activities:

1. Several transfer visits to Latgale including roundtables and workshops with municipal decision-makers and other stakeholders.
2. Fact finding - identification of basic data and overview.
3. Site visits - getting insight into the current situation and demonstration projects.
4. Meeting stakeholders - regional and local government, energy companies, farmers and foresters, other business representatives, etc.
5. Getting input from stakeholders.
6. Additional data and information - for making calculation and assessments.
7. Developing recommendations.
8. Ensuring continuation, e.g. by handing over recommendations to key stakeholders.

Two workshops were held in the city of Rēzekne in April 2013. The first workshop addressed mainly municipal decision-makers and other stakeholders, and was dedicated to regional and local bioenergy strategy development and planning. The workshop highlighted bioenergy initiatives and experiences of the Region of Zealand (Denmark), Rotenburg (Wümme) and other German regions. The aim was also to encourage municipalities to join the Covenant of Mayors initiative and to plan the municipalities and region's energy activities. The workshop also raised the issue of

Bioenergy promotion 2 transfer team during its second transfer visit in the region of Latgale



alternative energy crops for the biogas sector, specifically those which are suitable to replace maize to supply biogas plants, such as sugar beet, cup plant and various species of grass from intensive or extensive grassland management. Here, the potential of pruning material from the maintenance of hedgerows along county and municipal roads and streets was also presented. Project partners entered into a dialogue with the audience about the specific lessons for Latgale.

The second workshop addressed mainly forestry stakeholders. The Chamber of Agriculture of Lower Saxony presented recent research results with regard to estimating the potential of logging residues, and possible restrictions due to the nutrient regime (cf. chapter Experience in the demo region of Rotenburg/Wümme, page 14f). On the Latvian side, presentations were given on short-rotation coppicing and the Grey Alder as a resource for bioenergy. This species resembles to some extent the Black Cherry in the Rotenburg (Wümme) region, since it was for many decades considered a “forestry weed”. Now it is welcome as biomass for wood chips, the more so, since its use is independent of the market for the main grades of trunk timber, which is usually the case for logging residues. The visits to Latgale revealed an enormous potential for activity and innovation also in the field of wood biomass, and the Bioenergy Promotion transfer mission to Latgale can, from the forestry point of view, be regarded as a fruitful *mutual* exchange of information.

The Latgale region has huge potential biomass resources, but there is a lack of effective and predictable support mechanisms to mobilize and exploit this potential. The situation is aggravated by the absence of reliable information about the resource potential at the national and regional level, a lack of vertical co-operation between different levels of government and administration, a lack of horizontal co-operation among organizations in the region and the lack of regional co-ordinating and facilitating organizations (e.g. regional energy agency).

Wood chip storage at the district heating plant in the city of Ludza



Creating Latgale as a bioenergy region – recommendations from Bioenergy promotion 2

The transfer team developed a set of recommendations on how to create and develop the region of Latgale as a bioenergy region. They contain a series of proposals for strategic action in the following fields:

1. Vision & Objectives
2. Regional co-operation - including identification of actors to take on co-ordinating responsibility.
3. Supporting structure - including knowledge centres both in the region and outside the region.
4. Technology and Action Catalogue
 - a. Good practice from Latgale Region/Latvia
 - b. Good practice from other regions in the BSR
5. Implementation - how to make it happen?
6. Priority project(s) - starting with feasible and important practical steps.
7. Appendices - illustrating key components mentioned in the different strategy elements.

Biomass district heating plant in Ludza



Transfer team visiting a pilot wood gasification plant close to the city of Vilani in the region of Latgale



However, a number of local governments in Latgale started to assess and utilize the existing biomass potential and have committed themselves to developing Sustainable Energy Action Plans (SEAP) under the Covenant of Mayors.

One of the important lessons of the transfer initiative was that there is a strong need to intensify co-operation among key stakeholders in Latgale and to strengthen the Latgale Planning Region's role as the co-ordinator of this process. Another finding was that the Latvian, German, and Danish project partners joining the transfer initiative are committed to continuing and intensifying the dialogue with the Latgale Planning Region and the municipalities in Latgale.

To put the recommendations into practice it is essential that one or several key Latvian stakeholders take responsibility for developing and implementing the recommended actions. Other transfer activities similarly call for various follow-up actions. In all cases the inspiration, specific practice cases, guidance and recommendations have been instrumental to the target region's efforts to mobilize the development potential related to bioenergy solutions.

Based on experience from the transfer activities, the following approach can be recommended for similar transfer initiatives in the future:

1. Special attention must be paid to transfer to non-partner regions. This must be the case from the drafting of the application, and the necessary resources must be devoted to this task.
2. Commitment from "receiving" regions must be ensured at an early stage.
3. A transfer team should comprise 2-4 project partners.
4. Transfer activities are carried out based on the principles as suggested above.
5. It is essential to get assistance from a project partner or another actor in the country where the transfer mission takes place.
6. Follow-up after the project has come to an end should be ensured. This could take the form of a strategy process, various supporting activities or a concrete project.

Transfer activities and results in the region of Grodno (Belarus)

The Grodno Region Forestry Board (PLHO) participated in the Main stage of the project as a project partner and continued to co-operate as an associated partner during the Extension stage. Although the Board had the official status of an observer, it actively took part in project meetings and conferences, and is highly committed to transfer the gained knowledge and expertise to the 11 forestry units which are part of the association.

Belarus offers ideal conditions for the development of bioenergy, due to the large volumes of industrial wood production, flat landscape, a well-developed infrastructure including, electric power and district heating grids, modern enterprises in the field of energy and general engineering, as well as a high level of technical education of the

population. In Belarus, bioenergy systems have been intensively developed over the last five years in order to improve the energy security of the country.

The development of bioenergy systems in Grodno region is based on the following types of wood resources: firewood, waste timber, wood processing waste, wood from energy plantations. The main bioenergy products include firewood, spitted firewood, wood chips, wood briquettes, sawdust and wood waste.

Further development of bioenergy systems in the forest sector of the Grodno region will focus on achieving the following objectives:

- Increasing the volume of biomass and bioenergy carriers
- Increasing the production of wood chips
- Diversification of the raw material sources
- Mobilization of unused resources (forest harvesting residues, stumps).

To realize these objectives it is necessary to transfer the experience of EU countries, particularly with regard to logging technologies, transportation, use under the specific conditions of Belarus, sustainable utilization of forest harvesting residues. The Forestry Board is also interested in attracting investments for the production of bioenergy products from forest resources.

In addition to these transnational transfer activities, several partner organizations performed smaller scale transfer activities between their demo regions and neighbouring regions or other regions within their own country (e.g. Finland, Rotenburg).

The participation in meetings was financed by the Council of the Baltic Sea States, CBSS Expert Group on Sustainable Development, Baltic 21.



“Testing” the sustainability principles and criteria developed during the Main stage project

In contrast to biofuels and bioliquids, for which binding, EU-wide sustainability criteria are in place, the introduction of corresponding criteria for solid and gaseous biomass has so far been left to the discretion of member states. In the absence of binding EU-wide sustainability criteria for solid and gaseous biomass, several energy utility companies and grid transmission operators started to set up and implement corporate sustainability schemes on a voluntary basis. Several utility companies concluded voluntary agreements with public authorities. The reasons are manifold: to secure and validate high GHG emission savings compared to fossil fuels; to protect biodiversity; to limit negative direct and indirect land use changes; to ensure high resource efficiency and to increase social acceptance. The applied corporate sustainability criteria vary in scope, focus and have different chains-of-custody.

One of the objectives of the Extension stage project was to enter into a dialogue with public and private energy utilities and other market actors, and to promote validation and “testing” of the principles and criteria for sustainable bioenergy production which have been developed during the Main stage.

In a first step, the project partners prepared a report assessing existing corporate sustainability initiatives and strategies covering solid and gaseous biomass in the Baltic Sea region and beyond. The following info box briefly summarizes the main results of the report.

Results of the corporate sustainability strategy assessment

Due to the growing demand for biomass, the large energy utility companies in the EU increasingly rely on importing biomass, especially wood biomass in the form of pellets, for their power plants. The Baltic Sea Region countries, Canada, the US and Russia are the main sources of biomass for those companies, including those considered in the assessment. In the light of the growing demand for biomass, sustainable biomass sourcing (responsible sourcing) becomes an increasingly topical issue for energy companies. Environmental impacts of biomass sourcing, lifecycle greenhouse gas emissions, effects on food production and prices, and impacts on local economies are taken into account.

Companies use different sustainability principles when they source their raw materials, including biomass. The criteria are incorporated in their internal CSR policies or in their supplier Codes of Conduct, or refer to international norms such as the UN Global Compact. For example, the agreement on sustainable biomass sourcing signed between the city state of Berlin and **Vattenfall** covers criteria related to GHG balance, biodiversity protection, carbon stock protection,

preservation of environmental quality (air, soil, water), and social criteria - for the entire supply chain of wood biomass produced, purchased transported and used as a fuel. The agreement that explicitly formulates social sustainability criteria referring to land rights and labour legislation goes beyond the scope of the Renewable Energy Directive and the recommendations contained in the Commission's Biomass Sustainability Report EC(2010)11. Criteria covering protection of environmental resources (soil, water and air) are extended to biomass from third countries.

The **Sustainable Biomass Partnership** (SBP), formerly known as the **Initiative Wood Pellets Buyers**, was launched by GDF SUEZ and unites other energy utility companies like E.On, Vattenfall, Drax Plc, and Dong that burn large quantities of wood pellets. The goal is to enable the trading of industrial wood pellets among the partner companies. These companies consider co-combustion of biomass with hard coal in their coal-fired power plants as a quick and effective measure for reducing CO₂ emissions. SBP/IWBP has drawn up its own sustainability principles to facilitate the trading of wood pellets through the design of common product specifications and sustainability principles. The principles consider the main aspects of solid biomass sustainability: GHG balance, carbon stock, biodiversity, soil and air quality protection, protection of water resources and socio-economic issues.

Criteria designed by SBP/IWBP, as well as schemes developed by Vattenfall and E.ON, cover issues like GHG balance, carbon stock and biodiversity, and are closely related to the respective requirements of the Renewable Energy Directive (RED) for biofuels and bioliquids. The minimum GHG reduction targets of IWBP (≥60%,) and the Vattenfall agreement (≥50%) are more ambitious than those recommended by the European Commission in its Biomass Sustainability Report (≥35%), but less ambitious than those proposed by Bioenergy Promotion (≥80%).

For several small and medium-scale CHP biomass co-fired plants owned by Vattenfall, Dalkia and EDF as well as for district heating systems owned by JSC "Komunālserviss and TILDe JSC 'Tukuma Siltums' in Latvia, the demand for biomass is covered by regional/local suppliers. Regional/local supplies are based on agreements with local players: forestry companies, farmers, paper manufacturers, sawmills, furniture makers, etc. According to local conditions and corresponding permits, the biomass fuel comprises local forestry resources, waste from the timber and woodworking industry and purpose-grown crops.

Some energy utility companies of varying sizes have their own forest product procurement strategies, so their suppliers know they will only buy products that come from legal sources and from operations that manage forests to high environmental standards. In most cases, their procurement strategies give preference to suppliers who certify their operations under schemes such as FSC, PEFC or SFI. They are accepted as "proof" of "sustainable forest management" for bioenergy.

The report can be found at <http://www.bioenergypromotion.net>.

The results of the assessment were discussed at the workshop “Sustainable bioenergy for the future energy system” organized by the Polish project partners in Brussels during the EU Sustainable Energy Week in June 2013. Its purpose was to create a dialogue with energy utilities, other market actors and the European Commission on sustainability criteria for biomass. A discussion paper was prepared in advance, which can also be found on the project website.

The workshop highlighted similarities and differences between the various systems, their advantages and disadvantages taking into account actual policy developments at the EU level, particularly the European Commission’s plans to amend the existing sustainability framework for solid and gaseous biomass.

The partners emphasized that Bioenergy Promotion stands out from many other sustainability initiatives by its emphasis on resource and energy-efficient bioenergy production and use. Co-firing of biomass in large coal-fired electricity only plants which can, indeed, achieve high GHG savings, faces much scepticism among BP-2 partners due to the inefficient use of the resource and high loss of surplus heat. On the other hand, efficient utilization of surplus heat in biomass co-generation plants would contribute to the decarbonisation of both the electricity and heat sector. The consortium considers that co-firing of biomass in conventional power plants will also complicate the transition to a more distributed and flexible energy system.

The consortium also pointed out that the entire lifecycle remains sustainable, and independent verification by third parties should be ensured. However, the partners did not specify any concrete product standard, certification system or traceability/chain of custody system.

Besides the transnational workshop held in Brussels in 2013, the Latvian Environmental Investment Fund organized a stakeholder workshop in Riga in December 2012, during which the BP-2 sustainability principles and criteria were discussed and checked for relevance and practicability by local stakeholders. The project team presented sustainable criteria and analysed cases. The invited experts were from a variety of sustainability-related areas, such as economics, environmental protection, social and energy, agricultural and environmental policies give an overview about the situation in these fields regarding bioenergy. Following the discussion entitled “Sustainable Bio-energy: natural capital and the economy”, key expert and local stakeholder findings were that BP-2 sustainability principles and criteria must be shared by fields as Biodiversity, Resource efficiency, Energy efficiency, Impacts of climate change, Social aspects and the Economy. Roundtable participants discussed bioenergy sustainability in Latvia and how sustainability criteria can be applied to the situation in Latvia. Customization options for implementation of the listed criteria in Latvia are: compulsory green procurement, requirement for the supplier to prove the origin of bioenergy resources (biodiversity criteria extension) and technical support and guidelines in the preparation of procurement documentation, including sustainability criteria.

Feeding project findings into policy and programme development

Policy lessons gained in selected demo regions

Several of the partner organizations decided to translate the lessons from the demonstration, awareness raising, mobilization and training activities in the demo regions (cf. chapter From strategies to activities in the demo regions and lessons learned) and partly from the transfer and testing activities (cf. chapters Transfer initiatives and actions and “Testing” the sustainability principles and criteria developed during the Main stage project) into practical policy recommendations. To this end they prepared monitoring reports and organized policy lesson workshops with policy makers, support scheme managers and policy advisory bodies.

In the demo region of Rotenburg (Germany) a key challenge to be addressed is to integrate the biomass estimation equations into the forest inventory system, which, as a consequence, has to be kept updated, - the future financing of this measure represents a political challenge. Parallel to this, an interface must be developed by researchers, which allows nutrient extraction parameters to be applied to the forest soil mapping system. A major challenge here is the need for a full site inventory in Rotenburg county, which again depends on the willingness of the political authorities to finance this measure.

The Lithuanian Energy Institute highlighted the need to enter into a dialogue with the National Control Commission for Prices and Energy in order to improve the current methodology for calculating heat prices, with the aim of significantly reducing the heat tariffs for households via the modernization of existing and construction of new boiler-houses, in which significantly cheaper local biomass fuel will be used. Furthermore, the partners pointed out that funding eligibility assessments for new bioenergy projects need to integrate principles and criteria for sustainable development. Also when monitoring already implemented projects, special attention should be paid to the implementation of principles and criteria for sustainable development.

Based on the sustainability principles and criteria developed in Bioenergy Promotion and the corresponding testing activities (cf. chapter “Testing” the sustainability principles and criteria during the Main Stage project), the Latvian Environmental Investment Fund has proposed the introduction of biomass sustainability principles and criteria into public procurement in Latvia and the new renewable energy support systems which will be amended in the near future.

Feeding results into the new European funding programmes 2014-2020

Bioenergy production and use is among the priorities of several key EU funding programmes, including the national and regional Operational Programmes under the Cohesion Fund and the European Regional Development Fund, and the rural development programmes under the European Agricultural Fund for Rural Development. However, in many of these national and regional programmes, sustainability principles and criteria for bioenergy have been included only to a very limited extent, if not marginally so far. This is in contrast to international, EU and national policy and business initiatives targeting the sustainable production and use of biomass for energy production, and the ongoing debate at the EU and member state level about the sustainability risks and opportunities of increased bioenergy use.

One of the objectives of the Extension stage of the project Bioenergy Promotion 2 was to feed Main stage and Extension stage project results into key EU funding programmes of strategic importance for the demo regions, but also for the partner countries and for Baltic Sea Region as well. This includes operational programmes under the European Regional Development Fund, transnational co-operation programmes under the European Territorial Co-operation Objective (particularly the Baltic Sea Region and Central Europe Programme) and programmes under the European Agricultural Fund for Rural Development (EAFRD).

Biomass storage for the new Garliava biomass boiler (6.5 MW_{th} incl. condensing economizer)



In order to accomplish this complex task, the project partners followed a three-step approach. Firstly, a number of good practice projects supported under the various programmes were assessed and relevant success factors identified. This was followed by an in-depth assessment of several operational programmes relevant for the demo regions. The results of those first two steps have been compiled in two documents: a Project Assessment Report and a report entitled Assessment of selected Operational Programmes under the ERDF, co-operation programmes under the European Territorial Co-operation objective and under the EAFRD.

GECO investment biomass boiler-house in Kaunas City (20 MW_{th} incl. condensing economizer)



Based on those assessments, the partners prepared three **input papers** providing recommendations for the formulation of the new Operational Programmes for the next funding period 2014-2020:

- Input paper for national policy makers in Lithuania targeting the new funding period 2014-2020. The input paper was presented to the main organizations in Lithuania responsible for administration and management of financial support from EU Common Strategic Framework Funds.
- The second paper “Input to the programming of the EU Baltic Sea Region Programme 2014-2020” was prepared under the leadership of the Environmental Policy Research Centre and the Swedish Energy Agency. The document highlighted the need of a “sustainable use of renewable energy sources”. This is in line with the Council of Europe’s 2012 conclusions on renewable energy, which stipulate that “the challenge in developing RES not only needs to focus on making the relevant technologies more attractive and cost-efficient, but also to ensure that their entire lifecycle remains sustainable”. The paper argues that further consideration should be given to the economic, environmental and social aspects of production and use of renewable energy and to broaden the thematic focus of the programme towards sustainable, integrated and resource efficient (bio-) energy solutions.
- A third input paper provided recommendations to the programming of the CENTRAL EUROPE Programme 2014-2020, and was prepared under the leadership of Environmental Policy Research Centre and Institute of Fluid-Flow Machinery. The paper is closely oriented towards the paper addressing the Baltic Sea Region Programme.

Dialogue with the Council of Baltic Sea States Expert Group on Sustainable Development “Baltic 21” and other policy actors in the Baltic Sea Region

The Council of Baltic Sea States Expert Group on Sustainable Development/“Baltic 21”, which is an associated partner in the project, is a key actor for disseminating policy recommendations among other transnational and national stakeholders in the Baltic Sea Region. In this co-operation three main activities have been carried out. In Stockholm the project organized two roundtables to discuss the project’s progress and results with the Baltic 21; and the project gave a presentation to an agricultural conference, co-organized by Baltic 21, in 2013 in St. Petersburg. The process has led to a set of policy recommendations, which will be further developed within the CBSS and probably, after additional dialogues, lead to additional focus on the promotion of sustainable bioenergy solutions in various political contexts during 2014, especially within CBSS and the EUSBSR.

These recommendations deal with four main topics:

1. Promotion of the Green Growth Agenda
2. Driver of Local Development
3. Renewable Energy System
4. Sustainable Bioenergy Certification System

In addition to the collaborative relations with CBSS the project has developed recommendations for the (sub)regional level. Thus the BSSSC, the network of regional governments in the BSR, has adopted a set of recommendations on developing renewable energy. The recommendations, which were developed by Bioenergy Promotion 2, were formally adopted by the BSSSC Board on 17 September 2012.

The BSSSC recommendations deal with

1. The future energy system
2. Bioenergy as a key factor
3. Planning and implementation
4. Technology and business development
5. Roles of the regions

Furthermore the project has developed recommendations and input to both BASREC and the Nordic Council of Ministers.

Information about partners

- Baltic Eco-Energy Cluster (IMP-BKEE), Poland
- Chamber of Agriculture Lower Saxony, Germany
- Agency for Renewable Resources, Germany
- Freie Universität Berlin - Environmental Policy Research Centre, Germany
- Forestry Development Center Tapio, Finland
- Latvian Environmental Investment Fund, Latvia
- Lithuanian Energy Institute, Lithuania
- Motiva Oy, Finland
- Nordic Energy Research, Norway
- Region Zealand, Denmark
- Roskilde University, Denmark
- Spektrum CWWM, Poland
- Swedish Energy Agency, Sweden



The Bioenergy Promotion 2 project partnership forms a “Virtual Bioenergy Promotion Secretariat”, which assists and advises regions developing and implementing bioenergy strategies. Interested regions, municipalities and additional stakeholders can contact the Secretariat via the secretariat e-mail address:

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