



**Report from the Conference**  
**“Bioenergy in a BASREC Perspective”**

**Organised by the BASREC Bioenergy Working Group**  
**at Hotel Pulkovskaya, Saint Petersburg**  
**7-8 December 2005**

## CONTENTS

<b>Summary</b> .....	3
<b>Background</b> .....	5
<b>Session A: Opening – Welcome – Introduction</b> .....	7
<b>Session B: Development in the Bioenergy Sector in Russia, Baltic Sea Region and Europe</b> .....	8
Harvesting, Processing and Utilization of Biofuels in the Republic of Karelia .....	8
Bioenergy in Northwest Russia on the basis of wood waste utilization .....	8
Goals of the NWICPC, UNIDO, St Petersburg. Activities in the field of bioenergy projects implementation and barriers for their implementation .....	9
World Bank operations in support of renewable energy development in Russia .....	12
Short summary of the development in Estonia, Latvia and Lithuania/Baltic Sea Region .....	13
Wood Based Energy Research Projects of the Finnish forest Research Institute Russian-Finnish R&D project in Leningrad Oblast .....	13
Russian-Swedish R&D project “Sustainable Production and Utilization Chains for Bioenergy in Northwest Russia” .....	14
Experiences of the Russian-Swedish Bioenergy Center at Lisino Forest College, Leningrad Oblast .....	14
Presentation of the Bioenergy Database, established under Action 4 of the BASREC Bioenergy Working Group .....	15
Recent development as regards energy policy and strategy in the Russian Federation .....	16
<b>Session C: Renewables and Climate</b> .....	16
Possibilities for financing of Bioenergy projects including Climate projects within the Testing Ground Facility (TGF) .....	16
JI possibilities in Russia .....	17
Recent development in biofuel use in NW Russia & Energy efficiency in NW Russia Funded by the Government of Norway .....	18
<b>Session D: Expansion of the Biofuel Market in the Baltic Sea Region - Barriers and Prospects</b> .....	19
Short presentation of the Manual for Biofuel elaborated under Action 1 Capacity Building of the BASREC Bioenergy Working Group .....	19
Short presentation of the work Action 2 of the BASREC Bioenergy Working Group on Standardisation and Market Harmonisation of Biofuel .....	20
Driving forces for bioenergy market development in Sweden and Europe .....	21
Development of Biomass Production in Russia – Problems of Existing Production and Logistics .....	21
Why will refined biofuels be an important part of the future European energy supply system? Experiences from biofuel pellets production projects in Vologda, Russia and in Latvia ...	22
<b>Session E: Discussion - Conclusions - Closing of the Conference</b> .....	23
<b>Follow-up Seminar: New Perspectives of Bioenergy</b> .....	23
<b>Programme for the Conference</b> .....	26
<b>Appendix 1:</b>	
<b>Workshop on Biofuel - Presentation of the Manual for Bioenergy Projects</b> .....	29

**The conference was financed by the Nordic Council of Ministers**

All presentations, abstracts and summaries in English and/or Russian are available on the BASREC website: <http://www.cbss.st/basrec/conferences/>

After each session in the programme there is a link to the presentations etc.

## Summary

The conference in St. Petersburg was an opportunity to present current work stage of the BASREC Bioenergy Working Group and, what is more important, to meet and present the most important actions in the north-eastern part of the Baltic Sea, carried out by the units dealing with issues connected with renewable energy sources.

About ninety participants from Sweden, Norway, Finland, Estonia, Latvia, Lithuania, Poland and Russian Federation, representing government authorities, universities, business organizations, forest owners, energy companies, and financial institutions took part in the conference arranged at Pulkovskaya Hotel.

The meeting in St. Petersburg was divided into a workshop, presenting the techniques of gaining biomass and its utilization, as well as a conference about the current conditions and development perspectives of renewable energy sources in Baltic Sea Region, with special attention paid to North-west Russia and Baltic Sea Countries.

Individual presentations were mainly concerning running particular businesses, its results and future activities on the basis of past experience.

Examples of successful international, regional and bilateral co-operation were presented. Huge natural resources in North-Western Russia were indicated along with the opportunity of bioenergy development in the region as well as the barriers hampering this possible development. The ambitions of the regional authorities to create conditions for a position of a leader in renewable fuels local resources exploitation within the Russian Federation were explicitly emphasized. The barriers restricting the international co-operation development in terms of renewable energy can be classified as the internal and the external ones.

Some of the barriers which hamper the international trade and technology transfer are the following:

- No uniform standard for fuels, ashes, equipment or technologies.
- No information available concerning the on-going international projects due to which several actions are doubled pursuant to the term of “forcing open the open door”. No information on the operations of international financial institutions.

The external barriers include the following:

- Barriers in choice of energy technology, fuel price:
- Legislative barriers
- Economic and financial barriers
- Technology; Scientific and technical barriers
- Policy and institutional barriers
- Information, training and technical support barriers

The majority of the Conference participants focused on the process of defining those barriers and the actions aiming at overcoming them. The role of the BASREC Working Group within the Baltic Sea was acknowledged as very important, particularly in terms of information and standards. Uniform standards make the international exchange a lot easier and make a reference for those countries which have not yet worked out their own standards. Having a centre that would provide data on the current projects going on in the region makes it possible to use the already applied standards and will help to send new projects to those places where they are badly needed avoiding the effect of overlapping at the same time. The development of the guidelines for implementation will allow for a correct evaluation of a project's value, the extent to which it will affect the environment and a proper economic estimate, i.a. it can include the CO<sub>2</sub> emission sale into the calculation with the use of the Testing Ground Facility fund as administered by NEFCO. The guidelines of JI implementation were formulated on the basis of an investment in the Arkhangelsk area but they may as well be used for the planning of other investment in other Baltic Sea countries.

At the Conference, international finance organisations were presented. The World Bank plays a substantial role in co-financing the projects focusing on the greenhouse gas reduction projects. Another organisation which funds projects is NEFCO.

Vyacheslav Pluzhnikov from National Carbon Sequestration Foundation (NCSF) spoke about the actions taken by the Russian Federation pursuant to the agreement concluded in Kyoto. Fulfilling the responsibilities under the agreement makes it possible to have the GHG emission reduction investment financed by a special federal fund. Biomass investments are also financed by UNIDO.

Examples of bilateral co-operation were presented like the Swedish-Russian, Finnish-Russian, Finnish-Norwegian or Norwegian-Russian ones. Also the Danish, the Germans and the British are very active in the North-Western Russia trying to buy the processed biomass.

There are plans for the construction of a terminal for pellet handling in St. Petersburg harbour.

BASREC plays an active role in keeping others informed about the area of operation of particular projects which facilitates taking advantage of the experience in implementing them.

The representatives of the Russian Biofuel Association made it clear that no low-interest bank loans for small investors are available nor any possibility for doubling the production output in a short time. Mr. Alexander Podsevalov, Deputy head of the Regional Office in NW Russia of the Federal Energy Agency commented the changes in the power energy supply policies by the Federation which involve decentralisation of management and making it possible for the particular communes and circuits to individually decide about the local shape of power energy industry development with the use of the fuels occurring locally.

Much of the problems occurring in Russia and Baltic States are similar to what those in Poland and which used to be in Scandinavia: the unwillingness of power energy concerns to introduce new technologies, reserve by the administration, over-optimistic calculations and shortage of knowledge concerning the renewable energy sources implementation.

The Administration of Leningrad Oblast is prioritising the implementation of the regional program on processing of non-quality wood with its further delivery to local boiler plants for combustion. The Administration is also aiming at increasing the number of boiler plants operating on wood fuels. There is also an agreement between the Administration and Gazprom concerning the establishment of Oblteplenergo Company to be responsible for construction, operation and maintenance of boiler plants running on biofuels in areas with no access to natural gas pipeline system, Mr. V. Cheida from Leningrad Oblast Administration, Energy Committee, remarked.

During the discussion it was emphasised that even with the most plentiful base of resources, domestic investors notice the lack of risk capital. The existing federal level programmes give preference to big investments. Russian banks are providing loans at 19% of the interest rate, which is too expensive for potential borrowers representing municipal infrastructure. Local self-government bodies do not possess own investment resources. Many works are conducted with the use of external assistance resources, without which those works would be impossible to execute. Also the society is not acquainted with the issue of renewable sources of energy. However, recently the powerful fuel and energy companies with big capitals have shown interest in renewable sources of energy. Thus, there is hope that domestic investors with big capitals will appear on the market in the near future.

## **Background**

The conference “Bioenergy in a BASREC Perspective” together with a workshop on Biofuel took place in St. Petersburg on 6-8 December. The cooperation initiative between Baltic Sea region countries within the scope of energy management system included also renewable energy sources. The conference was a summary of an international, few years’ cooperation on bioenergy within BASREC

(Baltic Sea Region Energy Co-operation): Sweden, Finland, Norway, Lithuania, Latvia, Estonia, Denmark, Poland, Germany, Russian Federation and the European Union.

### **Bioenergy Working Group**

As early as in 1999, the bioenergy problem was mentioned as one requiring special attention and being a ground for sustainable development in energy sector of Baltic Sea region. In 2002, the working group was established in order to prepare programme and recommendations for bioenergy project coordination for years 2003-2005, presented in Vilnius, in November 2002 on BASREC ministers meeting. The proposals were accepted and BASREC Working Group of Bioenergy (WG) was officially established in June 2003. In spring 2003 the more detailed programme was elaborated by the Bioenergy Group appointed and financed by Nordic Council of Ministers (NCM). The main emphasis was made on wood fuels as forests are the dominating bioenergy source in the region.

### **Operation areas and results**

The plan for the years 2003-2005 assumed four main areas of operation:

#### 1. Capacity building

A Manual for decision-makers in municipalities, heating companies etc. has been developed, coordinated by the Tallinn University of Technology. The manual is to be made available in English, Russian and Estonian. Seminars for introduction etc. are also planned. The Russian version of the handbook will be presented in a separate workshop in connection with the Conference on 7 December.

#### 2. Development of Standards for Market Harmonisation

Nordtest/Nordic Innovation Centre was assigned to implement this task. This work is considered to be very important for the development of trade and cooperation in the region both as regards wood fuels and for the combustion equipment. Close co-operation and co-ordination with the ongoing work on standards for solid biofuels within CEN is a must. Three Newsletters have been presented.

#### 3. Joint Implementation

Here the work has been implemented in co-operation with the BASREC Climate group in the work on developing a sector specific baseline for climate projects based on bioenergy. The area chosen for this project was Arkhangelsk Region in Russia, but the basic methodology can be applied also in other parts of the Baltic Sea Region. It will also be of importance for the possibilities of developing JI projects based on bioenergy in Russia under the Kyoto Protocol. The Climate group of BASREC will include the baseline study in an up-dated version of its JI Handbook, i.a. to be used for preparing projects for the Testing Ground Facility for JI Projects in the Baltic Sea Region, which is interested in acquiring emission reductions in particular from projects based on renewable fuels in the region.

#### 4. Research & Development

The responsibility for this action was assigned the Nordic Energy Research which has developed a database for, mainly R&D related, information on bioenergy. The idea is to simplify for interested researchers etc. to find information on ongoing research and related activities concerning bioenergy. As a result a bioenergy database is now in operation: [www.nedatabase.info/bioenergy/](http://www.nedatabase.info/bioenergy/)

Activities related to these areas were financed by Nordic Council of Minister.

The conference in St. Petersburg was an opportunity to present current work stage of Bioenergy Working Group and, what is more important, to meet and present the most important actions in the north-eastern part of the Baltic Sea, carried out by the units dealing with issues connected with renewable energy sources.

The final report of the BASREC Bioenergy Working Group in English as well as

Summaries in English and Russian are available on:

<http://www.cbss.st/basrec/documents/bioenergy/>

The final reports from the Actions, reports from workshops and seminars as well as from the meetings of the Bioenergy Working Group can also be found on this web address.



Co-chairs of the BASREC Bioenergy Working Group: Gudrun Knutsson, Sweden and Ando Leppiman, Estonia and the Secretary of the Working Group, Ms Kaire Kuldpere, Estonia



Mr. Villu Vares,  
Tallinn University of Technology,  
project leader Action 1



Mrs. Eija Alakangas,  
VTT Processes,  
project leader Action 2



Mr Mikael Forss,  
Nordic Energy Research,  
project leader for Action 4





## CONFERENCE on Bioenergy in a BASREC Perspective

### Session A: Opening – Welcome – Introduction

Chairman: Mr. Harro Pitkänen, NEFCO

**Mr. Jouko Varjonen** from the Ministry of Trade and Industry of Finland gave a word of welcome to the conference audience from the ministers of energy of the Baltic Sea region. Mr. Varjonen also stated that the common goal of further activity would be to develop the co-operation strategies under EU's Northern Dimension Program and the EU-Russia Energy Dialogue.

**Mr. Denis Sokolov** from the Confederation of Wood Industries in NW Russia read out the welcoming speech to the conference participants from Mrs. Lubov Sovershaeva, Deputy Plenipotentiary of the President of the Russian Federation in NW Russia, emphasizing the importance of further co-operation development between the Baltic Sea countries in the field of bioenergy utilization. North-Western Federal District has serious plans in relation to increasing the share of wood fuel utilization in the region. At present the regional programs on boiler conversion to biofuels and introduction of the new technologies of energy generation from the wood are being implemented in several oblasts and republics of North-Western Federal District. The common regional program on bioenergy development in NW Russia to cover all 11 regions of the district is under development at present with the support from the Office of Plenipotentiary of the President of Russian Federation in the North-Western Federal District. The major developer of the program is Confederation of Wood Industries in NW Russia. The program implementation will be providing the basis for both resolution of social and environmental problems in the region and increased investment attractiveness of NW Russia. According to Mrs. Sovershaeva, the conference results would give positive influence on further development of both production and utilization of biofuel in the countries in the Baltic Sea region and NW Russia and also assist to overcome the existing barriers.



Mr Harro Pitkänen, Managing Director,  
NEFCO



Mr Denis Sokolov, Chief Executive Officer,  
Wood Industries Confederation in North  
West Russia



Mr Jouko Varjonen, Chief Counsellor,  
Ministry of Industry and Trade, Finland -  
Member of the BASREC Group of  
Senior Officials and of the Group of  
Senior Officials the Nordic Council of  
Ministers for Energy

## Session B: Development in the Bioenergy Sector in Russia, Baltic Sea Region and Europe



### **Harvesting, Processing and Utilization of Biofuels in the Republic of Karelia**

Presentation by Mr Avram Skliarsky, Deputy Chairman of the State Committee of the Republic of Karelia on Reforming the Housing and Communal Services

Currently large resources of forest and peat in Karelia are used for energy needs only to a small extent. Thus, in loggings only 15% of the resulting biomass is used, whereas the use of production waste of wood industry for energy purposes amounts only to 4%.

Karelia is characterized of large amounts of peat. As much as 30% of the area is taken by peat deposits. There are few possibilities of using it and only a small output of solid peat, which is used in small farms, is taking place at present. The peat resources increase annually by 5 million m<sup>3</sup>. For several years there have been searches for conception of the use of deposits with simultaneous engagement of European Bank for Reconstruction and Development, cooperation with Finland and other countries under the framework of TACIS program. The deposits of peat were estimated and the proposal on processing technologies was presented to governmental authorities.

At present the issue of vital importance for the Republic of Karelia is to reduce the energy imports and have its energy independence secured. New locations of the output are put into operation every year. There is a programme for the development of the energy industry by year 2010, assuming the increase in the peat production to 160 000 tons, including 71 000 tons of energy peat. Thus, in the given situation it is necessary to attract foreign investors and capital to the energy sector of the republic.



### **Bioenergy in Northwest Russia on the basis of wood waste utilization**

Dr Olga Rakitova, Wood Industries Confederation of Northwest Russia, supported by the Russian President Administration Office in the Northwest Region

The Wood Industries Confederation of NW Russia (WIC NWR) consolidates all types of the Russian wood and forest enterprises, companies, research institutes, universities and wood associations and supported by the Russian President Administration Office in the Northwest. It was established in 2001 to foster and facilitate the development of wood and forest industries in Russia. Its founders are branches of the Federal Government and big businesses. The head of the WIC NWR is the Deputy Plenipotentiary of the President of the Russian Federation in NW Russia, Mrs. Lubov P. Sovershaeva.

The Wood Industries Confederation of NW Russia (WIC NWR) has estimated the capacity of the wood waste in the Northwest. According to the data from the local logging and processing companies,



there are about 16 000 000 m<sup>3</sup> of wood waste annually in the Northwest Russia. It corresponds to about 4 000 000 toe<sup>1</sup> annually. If all the volume could be used for wood-based energy generation, then one half of the demand of energy in the North-western region could be covered.

Russia has traditional fuels as gas, coal and oil, however, gas pipelines and coal or oil deposits are not everywhere, and thus the usage of the wood waste for energy is more profitable in the forest regions. Unfortunately, because of the administrative and other problems, rich forest regions use imported coal and oil from other regions. The price of energy in this case is much more expensive than the usage of the domestic wood waste. To solve this problem, the Wood Industries Confederation of NW Russia on behalf of the Russian President Administration Office in the Northwest has started to develop the State program on bioenergy for NW Russia.

The main goals are:

- increase the share of the wood-based energy in the rich forest regions and decrease the price for energy,
- encourage businesses to develop new production facilities for wood pellets, briquettes, wood coal and etc. by introducing tax benefits and other legislation activities,
- conversion of coal and oil boilers to the utilization of wood biomass,
- further development of the wood industries in the region,
- adopt widely the wood biomass as a sustainable resource for producing energy, transportation fuels, chemicals and other value added products,
  
- push businesses for starting the CO<sub>2</sub>-trade on the basis of the boiler conversion,
- solve the social and ecological problems of the region by implementing the new biomass technologies.

The program is concerned with all aspects of wood biomass and bioenergy, from production through to utilization, and it embraces technical, commercial, economic, societal, environmental, policy and market issues. The WIC NWR has been started to create the field for the governmental support of the biomass utilization. However, bioenergy is developing very slowly in Russia in general. Utilization of all renewable energy resources in Russia is less than 0,3 % at the moment, but after the bioenergy program starts the situation should be changed.

Mrs. Rakitova also mentioned that in the near future the clarification concerning both the implementation schedule and financing mechanisms related to the Federal Target Programs on bioenergy and forestry sectors would be available.



**Goals of the NWICPC, UNIDO, St Petersburg. Activities in the field of bioenergy projects implementation and barriers for their implementation**

Presentation by Mr Vladimir Sendetskiy, Consultant, NW Russia Centre for Cleaner Production, UNIDO (NWICPC)

The work on unification of the cleaner production program was started in St. Petersburg in 2000. The implementation of UNIDO projects was started in October 2001. The works were accepted and supported by Environment Protection Committee of the State Duma of Russia. The works on projects are conducted in National Centres for Cleaner Production and supported by international experts. The activity is conducted in 11 regions of Russia. Evaluations and studies are performed in the sectors comprising oil, gas, coal, wood and water resources.

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<sup>1</sup> toe = ton of oil equivalent

The aim is to decrease the amount of waste, especially dangerous and toxic waste in order to preserve natural environment for future generations. Bilateral cooperation with Sweden is conducted in many sectors, directed among others towards reclamation of industrial areas. UNIDO assigns for projects 530 000 USD a year, of which own contribution amounts to 25 000 USD.

NWICPC offers wide range of services, having in disposal:

- Highly qualified national and international UNIDO experts and consultants
- UNIDO methodology in the sphere of Cleaner Production and waste management
- Informational and promotional support of UNIDO
- Training tools in the country and abroad
- International marketing network, containing UNIDO National Cleaner Production Centres
- Mechanisms of attracting of finances from UNIDO donor and investor countries
- Mechanisms of Best Available Technologies (BAT) promotion
- Experience in realization of projects on international protocols (for example: Stockholm Convention on Persistent Organic Pollutants)

- ***Barriers of bioenergy market development***

Barriers of bioenergy market development and production in NW Russia despite the fact that the utilization of wood fuel offers significant possibilities for the Agenda 21 implementation by solving many economical, environmental and even social problems in the Russian Federation, there still exist many obstacles in using bioenergy that need to be solved both at local, Regional and federal levels. Barriers, many of which are related to each others, are the following ones:

- ***Barriers in choice of energy technology, fuel price:***

Improvement in the competence of bioenergy is dependent on economic estimations. The aim of the energy producer is to maximize profit. In the situation of low fossil fuel prices, the energy producer will not consider environmental aspects if there are no regional or federal level obligations required or subsidies available. In the long run, the whole society will pay for the environmental damage. From 2002 the situation with fossil fuel prices changed considerably. Only gas is competitive with biofuel now, certainly in cases where it is available.

The question on the price level of energy is an important topic in Russia. Bioenergy can compete with the current prices of fossil fuel. The domestic prices of fossil fuels are increasing to achieve the world market price and this fact increases the profitability of biofuel. Due to the non balanced prices of fossil fuels, prices for heat and population's solvency, tariffs for the heat for the population do not reflect real production costs and the difference between real price for heat and statutory tariffs is covered by administrations. Investors are not interested in implementation projects in general and biomass projects in particular, as the pay back period for these is too long.

In Russian situation municipal heating plants will never be profitable until an industrial consumer for the heat produced by these plants are found or build. Just these consumers will pay real price for heat not limited by the population's solvency.

If the environmental and social impacts of bioenergy were taken into account because of proper environmental legislation, taxes and revenue sharing, the competitiveness of bioenergy would be much better. The situation with environmental legislation is described below.

- ***Legislative barriers***

One major barrier in promoting local fuel utilization is the lack of respective legislation and insufficient targets on bioenergy at the federal level. There is no sufficient regional legislation and regulation supporting bioenergy at present. The absence of norms and regulations hinders the development of private entrepreneurship in energy production. No section of law directly mentions the utilization of renewable energy sources, even though discussion. In addition, there are no national

bodies or scientific centers for bioenergy sector. Energy tariff and subsidy policy does not promote Bioenergy.

- ***Economic and financial barriers:***

The low solvency of consumers, residents and organisations decreases demand for bioenergy. There are a number of institutes relying on governmental support, so eagerness to find external funding is insufficient. There are no incentives (like reduced taxation or soft loans) for investments in bioenergy. Federal level financing mechanisms and promotion programmes are missing. Returns on investments in bioenergy are perceived as uncertain. Knowledge of economics and on decision making level is insufficient; thus prejudice against the efficiency and reliability of bioenergy exists. Local infrastructure and commercial markets are missing. The high interest rates of loans affect relatively significantly on small enterprises in the bioenergy sector and foreign investments are complex. The economic interest of the local administrative bodies has not been very active in using local fuels. Fuel combustion in boilers is currently incomplete, which makes biomass uneconomic compared to fossil fuels. Therefore, the investments in local fuels have not been considered interesting enough. Targeted regional action plans are required, in which all existing problems (funding, technology, etc.) are to be taken into account.

There are three main types of bioenergy project funding: equity financing, commercial loans from Russian banks and loans from international financing institutions (IFI). Commercial banks do not give loans to municipalities. Most IFIs require guarantees from the Russian Government, and are not willing to finance small-scale bioenergy projects. Appropriate loan agreements with international lending agencies with workable payback mechanisms have to be created for investments.

Practically, only NEFCO is a potential provider of loans for bioenergy projects. As of now NEFCO loan usually requires co-financing only 10-15% by the project owner. Commercial Russian banks do give loans, but the terms are not very attractive: payback period of a project must be from 1 to 2 years; an interest rate to 18 %.

- ***Technology; Scientific and technical barriers:***

The technology mainly used in energy production is domestic technology. This technology was of high quality at one time, thanks to advanced technical and scientific organizations and experts. However, equipment gets old, which is one of the top priority Framework Study for the Development of the Use of Bioenergy in NW Russia problems. Nowadays Russia spends from two to three times less for R&D than some developed countries and modern technologies in biofuel utilization we have to take abroad. Energy produced by outdated technology is unreliable, even unsafe, and increased maintenance demand causes additional energy costs. Advanced domestic technology and production in the energy sector is missing. Certified and advanced wood handling, wood combustion equipment, waste handling and waste incineration equipment is not available. The standardization rate is low. There exist no standards on quality of fuel and its control in the procurement chain. Foreign equipment is expensive. Infrastructure, adequate fuel and waste transport and distribution equipment and systems are missing.

- ***Policy and institutional barriers:***

A consistent and coordinated policy between the authorities, administration, non-governmental organizations (NGOs) and international organizations (e.g. IFIs, EU Commission) needs to be better developed as today's situation negatively affects the engineering and decision-making processes. At the moment there is no willingness to offer fiscal incentives for bioenergy. There are no sufficient federal or local level programmes promoting bioenergy at present.

- ***Information, training and technical support barriers:***

They still exist now but their positions are narrow. Three years ago barriers to biomass fuel production were: the lack of reliable infrastructure, labour, technology machines and equipment. The knowledge of bioenergy technology is widely available to those who want to get information.

The training and education of technology, operation, maintenance, storage and transportation in the bioenergy sector is now available on all levels. A specialized organization - Russian-Swedish

Educational and Information Centre was built up with the help of Swedish Government's funds and its functions for some years. International seminars, projects, study tours, contacts, WWW can give an impulse to interest. Information dissemination on bioenergy is now sufficient. Equipment for heating plants is available at the Russian market.



**World Bank operations in support of renewable energy development in Russia**

Mr A. Averchenkov, World Bank

Despite considerable renewable energy resources in Russia, especially in the Northwestern part, the Southern part, the Far East, and the Baikal area, the level of utilization is less than 1%, compared to the 8% level of utilization in the European Union. This is due to a disadvantageous investment/legislative climate for the development of renewable energies that is characterized by financial, information, institutional, ownership and implementation capacity barriers. The Russia – Renewable Energy Program (RREP) is being established to overcome these barriers, and in particular, the financial barriers.

The Program seeks to (a) increase availability of financing for RE investments through a long-term financial facility that would provide soft loans/contingent grants, and (b) promote the market for advanced RE technologies through grant support to developers, manufacturers and consumers. RREP would start with the support of projects in North-western Russia (biomass energy), in the South (geothermal, solar and wind energy) and in the Baikal region (solar and wind energy). Beyond supporting existing federal programs RREP will also serve as a transparent and reliable mechanism for the creation of conditions and infrastructures for attraction of large-scale investments in renewable energy resources projects.

RREP's total budget is envisaged to be US\$ 70-90 million, of which up to US\$20 million could be provided by GEF, 40-50 million by private entities and US\$10-20 million by Russian government and donors. Project activities will result in leveraging additional resources at an amount comparable to project costs.

The first proposed component of RREP aims at introducing renewable energy and energy efficiency technologies and its usage in the Republic of Karelia, the Leningrad Oblast, the Arkhangelsk Oblast, the Vologda Oblast and the Murmansk Oblast. As the Republic of Karelia and the other included oblasts are far away from the coal, oil, and gas resources of Russia, the supply of energy to this region is costly. At the same time, there is an abundance of renewable energy sources (mainly wood biomass, but also wind) and a large energy efficiency improvement potential in this region. The component would support a series of individual pilot projects on conversion of low efficiency boilers burning dirty fuel to biomass use in partnership with donors, many of them already active in different areas of energy/forestry sector development.



### **Short summary of the development in Estonia, Latvia and Lithuania/Baltic Sea Region**

*Views and experiences of bioenergy research projects and co-operation activities in Russia and the Baltic Sea Region*

Peeter Muiste, Estonian University of Life Sciences  
(Estonian University of Agriculture)

The resources of the Baltic States were presented by Peeter Muiste from the Estonian Agricultural University. The North-Western Russia forests alike, the Baltic States' overgrown areas are large. In Estonia it is 51,5 %, in Latvia - 45 % and in Lithuania - 30 %. There too, the dominating tree species are pine, spruce and birch. Those countries started introducing the modern forestry economy fairly early and so they get more waste for the power industry purposes. In all three Baltic countries among the different types of renewable energy sources the most promising is wood energy.



### **Wood Based Energy Research Projects of the Finnish forest Research Institute Russian-Finnish R&D project in Leningrad Oblast**

Mr Vadim Goltsev, Researcher, Finnish Forest Research Institute, Joensuu Research Centre

The Finnish Forest Research Institute investigates different aspects of wood based energy production in Leningrad region of Russia within several research projects. The projects are implemented in co-operation with Finnish and Russian research and business organizations. Research consortium of the Finnish Forest Research Institute and the Lappeenranta University of Technology (LUT) recently started a project "Reduction of Greenhouse Gas Emissions in Russia – Finnish Business Opportunities".

The project is aimed at searching of means to reduce GHG emission in Northwest Russia, analysis of emerging governance system of Emission Reduction Units in the region, case studies of energy production and distribution, estimation of technical and economical availability of different wood energy sources and at providing information about further development of Finnish technologies used in production chain to produce wood based energy.

A research project "Development of Forest Sector in Northwest Russia and its impact in Finland" consists of four subprojects. Three of them are partly related to production of wood based energy. Subproject "Forest policy, politics and forest programmes in Russia" has the aim to study the development of Russian forest policy. Second subproject "Intensification of forest management and improvement of wood harvesting in Northwest Russia" devoted to investigation of interaction and impacts both Finnish and Russian forest management and technologies on sustainability of forestry. Another aim of the subproject is to promote the development of sustainable forest management and wood harvesting methods in Northwest Russia. Tasks of subproject "Forest Industry Investments and Economic Effects of Wood Flows on Local and Regional Communities in Northwest Russia and Finland" are to analyse economical possibilities to expand the domestic use of round wood in Northwest Russia, to find ways of development of Finnish and Russian forest industry, to analyse the effects from the increased domestic timber use and round wood trade in Russia on the local an regional communities in Northwest Russia and Finland.

The Finnish Forest Research Institute is interested in the cooperation within on-going projects concerning wood based energy, in the informational interchange between the institute and the BASREC Bioenergy Working Group.



**Russian-Swedish R&D project “Sustainable Production and Utilization Chains for Bioenergy in Northwest Russia”**

Ass. Professor Tatjana Stern, Swedish University of Agricultural Science, Bioenergy Department

In the context of European integration and transition of Russia into market economy, the Northern Europe including Northwest Russia has to be recognised as one, globally important, biomass supply area. The Swedish Energy Agency initiated in year 2003 the Russian-Swedish Bilateral Research Project “Research and Higher Education of Sustainable Production and Utilisation Chains for Bioenergy in the Northwest Russia”. The project is aimed at improving bioenergy development in NW Federal District of Russia. The co-ordinating organisation is the Swedish University of Agricultural Sciences, Department of Bioenergy. Russian Partners are the St. Petersburg State Forest Technical Academy and the Russian-Swedish Bioenergy Information and Training Center (BioCenter).

The project has the following goals:

- Review and estimation of biofuel potential in the Northwest Federal District, which could provide both sustainable forest use and reliable production of heat and power.
- Optimization of production chains for wood fuel from raw material source to end-use aimed for reduction of costs in each part of the chain.
- Improving the public acceptability of bioenergy.
- Support the development of a bioenergy market in the Northwest Federal District.
- Research training and postgraduate studies.
- Information interchange and co-operation.

The project will contribute to an increased knowledge of factors within forest biomass utilisation, which can be used for formulating policy instruments such as environment legislation, taxation, etc. The scientific approach of the project will also support the goals of collaboration of the different activities of rural development in the Northwest Russia.



**Experiences of the Russian-Swedish Bioenergy Center at Lisino Forest College, Leningrad Oblast**

Mr V.S. Kholodkov, executive director, Russian-Swedish education and information center - BioCenter

Since 1994, when the Swedish program was first started in Russia, 12 projects have been accomplished, including 8 projects of conversion of heating plants to waste wood fuel, laying insulated pipelines, and installation of heat centres in buildings, which enables to reduce heat consumption by about 20% and maintains a room temperature of 18<sup>0</sup>C. The EAES projects have been conducted in the regions of Leningrad Oblast (four projects), Kaliningrad (six projects) and Karelia (three projects).



In 1996 the first project was implemented in Lisino Forestry College (Leningrad Region), the oldest forestry secondary educational institution in Russia which has been training forestry specialists since 1834. One of four oil-fired boilers of the local heating plant supplying heat and hot water to all residential and educational properties in the area was replaced with a biofuel-fired boiler. Then, the second phase of the project, aimed at improvement of energy efficiency of heat supply was performed by replacement of old worn out heating pipelines and installation of substations in 22 buildings, which enabled 20-30% reduction in heat consumption. The site for wood chips production was created, so the problem of utilization of low-grade wood, wood wastes and firewood formed during final and intermediate cuttings at the Lisino Forestry College has been solved. The Lisino Forestry College produces wood chips for its own needs, as well for the heating plant in the village Krasny Bor, situated 25 km from Lisino, and for some other plants, i.e. it works as a fuel supplying enterprise.

Taking into account the experience of the Russian-Swedish co-operation, the Bioenergy Information and Training Center (BioCenter) was established at the Lisino Forestry College in spring of year 2002. Its members are companies, authorities and organizations and private persons. The BioCenter is open to all those who would like to cooperate in the field of the use of bio-fuel.

The BioCenter is one of the main participants in the Russian-Swedish Bilateral Research Project for Energy Development in Northwest Russia "Research and Higher Education of Sustainable production and Utilization Chains for Bioenergy in Northwest Russia".



**Presentation of the Bioenergy Database, established under Action 4 of the BASREC Bioenergy Working Group**

Mr Mikael Forss, Nordic Energy Research,  
project leader for Action 4

Action 4 has listed and described 27 international bioenergy networks and programmes, and particularly scientific networks, in order to prepare for possible participation of new countries in the respective networks by describing the potential and limitation in the networks. This list is clearly documenting the uneven distribution of participating countries in the various network and programmes. The Nordic countries are overrepresented compared to other countries in the Baltic Sea Region. In the 27 networks and programmes the countries participate as follows: Sweden 22, Finland 19, Denmark 16, Norway 15, (EC 8), Germany 7, Estonia, Latvia and Russia 5, Lithuania 4, Poland 2. The uneven distribution may be due partly to lack of information and partly to a lack of national programmes with accompanying financing that can enable international participation. Links to 15 databanks are also listed, with comments on the service offered by the databanks.

Action 4 has developed a new easily visible and readily available bioenergy database with bioenergy actors in the Baltic Sea Region. The aim of the database is first to identify and profile actors in a regional network and an efficient contact between its various participants. Interested actors and organisations are welcome to register. The database, with an advanced address register, has been made available on the Internet – [www.nedatabase.info/bioenergy](http://www.nedatabase.info/bioenergy).



### **Recent development as regards energy policy and strategy in the Russian Federation**

Mr. Alexander Podsevalov, Deputy head of the Regional Office in NW Russia of the Federal Energy Agency

Mr Podsevalov commented the changes in the power energy supply policies by the Federation which involve decentralisation of management and making it possible for the particular communes and circuits to individually decide about the local shape of power energy industry development with the use of the fuels occurring locally.

## **Session C: Renewables and Climate**

**Chairman: Mr. Harro Pitkänen, NEFCO**



### **Presentation of the possibilities for financing of Bioenergy projects including Climate projects within the Testing Ground Facility (TGF)**

Mr Harro Pitkänen, Managing Director, NEFCO

According to Mr. Harro Pitkänen, in Russia at present it is rather difficult to obtain long-term loan financing at reasonable interest rates, especially when dealing with the municipalities. Among others, such problems as the lack of transparency in what concerns the financial system of the housing and utility sector and also low effective demand of domestic consumers shall be considered as the existing obstacles on the way of implementing investment rehabilitation projects in the municipal sector of economy. However, the Russian financial market has been continuously indicating the signs of recovery during the past couple of years and that is obviously a rather pleasant thing to realize from investor's point of view. Another positive factor is the availability of several Federal and Regional target investment programs oriented for funding allocations to support the implementation of infrastructure rehabilitation projects in the municipal economy.

The most vital issue at present is to define the optimum model for the project financing and also to develop a detailed project implementation scheme. As for the biofuel-oriented conversion projects, the availability of the sustainable fuel supply chain on the long-term basis shall be considered as a precondition for any project of the kind. In addition to that, an optimum technological solution for the project in focus shall be selected to avoid any unnecessary investment load on the project owner/borrower. NEFCO has experience of assessment/involvement in different municipal rehabilitation projects in NW Russia providing loan financing on assumption of the availability of the project co-financing from the project owner's own means or regional and federal investment budgets.

It shall be also clearly understood that the Carbon Financing under TGF is just a supplementary source of project financing, not a principal one. The share of the overall project financing to be covered by TGF may be estimating up to 20% of the total investment costs for the project implementation. According to JI's Track 2, TGF may enter into principal agreement with the project owner specifying the market price for the emission reduction units to be purchased by TGF from the project owner after



the implementation of rehabilitation activity. An independent certified laboratory must carry out the baseline calculations of the existing level of CO<sub>2</sub> emissions under a possible option agreement.

In this context it could be added that the revised JI Handbook developed by the BASREC Climate Group which will soon be available in English and Russian could be of interest for project developers.



### **JI possibilities in Russia**

Presentation by Mr V. Pluzhnikov, Senior specialist of Project development department National Carbon Sequestration Foundation (NCSF)

National Action Plan (NAP) on Kyoto Protocol (KP) implementation – 1 was initiated by the decision of the Government on Sept 30, 2004. The purpose of the Plan is to fix the responsibilities of Federal Governmental bodies on realization of Kyoto Protocol in Russia. It consists of 4 parts including Policies and Measures (P&M), Meeting Eligibility criteria, realization of Kyoto Mechanisms (KM) and International cooperation. Financing of the implementation shall be done through the budgets of the involved Ministries and approved Federal programs

National Action Plan on Kyoto Protocol implementation – 2 involved 15 Federal Ministries and Agencies. It was agreed by all of them. NAP fixes the distribution of responsibilities among Russian ministries. It also takes into account the provisions of the draft medium-term program of socio-economic development (till 2008). We are also open for discussions and contributions: draft NAP was presented at the WB workshop in January 5 and – in details - in the EC HQ in March 2005

National Action Plan on Kyoto Protocol implementation – 3 sets up the priorities of Russian policy in the field of Energy Efficiency and areas of possible realization of Kyoto mechanisms and including district heating systems, insulation of buildings, coalmine methane, industrial processes, including electricity production, city lightning systems, renewable energy development in the Energy deficit regions and utilization of associated gas.

National Action Plan on Kyoto Protocol implementation – 4 is focused on main requirements of the Kyoto protocol (Eligibility criteria).

- National monitoring system of GHG emissions and sinks – Roshydromet and others. Background: good statistical information on Energy production and consumption
- Inventories - Roshydromet and others. Background: inventories of regions and companies
- Accounting of 1990 level – MNR, Roshydromet and others
- Registry – Ministry of Natural Resources (MNR) and others
- Monitoring of forests - Ministry of Natural Resources and others
- Wastes – Rostekhnadzor and others

National Action Plan on Kyoto Protocol implementation - 5

Realization of Kyoto mechanisms

Development of Modalities, guidelines and procedures for JI projects in Russia – Ministry of Economic Development and Trade (MEDT) and others

Negotiations with possible foreign investors (governments, companies, banks) on JI and ET - Ministry of Economic Development and Trade and others

Forming of the Interagency Commission on Kyoto Protocol - Ministry of Economic Development and Trade and others

Preparation of proposals on changing Russian legislation for KM realization (if necessary) - Ministry of Economic Development and Trade and others

#### Main elements of JI registration procedure

- Initiator of the Project prepares and submits to the MEDT set of documents: declaration on JI realization, information on the Initiator, PDD (Project Design Document).
- The MEDT accepts the documents or within 7 working days provides motivated rejection to the Initiator
- The MEDT within 14 working days has to scrutinize the documents, and if the documents are OK, issues the Letter of Approval for the project. The Project has to be registered in the Project Registry of MEDT. The Project Initiator receives the Registration number in the Project Registry

#### **TOP Russian priority – to meet eligibility criteria**

- Preparation of annual report to the Government on KP realization  
Governmental resolution on National system to be prepared by the end of 2005
- Annual corrections of the federal programs
- Calculation of AA – 3d quarter 2006
- Elaboration of domestic procedures for KM realization – end of 2005
- The authorities and responsibilities of the Federal ministries for the purpose of realization of KP to be clarified by the end of 2005
- Governmental decision on National registry – beginning of 2006

#### **WHAT HAS BEEN DONE SO FAR:**

- Inventory in 7 Russian regions is made under the UNFCCC guidelines
- Inventory in RAO “EES Rossii” is made
- Methodology for regional GHG inventories is prepared
- Methodology for estimation of methane emissions in the gas sector is under development:
- RECENT DEVELOPMENTS: Analysis of required primary data and information flows
- Every week meetings in MEDT with TACIS experts on realization of approved schedule of works set by MEDT

Priorities for international cooperation on KM realization in Russia

- EU – Russian Energy and Economic dialogue (workshops, TACIS and other programs)
- Conclusion of bilateral agreements and cooperation with EU and non-EU countries (Denmark, France, Germany, Austria, Sweden, Canada) and JIBIC
- Cooperation in the Baltic sea region (it is necessary to come back to the Testing ground agreement)
- Cooperation with the International financial institutions (IBRD, RusCarbonFund, EBRD, GEF, NEFCO, ...)



#### **Recent development in biofuel use in NW Russia & Energy efficiency in NW Russia Funded by the Government of Norway**

Mr Harald Birkeland, Norsk Energi, Norwegian Energy Efficiency Group

Norwegian Energy Efficiency Group was established as a result of agreement between Russia and Norway on energy cooperation. Energy Efficiency in NW Russia project is divided into several sub-projects, presented under five main headlines:

- Regional Energy Efficiency Centres
- Demonstration projects and commercial projects
- Training
- Information
- Financing

The NEEG group is composed of the consultancy firms Norsk Energi, KanEnergi, Energy Saving International AS, Storvik & Co. As a result of the group's activities in NW Russia, the Regional Energy Efficiency Centres in Kirovsk, Murmansk, Archangelsk, Petrozavodsk, Syktyvkar and Naryan Mar were established. REECs offer services to clients on project development, renewable energy, education and training, project financing advice etc. The audience was also informed about several specific rehabilitation projects jointly implemented by NEEG and regional energy efficiency centres in Murmansk oblast, Arkhangelsk oblast and Komi republic.

The renewed interest in use of biofuel may be observed in NW Russia owing to high costs of imported fossil fuels. The rehabilitation projects are developed in both the public (municipal) and private sectors of economy, specifically considering the availability of loans for municipal bioenergy projects. NW Russia also possesses very good potential for local use of waste wood thus providing high expectations from the implementation of JI projects in the region.

## **Session D: Expansion of the Biofuel Market in the Baltic Sea Region - Barriers and prospects**

Chairman: Mr. Harro Pitkänen, NEFCO



### **Short presentation of the Manual for Biofuel elaborated under Action 1 Capacity Building of the BASREC Bioenergy Working Group**

Mr. Villu Vares, Tallinn University of Technology,  
project leader Action 1

It was a brief presentation of widely discussed during the workshop „Handbook for biofuel users” The book is currently available in three language versions:

- Russian – 200 books and 750 CD (presented on 07.12.2005 in St. Petersburg)
- English – 1000 books and 1000 CD
- Estonian – 200 books and 250 CD

### **Content**

- Introduction
- Properties of solid biofuels and peat (incl. information prepared by another WG on biofuel standards)
- Production of solid biofuels
- Combustion technologies
- Storages and conveyors
- Mitigation of environmental impact
- Planning energy supply using biofuels
- Case stories and Estonian experience
- Useful tables

### **Ideas for the future activities**

- The Handbook might be available from BASREC web site
- The web site version of the Handbook might be easily updated
- New language versions might be prepared – international co-operation is rather important
- Training courses and seminars might be organized combining the Handbook materials and local experiences



### **Short presentation of the work Action 2 of the BASREC Bioenergy Working Group on Standardisation and Market Harmonisation of Biofuel**

Mrs. Eija Alakangas, VTT Processes, project leader Action 2

Introduction of standardisation is necessary while conducting the trade exchange between the countries. This also concerns renewable fuels, especially Pellets and briquettes. Currently in the countries of Baltic Sea region there are no unified Standards for such fuels or combustion equipment. The level of engagement is different in particular countries and produced fuels are different from each other. In order to develop such standards, knowledge on production and use of renewable fuels as well as broad cooperation between the producers of fuels and from energetic sector are necessary.

Within the framework of Action 2 of the BASREC Bioenergy Working Group the work on dissemination of knowledge and information by establishing contacts with key persons was conducted, together with organization of meetings with standardization experts in the new EU member states as well as publication of a bulletin.

The next task involved gathering of information on the existing standards for constant solid biofuels. 48 domestic standards on bioenergy and 14 standards on equipment related to bioenergy were collected. During the meetings the most important testing standards and methods were presented. During the project guidelines for co-combustion of peat and constant biomass were developed. The works were conducted in Finland, Sweden, Estonia, Latvia and Russia. During the conducted works unified system of measurements was used.

The next step will be:

- Short standard or guideline for correct handling and storing of biofuels to prevent fires and minimize losses due to degradation.
- Classification system for ash from biofuel including methods for analysis and limit values for heavy metals.
- Simple standard for field-testing of 300 kW – 4 MW biomass boilers.



### **Driving forces for bioenergy market development in Sweden and Europe**

Mr Kent Nyström, Swedish Bioenergy Association, Svebio

A sudden growth of the renewable fuel market has been observed in Europe recently, which is followed by shortage of raw materials needed for the production of the renewable fuels. As Kent Nyström reports, the global pellets usage has increased by 80% over the last four years, while the private households have put up that figure by 425% over the same period. The nine-million-inhabitants society of Sweden use over 1200 000 tons of pellets a year, of which over 400 000 ton are consumed by private households. The growth tendency in other European countries seems similar. The quoted data show that each TWh produced out of biomass generates 300 new job positions by 80 TWh which means 24000 job positions with the fuel production and additionally 800 job positions with the machinery production.



### **Development of Biomass Production in Russia – Problems of Existing Production and Logistics**

Mr Vladimir Kuchinskiy, Russian Biofuel Association (RBA)

The Russian Biofuel Association is providing the support to its member organizations in the following areas related to biofuel:

- Consulting
- Production
- Sales
- Logistics
- Market development

At present the Russian companies involved in the biofuel production are experiencing similar problems mainly dealing with lack of working capital and investment resources. The Association is buying all wood pellet capacities manufactured by the local producers in St-Petersburg and Leningrad oblast and then delivers the wood fuel to Great Britain, Denmark and Holland under the export contracts. All shipments under export contracts are being carried out from St-Petersburg seaport. In fact, it is obvious to everyone that the cost of logistical component is of crucial importance when speaking about the profitability of the wood pellet business. At the moment there are no special cargo-handling devices available at the seaport of St-Petersburg. The wood pellet production is an export-oriented business in NW Russia at the moment. The local market has a monthly demand of 200 tons, which still may be reckoned as a huge step forward if comparing it with the corresponding value two years ago estimated to 0,0 tons.

The external sales market is demonstrating signs of sustainable increase in demand and it is foreseen that the export delivery price for the wood pellets may be increased in the near future. As for the local market, the combustion infrastructure shall be updated to meet the requirements related to wood pellet

utilization. In reality, it is economically more feasible for the local heating companies to utilize the wood chips rather than wood pellets for heating generation.

The Association is currently utilizing the Swedish SGS certification for the wood pellets delivered on export.



**Why will refined biofuels be an important part of the future European energy supply system?" Experiences from biofuel pellets production projects in Vologda, Russia and in Latvia**

Mr Ulf Lindgren, ÅF-Process AB, Malmö, Sweden

For many years Ångpanneföreningen (ÅF) has been active in the bioenergy sector on the territory of Baltic States and Russia within the scope of construction of heating networks, energy production, effectiveness of energy consumption in dwelling-houses and industry in the development of consolidation of resources, climate changes. It is active on the energy market in developing rules and strategies.

Ulf Lindgren presented two successful projects from Latvia and one from Russia. Proper implementation of projects was possible owing to:

- General knowledge of specific business and trading culture in Latvia.
- Possession of raw material access through tight connections to saw mills that are re-dependent on timber deliveries from the timber company (Korsnäs/Latsin).
- Knowledge of and possibility to control logistics and transportation of raw material and final products.
- Availability of a building site in connection to the Latsin centre in Jaunjelgava with established infrastructure, nearness to raw material and good roads to Riga Harbour.
- Good knowledge of bio fuel markets.

And analyse of critical questions and factors as Availability of raw material. Sawdust from soft wood or hard wood is an excellent raw material, but also chips.

- Availability of cost effective fuel for the drying process. Normally residues, such as bark from saw mills or forestry is used for fuel.
- Knowledge of and possibility to control logistics and transportation of raw material and final products.
- Availability of a site with reasonably established infrastructure, and nearness to raw material and good roads.
- Availability of a strategy regarding to which type of market the production is aimed for.

## **Session E: Discussion - Conclusions - Closing of the Conference**

**Chairman: Mr Harro Pitkänen, NEFCO**

**Follow-up Seminar: New Perspectives of Bioenergy**



In the course of the follow-up seminar the conference participants were given an opportunity to exchange opinions on future co-operation perspectives in the bioenergy sector and also provide the audience with the views and proposals on how the joint work shall be arranged structured.

**Mr. S. Risberg, Swedish Energy Agency:** It is extremely important to define the proper financing sources for the implementation of bioenergy projects and relevant activities in the future. The proposal is to publish the data on potential funding sources on BASREC's www-page.

**Mr. H. Pitkänen, NEFCO:** The common problem in what concerns the project proposals submitted is the selection of optimum technical model for the project implementation. The technical setting of a project is of crucial importance when evaluating its economic feasibility and viability from investor's point of view. The financing institutions shall be evaluating the ready-made projects from both technical and financial points of view submitted by the project owners/potential borrowers. It must be also stated that there are certain differences in financial and capital markets when considering the countries involved in the co-operation. The Russian banking sector has been continuously developing during the recent years. However, the Russian banks do not seem to be really interested in financing the rehabilitation/modernization projects in municipal sector of economy.

**Mr. A. Averchenkov, World Bank, UNDP:** It is about the right time to start setting up the workable financing mechanisms for facilitating the implementation of bioenergy-oriented projects. In order to overcome the existing financial barriers, the proposal is to unify efforts and establish some structure with the objective of supporting relevant projects at the initial phase of the project development cycle. The financial assistance to development of regional biomass utilization programs may be also adding value to the increased number of potential projects in the sector. The overall objective is to prepare the common bioenergy project portfolio for IFIs for the period of 3-4 years. The conduction of donor and investor conferences shall be also stimulating the increased number of economically feasible projects.

**Mrs. G. Knutsson, STEM:** In comparison with Russia, large oil companies in Scandinavia are involved in the bioenergy activity and also participate in the carbon programs. Can we also make the Russian companies participate in similar actions?

**Mr. A. Averchenkov:** That shall be the responsibility of the federal level authorities.

**Mr. H. Pitkänen:** The idea to attract a wider range of investors is quite a reasonable one.

**Mr. Bjorn Storvik, Storvik & Co.:** One of the possible ways of overcoming the existing barriers on project financing is to utilize the competence and experience of regional energy efficiency centres operating in NW Russia. The centres are providing consultancy support to municipal and industrial entities at stages of the project development cycle. Moreover, the environmental project implemented in Naryan-Mar with the support from Norsk Hydro may be showing a proper example to the Russian giants, such as Lukoil and Gazprom.

**Comments from the Estonian delegation:** The outcomes of activity under BASREC initiatives are extremely positive. All relevant actions including the development of the Handbook and capacity building in the bioenergy sector are obviously facilitating the co-operation. The biofuel sector in Estonia shows positive development dynamics specifically owing to high prices of imported natural gas and mazut. The proposal is to continue preparation of different manuals and handbooks reflecting various aspects of the biofuel sector. Moreover, the standardization and harmonization process in what concerns biofuel and combustion equipment shall be also continued.

**Mrs. G. Knutsson:** Lithuania is also supporting the standardization and harmonization process in the biofuel industry. What is the Russian point of view on the matter?

**Mr. V. Sendetskiy, North-West International Cleaner Production Centre, UNIDO:** The biofuel boilers were initially installed in Russia in early 60-ies of the past century. The Russians have both knowledge and experience in biofuel matters. However, the state support in terms of adopting the

corresponding legislation is obviously needed in today's Russia to foster further development of biofuel sector.

**Mr. H. Pitkänen:** The legislative and other problems are facing both the suppliers and consumers of biofuel. Thus, it is necessary to apply the complex attitude towards tackling the existing barriers.

**Mr. V. Cheida, Leningrad Oblast Administration, Energy Committee:** The Administration is prioritising the implementation of the regional program on processing of non-quality wood with its further delivery to local boiler plants for combustion. The Administration is also aiming at increasing the number of boiler plants operating on wood fuels. There is also an agreement between the Administration and Gazprom concerning the establishment of Oblteplenergo Company to be responsible for construction, operation and maintenance of boiler plants running on biofuels in areas with no access to natural gas pipeline.

**Mr. V. Kuchinsky, Russian Biofuel Association:** In my view, at present there are no real barriers on the way of facilitating the development of bioenergy sector in Russia. We shall mainly consider the improvement of the legislation and financing mechanisms in the sector. The project owners must be focused on submitting the bankable project proposals to financiers. No other major barriers may be observed.

**Mr. H. Pitkänen:** It is necessary to concentrate on feasible project proposals and means to secure both pay back and economic viability for investors. The availability of long-term and sustainable biofuel deliveries is also of importance when considering the rehabilitation and boiler conversion projects. It is also crucial to know whether the borrowers possess the legally transparent mechanism to repay potential loans through tariffs.

**Mr. V. Kuchinsky:** As for the wood pellets, the existing production capacity may be doubled. However, the production companies are facing the risk of non-financing. The planned construction of the wood pellet terminal in the sea port of St-Petersburg will be generating considerable savings on logistics.

**Comment from a representative of the Finnish Research Institute:** An emphasis shall be also given to the sustainable development of the forestry sector!

**Mrs. G. Knutsson and Mr. H. Pitkänen:** We would like to thank the conference participants for the very efficient work during these two days. Our joint activity in the field has practical application and it is mutually beneficial. The proposal from the World Bank concerning the support to project development is a very useful one and it shall be also passed over to BASREC's Steering Committee. We shall continue on putting together different pieces of puzzle in the form of constructive initiatives, proposals and specific solutions.



## Conference in session





## Programme

# “Bioenergy in a BASREC Perspective”

Saint Petersburg 7-8 December 2005,  
Hotel Pulkovskaya

Wednesday 7 December

### **15.00 - 15.30 Session A: Opening – Welcome – Introduction**

**Moderator Sessions A -E: Mr Harro Pitkänen, NEFCO**

Opening and Welcome by Mr Jouko Varjonen,  
Chief Counsellor, Ministry of Industry and Trade, Finland  
Member of the BASREC Group of Senior Officials and of  
the Group of Senior Officials the Nordic Council of Ministers  
for Energy

Welcome address by Mrs. Lubov Sovershaeva, the Deputy Presidential  
Plenipotentiary Envoy to the Northwestern Federal District forwarded  
by Mr Denis Sokolov, Chief Executive Officer, Wood Industries  
Confederation in North West Russia

BASREC Bioenergy Working Group Chairman, Gudrun Knutsson  
Short summary of the work of the BASREC Bioenergy Working Group  
2003-2005

### **15.30 – 18.30 Session B: Development in the Bioenergy Sector in Russia, Baltic Sea Region and Europe**

- 15.30 – 15.50 “Extraction, processing and utilization of biofuel on the territory of the Republic of Karelia”  
Presentation by Mr Avram Skliarsky, Deputy Chairman of The State Committee of the Republic of Karelia on Reforming of Housing and Communal Services
- 15.50 – 16.10 “Bioenergy in Northwest Russia on the base of wood waste”  
Dr Olga Rakitova, Wood Industries Confederation of Northwest Russia, supported by the Russian President Administration Office in the Northwest Region

16.10 – 16.30	"Goals of the NWICPC, UNIDO, SPb. Activities in the field of bioenergy projects implementation and barriers for their implementation" Mr Vladimir Sendetskiy, Consultant, NW Russia Centre for Cleaner Production, UNIDO (NWICPC)
16.30 – 16.50	Coffee break
16.50 – 17.10	"World Bank operations in support of renewable energy development in Russia" Mr A. Averchenkov, World Bank
17.10 - 17.30	"Bioenergy in the Baltic Countries" (Estonia, Latvia, Lithuania) Mr Peeter Muiste, Estonian Agricultural University
	<i>Views and experiences of bioenergy research projects and co-operation activities in Russia and the Baltic Sea Region:</i>
17.30 - 17.40	- Russian-Finnish R&D project in Leningrad Oblast Mr Vadim Goltsev, Researcher, Finnish Forest Research Institute, Joensuu Research Centre
17.40-17.50	- Russian-Swedish R&D project "Sustainable Production and Utilization Chains for Bioenergy in Northwest Russia" Ass. Professor Tatjana Stern, Swedish University of Agricultural Science, Bioenergy Department
17.50 – 18.00	- Experiences of the Russian-Swedish Bioenergy Center at Lisino Forest College, Leningrad Oblast Mr V.S. Kholodkov, executive director, Russian-Swedish education and information BioCenter
18.00 – 18.10	Presentation of the Bioenergy Database, established under Action 4 of the BASREC Bioenergy Working Group Mr Mikael Forss, Nordic Energy Research
18.10 - 18.20	Recent development as regards energy policy and strategy in the Russian Federation Mr Alexander Podsevalov, Deputy Head of the Federal Energy Agency in Northwest Russia, Saint Petersburg
18.20 – 18.30	Discussion, Summary and Conclusions
19.15	Conference Dinner

Thursday 8 December

**09.00 – 10.15 Session C: Renewables and Climate**

09.00 – 09.30	"Possibilities for financing of Bioenergy projects including Climate projects within the TGF (Testing Ground Facility) Mr Harro Pitkänen, NEFCO
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- 09.30 – 09.55 “JI possibilities in Russia”  
Presentation by Mr V. Pluzhnikov  
Senior specialist of Project development department  
National Carbon Sequestration Foundation (NCSF)
- 09.55 – 10.15 "Recent development in biofuel use in NW Russia & Energy efficiency  
in NW Russia Funded by the Government of Norway "  
Mr Harald Birkeland, Norsk Energi, Norwegian Energy Efficiency  
Group (NEEG)
- 10.15 – 10.45 Coffee break

**10.45 - 12.00 Session D: Expansion of the Biofuel Market in the Baltic Sea Region  
Barriers and prospects:**

- 10.45 – 11.00 Short presentation of the Manual for Biofuel elaborated under  
Action 1 Capacity Building of the BASREC Bioenergy Working Group,  
Mr Villu Vares, Tallinn University of Technology, Estonia
- 11.00 – 11.15 Short presentation of the work Action 2 of the BASREC Bioenergy  
Working Group on Standardisation and Market Harmonisation of  
Biofuel, Mrs Eija Alakangas, VTT, Finland
- 11.15 – 11.40 “Driving forces for bioenergy market development in Sweden and  
Europe” - Mr Kent Nyström, Executive Director, Swedish Bioenergy  
Association, Svebio
- 11.40 – 11.55 “Development of Biomass Production in Russia – Problems of Existing  
Production and Logistics”  
Mr Vladimir Kuchinskiy, Russian Biofuel Association (RBA)
- 11.55-12.15 “Why will refined biofuels be an important part of the future  
European energy supply system?” Experiences from  
biofuel pellets production projects in Vologda, Russia and in  
Latvia, Mr Ulf Lindgren, ÅF-Process AB, Malmö, Sweden

**12.15 – 12.30 Session E: Discussion - Conclusions - Closing of the Conference**

- 12.30 - 13.30 Lunch  
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**13.30 – 15.00 Bioenergy in a new perspective – Follow-up Seminar**

Future co-operation on Bioenergy in BASREC, EU and  
in the Northern Dimension Perspective

## Appendix 1:

### Workshop on the Manual for Bioenergy Projects

**WORKSHOP ON BIOFUEL**  
**Presentation of the Manual for Bioenergy Projects**  
**elaborated under**  
**Action 1 on Capacity Building of the**  
**BASREC Bioenergy Working Group 2003-2005**  
7 December, 2005, 10.30 – 14.30, Saint Petersburg

#### Workshop proceeds:



#### **Overview of the content of the HANDBOOK FOR BIOFUEL USERS**

Villu Vares, Tallinn University of Technology, Estonia

#### **Background information**

The work on the manual was financed by Nordic Council of Ministers. Decision-makers responsible for energy supply (in local municipalities, on regional level, etc), DH companies planning to use biofuels or the ones already utilizing are target groups for the manual. The Handbook might be useful for local energy planning, for students, consulting companies etc. and in general – “capacity building” i.e. increase of knowledge on biofuel production and utilization.

#### **Content**

- Introduction
- Properties of solid biofuels and peat (inc information prepared by another WG on biofuel standards)
- Production of solid biofuels
- Combustion technologies
- Storages and conveyors
- Mitigation of environmental impact
- Planning energy supply using biofuels
- Case stories and Estonian experience
- Useful tables

#### **Ideas for the future activities**

- The Handbook might be available from BASREC web site
- The web site version of the Handbook might be easily updated
- New language versions might be prepared – international co-operation is rather important
- Training courses and seminars might be organized combining the Handbook materials and local experiences



**Mr. Georgy Ryabov**  
**All-Russian Thermal Engineering Institute**

The presentation on the content of the Handbook was followed by comments from **Mr. Georgy Ryabov from All-Russian Thermal Engineering Institute**. Mr. Ryabov stated that the content of the Handbook was quite a logical one, although he had received its version at a rather short notice. In Mr. Ryabov's view, there is no similar brochure available in Russia at present. The Handbook does not contain any data on bigger biofuel consumers (CHP plants) and therefore it may be referred as the guidelines for the utilization of wood fuels at smaller boiler plants. Mr. Ryabov also mentioned a couple of comments concerning the Russian translation of the Handbook, mainly dealing with the need to apply the internationally acceptable terminology in the energy sector. Mr. Ryabov was also of opinion that the revised edition of the Handbook could be also supplemented with the relevant Russian data on biofuel boilers and corresponding EU regulations on the biofuel utilization.



#### **Comments on the Russian edition**

Ivan Klevtsov, Tallinn University of Technology, Estonia

Ivan Klevtsov managed the team being in charge of preparing Russian language version. During the works many language problems were encountered. These were mainly problems with finding terminology proper for equipment, phenomena and kinds of works. As the thematic field of bioenergy has not been previously used and few people interested in reading foreign technical books know it, there was a need for creating partly new words and, in some cases, the use of English terminology. Those matters gave rise to the biggest discussions and during the course of works on the territory of Russian Federation it will be shown what kind of vocabulary needs to be developed. The next issue involved technical, organisational and legal problems, which do not exist in Russia. During the works on the Handbook source materials developed in many countries, mainly in English, were applicable. However, most of tables on fuel properties were created on the basis of Finnish sources.

#### **About the Handbook from the position of Russian reader**

The Handbook gained very positive assessment from the position of Russian reader. It was emphasized that it is the first so comprehensive study on such topic, containing whole production cycle, logistics and the use of renewable fuels produced on the basis of straw and peat. The attention was paid to forest economy, issues related to environmental protection and social aspects as well as the fact that the presented materials are based on real examples.

The Russian speakers were mainly focused on the need to apply the international terminology for several technological processes and also correct some calculations including the calculation of biofuel boiler efficiency rates etc.





## **Biofuel production technologies**

Peeter Muiste, Estonian University of Life Sciences  
(Estonian University of Agriculture)

Peeter Muiste based his comprehensive and detailed lecture on the materials from *HANDBOOK FOR BIOFUEL USERS*, of which he was one of the authors, however from the described biofuels; he discussed the wood-based fuels. The lecturer presented the particular parts of wood, which are treated as waste during logging, taking into account the percentage of their part in the cut-out tree. Then he discussed different technologies of logging, transport organisation and kinds of used machines. In his paper he included both the latest technologies and technologies most frequently encountered in north-west Russia and Baltic Sea countries as well as possibilities of gaining wood chips depending on the machines used and the distance from boiler plant. He supported his lecture with many drawings constituting a part of *HANDBOOK FOR BIOFUEL USERS*.

He also paid attention to economic aspects of the presented solutions, depending on the amount of logging and transport distance. Then he presented the equipment for the production of wood chips, starting from machines powered by tractor and with hand-supply of wood to self-propelled, fully automated and highly efficient equipment of Finnish or Sweden production. He also presented the technology and machines for pulling out trunks.

In the following part he briefly discussed the basic techniques of wood chips, pellets and briquettes production.

Following the presentation, Dr Tatjana Stern from the Swedish University of Agricultural Sciences expressed the need to facilitate co-operation and exchange of information between different actors involved in the biofuel activity in the Baltic Sea region and NW Russia. In her view, the revised version of the handbook shall also contain references to earlier works and projects carried out by respective institutions and organizations.

### **Overview on biomass handling and combustion technologies** **Villu Vares, Tallinn University of Technology, Estonia**

Another *HANDBOOK FOR BIOFUEL USERS* author, Villu Vares also presented a comprehensive lecture on combustion on biofuels based on wood and peat. Presented technologies are described in the handbook and can be divided into the ones adequate for combustion of biofuels with small and big moisture content. Then he discussed different kinds of boilers for biomass combustion, distinguishing between boilers with stable grate, with mechanical grate, fluidised bed boilers as well as gasification of wood.

He also extensively discussed smaller boilers, suitable for detached houses or smaller buildings and comparison. At the end he presented different ways of fuel storage and its transport to the boiler, store size and its mechanization.

The lack of inner market for pellets in Baltic Sea Countries and in Russia was also discussed. Estonia exports twenty times more pellets than is used in the country.

### **Conversion of DKVR boilers**

Instead of building new boiler houses, it was better to adapt old boilers. For this purpose, DKVR boilers, produced in USSR as mazout boilers, could be perfectly used. The combustion chamber is large enough to put the mechanical grate to the half of its size and the other part can be built over and

make a pre-hearth. These are the examples of solutions put into practice by companies from Sweden and Finland in Russia and Baltic Sea Countries.



**Mr R.L. Isemin**

State Technical University, Tambov

**Results of test of the water-heating boiler at co-combustion low-grade coal and biopellets in a high temperature fluidized bed**

**Kuzmin S.N., Isemin R.L., Konjakhin V.V., Mikhalev A.V., Panfilova O.V., Zorin A.T., Tambov**

The team of researchers of State Technical University in Tambov worked on the issues of co-combustion of coal and wood pellets. The achieved results allow for describing the optimum mixture of fuels as regards the efficiency of boiler and emission of fumes. The best results were achieved for the mixture of 60% of coal and 40% of pellets. Pellets were put directly into the boiler as its construction made it possible. In dust boilers pellets are grinded before putting into hearth and put into it as dust.

**Flue gas cleaning and ash removal**

**Ivan Klevtsov, Tallinn University of Technology, Estonia**

Ivan Klevtsov presented the following chapters of *HANDBOOK FOR BIOFUEL USERS* related to cleaning of fumes. At the beginning he paid attention to discrepancy in the regulations related to emission in particular countries. This particularly concerns emission of dust and nitrogen oxides. Although most of Baltic Sea countries are obliged to introduce the unified EU regulations, different transition periods are in force and Russia is not EU member. He also paid attention to exploitation difficulties resulting from different amount of ash in different biofuels and their mixtures.

Then he discussed such methods of cleaning fumes as multi-cyclons, textile filters and scrubbers. The condensation of fumes, used in boilers running on fuels containing huge amount of water.

Ways of conduct and removing ashes from boilers were also discussed.



**Lessons learned – case stories**

Mr Ülo Kask, Tallinn University of Technology, Estonia

The introduction of boilers working with renewable fuels, mainly wood-based, started at the beginning of the 90-ies due to the increase in prices of fossil fuels such as coal or heating oil as well as political and social reasons. Thus, there are 12 years of experience in boilers exploitation and ways of working with fuel. At the beginning it was mainly the adaptation of coal and mazout fuels to the needs of biomass. These works were conducted with the engagement on the part of World Bank, resources



from the EU programmes as well as assistance programmes from other countries such as Sweden, Finland, Denmark, Norway and others.

During the transfer into biofuels in Baltic countries and Russia four tendencies may be observed:

- Adaptation of coal boilers as well as biomass and peat combustion on stable grates
- Adaptation of mazout boilers to the combustion of biomass on the basis of wood on the moveable grates
- The construction of new boiler plants with storage system and fuel supply
- There are many successful examples of adaptation of coal and mazout boilers, mainly of DKVR type.

The simplification of western solution does not provide good results; such improvements do not make work stable. Unfortunately, more expensive solutions are more reliable. Individual planning of each modernized building is important, however it is connected with bigger costs as exploited boilers were not designed for the use of biofuels. Sometimes it is cheaper to buy a new boiler plant. It is payable to use peak boilers working with other fuel. Recruiting qualified staff for maintenance and service is a big problem. In many cases newly recruited staff overestimated their capabilities.

Thus, it is better to increase the salaries of qualified staff than risk some losses resulting from wrong use. There is necessity of trainings for technical workers who are not experienced in working with biofuels. One should ask experts from western countries for help in trainings.

#### **Planning of biomass use in district heating** **Villu Vares, Tallinn University of Technology, Estonia**

Villu Vares presented next chapters concerning the planning of biomass heating systems. The author emphasised the importance of complex planning of boiler rooms, industrial network and receiving installation in the buildings.

It is important to treat each project individually due to local conditions, type and moisture content of fuel as well as e.g. the use of fumes condensation. In the boilers combusting the fuel with large water content, it will be economical to evaporate the water contained in the fuel. For the profitability of the process installation with low temperature of return water is necessary.

#### **Ideas for the future activities**

An update version of the Handbook might be available from BASREC web site in pdf format. New language versions might be prepared – international co-operation is rather important. Training courses and seminars might be organized combining the Handbook materials and local experiences.

## Workshop on Biofuels in session





**ДОБРО ПОЖАЛОВАТЬ**

**НА СЕМИНАР ПО БИОТОПЛИВУ**  
Презентация справочника по биоэнергетическим проектам, составленного в рамках "Направления деятельности 1" по повышению кадрового потенциала рабочей группы по биоэнергетике БАСРЕК, 2003-2005 гг.  
7 декабря 2005 г., 10.30-14.30, г. Санкт-Петербург.

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**WELCOME**

to the WORKSHOP ON BIOFUEL  
Presentation of the Manual for Bioenergy Projects elaborated under Action 1 on Capacity Building of the BASREC Bioenergy Working Group 2003-2005  
7 December, 2005, 10.30 – 14.30, Saint Petersburg





**Programme**  
**Workshop on Biofuel 7 December, 2005, 10.30 – 14.30**  
**at Hotel Pulkovskaya, Saint Petersburg**  
**Presentation of the Manual for Bioenergy Projects**  
**elaborated under Action 1 on Capacity Building of the**  
**BASREC Bioenergy Working Group 2003-2005**

10.30 – 10.40	Ms Gudrun Knutsson, STEM, Sweden	BASREC Bioenergy WG Action 1 - Necessity for information dissemination on bioenergy
10.40 – 10.55	Villu Vares, Tallinn University of Technology, Estonia	Overview of the content of the Manual
10.55 – 11.10	Ivan Klevtsov, Tallinn University of Technology, Estonia	Comments on the Russian edition
11.10 – 11.30	All-Russian Research and Project Thermal Engineering Institute (to be confirmed)	About the Handbook from the position of Russian reader
11.30 – 12.00	Peeter Muiste, Estonian Agricultural University, Estonia	Biofuel production technologies
12.00 – 13.00		Lunch
13.00 – 13.15	Villu Vares, Tallinn University of Technology, Estonia	Overview on biomass handling and combustion technologies
13.15 – 13.30	Kuzmin S.N., Isemin R.L., Konjakhin V.V., Mikhalev A.V., Panfilova O.V., Zorin A.T., Tambov State Technical University	Results of test of the water-heating boiler at co-combustion low-grade coal and biopellets in a high temperature fluidized bed
13.30 – 13.45	Ivan Klevtsov, Tallinn University of Technology, Estonia	Flue gas cleaning and ash removal
13.45 – 14.10	Ülo Kask, Tallinn University of Technology, Estonia	Lessons learned – case stories
14.10 – 14.30	Villu Vares, Tallinn University of Technology, Estonia	Planning of biomass use in district heating