

Roundtable on Bioenergy

21 November 2012



Bioenergy Promotion

Recommendations and questions

This paper is an input for the Bioenergy Promotion Roundtable 21 November 2012 in Stockholm. It expresses key challenges and potential solutions concerning the development and implementation of sustainable bioenergy systems in the Baltic Sea region.

Here you will find a number of draft key recommendations, comments describing and explaining these recommendations as well as questions for the dialogue session.

The paper is structuring the Bioenergy Promotion recommendations into 5 categories:

- Future Energy Systems
- Bioenergy as a key element
- Planning and implementation
- Technology and business development
- Regulation and promotion instruments

In addition the paper also mentions the relation to the

- CBSS Strategy on Sustainable Development 2010-2015

1. Future Energy Systems - a holistic approach ensuring the transition to Renewable Energy Systems

The global climate change and the limited amount of fossil energy resources available call for a transition to energy systems based on renewable energy. In order to carry out such transition four basic principles are important:

1. **System approach:** In order to integrate renewable energy technologies and optimise the investments in the energy systems of the future the energy system should be looked upon as a whole - combining changes with regard to 1) energy resource input, 2) conversion technologies and 3) the end-use of energy.
2. **Locally based energy generation:** In order to minimize energy losses the energy production should be balanced locally and regionally.
3. **Distributed energy systems, including smart grids.** As the renewable energy sources are distributed by nature the energy systems of the future will have a distributed character, quite different from today's energy systems. They will include a large amount of decentralized production units. In order to create regulation of production and consumption micro-grids or smart grids will become important elements.

4. ***Transnational grid connections between the BSR countries*** will play a key role in the overall regulation of the energy systems, to avoid energy losses and to ensure energy supply security.

In the the energy supply systems one can distinguish between 4 main types of built-up areas, namely big cities, medium-sized towns, villages, scattered built-up areas.

These geographic areas are characterized by different settlement and other spatial structures, composition of functions, location etc. and based on these differences they have different energy densities and access to local energy sources.

Questions

Which steps should be taken to create the energy system of the future, based on the 4 principles mentioned above?

Which key challenges are related to the 4 types of built-up areas (big cities, medium-sized towns, villages, scattered built-up areas)

2. Bioenergy as a key element - optimal use of renewable energy

Utilisation of bioenergy should be promoted.

Biomass is utilised for energy production in all regions in the BSR. Bioenergy will play an even more import role in the future in many of the regions, due to the fact that bioenergy can serve as a regulatory factor. Bioenergy will become a key element in many regional energy systems because biomass is storable and bioenergy plants - especially based on gaseous biomass - can balance the fluctuating wind energy. This variable nature is also the case for solar power installations. The challenge of balancing the fluctuating input from wind and solar energy plants may differ from region to region, but it has relevance to all regions in the BSR.

Bioenergy systems should be implemented based of sustainable development principles.

In order to ensure a sustainable development in the regions it is important to apply principles and criteria sustainable bioenergy production and use, covering issues such as biodiversity, energy efficiency, resource efficiency, climate mitigation (CO₂ reduction), social aspects and economic aspects, and based on EU's Renewable Energy Directive.

<For a more detailed description please see the attached paper titled "Sustainable bioenergy systems, SD criteria and policy lessons">

Efficient use of bioenergy

Special attention should be paid to utilizing the limited biomass resource is the most efficient manner possible. Thereby other negative impacts are typically reduced. When mobilizing additional biomass resources, which are not merely residues, leftovers and other forms of waste, such as bioenergy crops it is essential to apply sustainable development criteria and create integrated solutions that ensure multiple benefits of the resource utilization.

Questions

How do you envisage the roles of bioenergy in the future energy systems?

How can sustainable development criteria be implemented at the different levels - national, regional, local, company?

3. Planning and implementation - at regional and local levels

Regional climate and energy strategies and local action plans for renewable energy should be elaborated and implemented.

Climate and energy strategies and action plans may form the framework for regional and municipal climate change actions. One example of such planning processes is the SEAP - Sustainable Energy Action Plan - that is a key element in the EU-wide Covenant of Mayors initiative. It is recommended to support this initiative as well as other types of Local Energy Action Plans.

Multi-stakeholder involvement should form part of energy planning and action processes.

In order to ensure engagement from the citizens and actors in the region, municipality or community it is recommended to carry out multi-stakeholder participatory processes in combination with various types of awareness raising activities.

Facilitation and supporting structures are crucial instruments.

Adequate competences and capacity building are essential to develop and implement local climate and energy plans. These efforts should be promoted and facilitated by supporting structures and activities at national and regional levels. Such activities may comprise training in climate and energy planning, networking and experience exchange among climate and energy coordinators, development of joint projects etc.

Questions

How can climate and energy planning and implementation at local and regional levels be strengthened?

Which supporting structures and supporting measures are the most important ones?

4. Technology and business development - innovation and sustainable business models

Technology and business development in the field of renewable energy systems should be promoted.

The development of renewable energy systems represents a major potential for business development and innovation, and creates significant local markets and job opportunities within various economic sectors. Renewable energy systems thus cover a wide range of technologies and services in the whole value chain - from the energy sources via conversion and distribution to the end-use of energy. In order to promote this development several fields of action are essential; these include:

- Pilot and demonstration projects, which test and promote the most relevant solutions and may lead to commercialization.
- Development and application of new sustainable business models, adapted to regional and local conditions.
- Support for early innovation phases of developing new renewable energy technologies.
- Bioenergy programmes that aims at dissemination of mature solutions and development of new promising technologies.
- Dissemination and transfer activities - within regions and between regions in the BSR.

Questions

In which ways should innovation efforts and technology development be supported?

Which initiatives and instruments are needed to further promote bioenergy-based business development?

5. Regulatory and promotional instruments - enabling frameworks and mechanisms

Applying the multilevel governance principle.

According to the multilevel governance principle there should be a clear division of tasks and responsibilities between the different administrative levels in combination with and supported by vertical cooperation and interaction between these levels.

This might imply that:

- Overall goal setting concerning for example renewable energy takes place at EU level; with Directives and funding programmes as some of the key instruments.
- National goals and renewable energy action plans are developed at national level; financial support and R&D are among the key instruments.
- Strategic energy planning - e.g. as part of regional climate strategies - are developed at regional level; besides strategic planning also business development and regional networking and facilitation are key instruments.
- The implementation of energy action plans, including SEAPs, are carried out at local level; a variety a cooperation models and partnerships, local planning as well as awareness raising and stakeholder involvement processes etc. are among the key instruments.

Enabling frameworks must be developed and implemented

The transition process towards renewable energy systems calls for a variety of new enabling frameworks, such as policies, strategies, action plans, programmes and supporting mechanisms. And in order to create the wanted impacts it is essential to define, develop and implement a relevant mix of instruments, closely linked to the adopted policies, strategies and action plans etc. These instruments comprise a.o. regulatory/planning instruments, economic/financial instruments, pedagogic/informative instruments, democratic/cooperative instruments.

Question

Which regulatory and promotional instruments are the most crucial ones, in order to ensure ongoing development and implementation of sustainable bioenergy solutions?

❖ **Bioenergy issues in relation to the CBSS Strategy on Sustainable Development 2010-2015**

The strategy covers 4 priority areas: Climate change, Sustainable urban and rural areas, Sustainable consumption and production, Innovation and education for sustainable development.

Bioenergy solutions represent a wide range of both benefits and challenges within these areas, e.g.:

- **Climate change:** Bioenergy is a main contributor - as an integral part of renewable energy systems - to the reduction of CO₂-emission.
- **Sustainable urban and rural areas:** Bioenergy is a key driver of rural local economy; at the same time bioenergy is an important source for urban energy supply and transportation.
- **Sustainable consumption and production:** Energy, including bioenergy, is one of the key SCP areas and thus a contributor to the creation of “Green economies”, as described in the Rio+20 document “The future we want”.
- **Innovation and education for sustainable development:** Bioenergy provides a wide field for innovation within several economic and technological systems, such as energy, food, industry, waste etc.

Question

How can Baltic 21 / CBSS Expert Group on Sustainable Development make sure that bioenergy issues are integrated in the implementation of the 4 priority areas of the CBSS Strategy on Sustainable Development 2010-2015?