

Newsletter

2|09

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Turning green gold to heat

FUNDS Archangel explores possibilities to expand the use of logging waste and sawdust. **Pages 6-10**



Replenishment

FUNDS NEFCO disburses more funds for cleaner production. **Page 4**



Rippling water

NEWS Despite the recession, Latvia is still determined to finance wastewater treatment. **Pages 14-17**



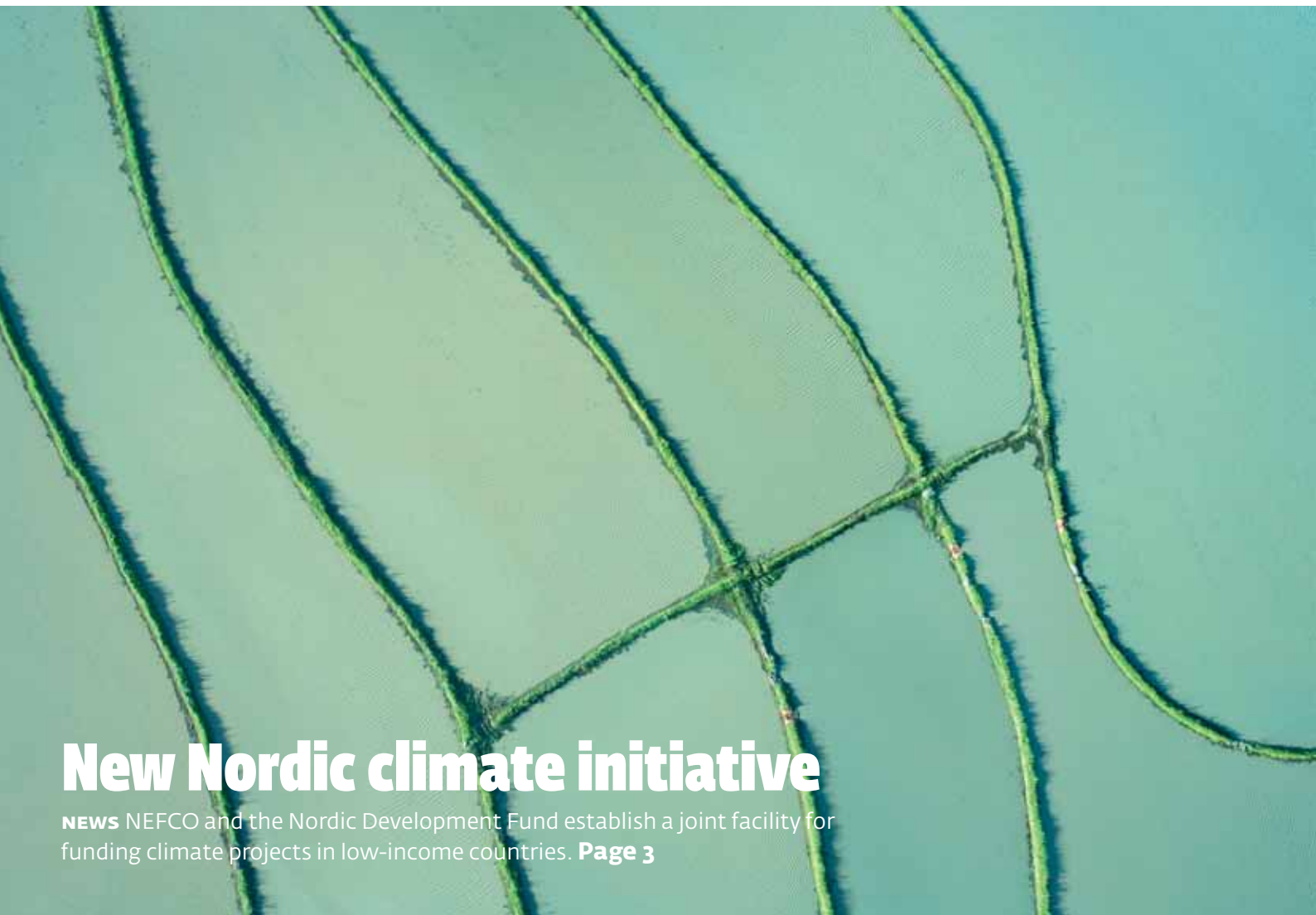
Energetic children

NEWS Novodvinsk is a forerunner in municipal energy saving efforts in Russia. **Page 12-13**



New Nordic climate initiative

NEWS NEFCO and the Nordic Development Fund establish a joint facility for funding climate projects in low-income countries. **Page 3**



Investing in the future

WHEN THIS EDITORIAL was written, only a week remained until the climate change conference in Copenhagen. Preparations for the conference have been under way for two years now, and expectations are high. Without an internationally binding agreement it will be difficult to reduce global emissions of greenhouse gases, and secure the financing needed for a new energy revolution.

At the same time, it is important to note that the international finance markets and multinational corporations are already preparing themselves for the period following expiration of the Kyoto Protocol's first commitment period at the end of December 2012. Irrespective of how things go in Copenhagen.

At NEFCO, we recognise this in the form of investments in our new Carbon Fund, which are earmarked for emissions-reducing projects long after Kyoto's first commitment period has expired. The Finnish government and Finnish energy firm EPV Energy, among others, have made such investments. The market is thus signalling its strong confidence and conviction that international emissions trading will continue in one form or another.

In this newsletter we present several different ways of promoting energy-efficiency and renewable energy in Archangel, in northwestern Russia. In this northern region, both the local authorities and businesses are planning to invest in an expansion of such energy production, exploiting local, renewable resources in the form of forest residues and biomass. And these are in abundance in the local forests.

NEFCO is good at safeguarding untapped resources and helping businesses to save money in the form of cheaper energy bills. And it isn't only businesses who gain from energy-efficient heating. In another report from Novodvinsk, the principal of an art school explains how the school has succeeded in using savings to purchase instruments for its pupils.

We also acquaint ourselves with Latvia's environmental policy and attempts to reduce nutrient releases into the Baltic Sea, in the shadow of the country's deep financial crisis. In the face of unfavourable odds, an extended series of projects is under way at local sewage treatment plants. The international financing institutes can play an important role here in transforming the Baltic Sea Action Plan into concrete measures.

Ripples are spreading across the water. They are evidence of the initiative shown by our partners in Russia, Ukraine and the Baltic. Meet some of them in the following spread.



MIKAEL SJÖVALL
Communications
Manager
NEFCO

“NEFCO is good at safeguarding untapped resources”

NEFCO signs new framework agreement with Ukraine

■ NEFCO and the Ukrainian government signed a new framework agreement in September. The new agreement acknowledges NEFCO's status as an international financial institution operating in Ukraine. The signing of this landmark agreement will pave the way for new energy efficiency projects in the country.

NEFCO has financed environmental projects in Ukraine since 2003. However, these financial arrangements have not included the framework agreement, and this has prevented NEFCO from financing ventures such as municipal energy projects in the country.

“We currently have over 70 projects in the pipeline in Ukraine, and many of them can now be implemented thanks to the new framework agreement, which opens up new possibilities for innovative environmental financing”, says NEFCO's Managing Director, Magnus Rystedt.

NEFCO has so far approved EUR 19 million for financing 29 projects valued at EUR 55 million in Ukraine. The projects have mainly been in the energy, agricultural, industrial and banking sectors. Most of the projects have included technological measures to reduce energy consumption and the releases of carbon dioxide or other climate gases.

The Ukrainian loans currently account for 7.9 per cent of funds disbursed by NEFCO's two main financial instruments; the Investment Fund and the Nordic Environment Development Fund.



NEFCO's Managing Director Magnus Rystedt and Sergiy Iermilov, the Head of the National Agency for Energy Efficiency.



Irrigation of farmland. Droughts are expected to increase in the southern hemisphere as a result of climate change.

New Nordic climate initiative

■ **THE NORDIC** Development Fund (NDF) has pledged four million EUR for a new Nordic Climate Facility (NCF). The new financing facility, which is a cooperative venture between NDF and NEFCO, was launched in September at the Nordic Climate Solutions Conference in Copenhagen.

The new financing facility is mainly aimed at promoting innovative cooperation between Nordic organisations, companies and local stakeholders in the poorest developing countries. The call for project proposals for the NCF was officially launched on 26 October at the 61st Nordic Council meeting in Stockholm.

Project proposals related to two areas; water resources and energy efficiency, can be submitted to NDF and NEFCO. The facility may approve 150,000-500,000 EUR per project as grant financing for climate-related projects in the poorest countries of Africa, Asia and Latin America.

“**OUR MAIN OBJECTIVE** is to promote the transfer of Nordic environmental technologies to developing countries and minimise the negative impact of climate change on the most vulnerable and poorest countries,” says NDF’s Managing Director, Helge Semb.

“**WE WELCOME INNOVATIVE** project proposals aimed at reducing releases of greenhouse gases or developing climate change adaptation measures. We are particularly interested in projects, which can demonstrate strong local commitment”, says NEFCO’s Managing Director, Magnus Rystedt.

Financing can be granted to Nordic institutions, organisations, companies, authorities and municipalities, which have established cooperation with a partner organization in an eligible low-income country. The deadline for submitting prequalification applications for the first call for project proposals is 29 January 2010. Applications should be sent to the e-mail address ncf@ndf.fi

“We are particularly interested in projects, which can demonstrate strong local commitment”.

New loan for cleaner production in Lviv

■ In November, NEFCO granted a second loan for the Ukrainian company, OJSC Iskra, which is based in Lviv, western Ukraine. The loan is intended to upgrade one of the company’s furnaces and save some 890,000 cubic metres of gas per year.

The introduction of electrical heating is expected to reduce the company’s carbon dioxide emissions by approximately 452 tonnes per year. Furnaces are required for both producing glass bulbs, as well as glass-based material, which is used for insulation. The loan was disbursed from NEFCO’s facility for cleaner production.



Anatoly Lukin from Archangel inspects a heating plant in Mynämäki.

Russian energy experts tour Finland

■ A group of fifteen energy experts from northwestern Russia and Kaliningrad visited Finland in August. NEFCO organized the trip on behalf of the Nordic Council of Ministers’ Office in Kaliningrad, which financed the study tour.

As part of the tour, the group visited energy companies in Espoo and Turku, and also undertook field trips to the municipalities of Uusikaupunki and Mynämäki in southwestern Finland. The two municipalities have committed themselves to become carbon neutral in line with a pilot programme, which has been initiated by the Finnish Environment Institute.

Carbon fund achieves first emission reduction units and a second UN approval

■ **IN OCTOBER 2009**, a 16.5 MW wind park in western Lithuania generated the first UN-approved Emission Reduction Units (ERUs) for the Baltic Sea Region Testing Ground Facility (TGF), a 35-million euro carbon fund managed by NEFCO. The Benaiciai Wind Power Project was the third ever project to be registered as a Joint Implementation (JI) project under the Kyoto Protocol in July 2008, enabling it to generate tradable ERUs against verified reductions of greenhouse gas emissions. Now this project became the second JI project in the world to generate ERUs under the international verification procedures (so-called JI Track 2). The Benaiciai project reduced 22,174 tonnes of carbon dioxide in 2007 and a further 27,250 tonnes in 2008.

THE SUDENAI AND Lendimai 14 MW wind park in Lithuania was the second NEFCO project to reach JI registration - known as "final determination" - in August 2009. To achieve registration,

the project must show that it meets all relevant UN and national criteria and generates greenhouse emission reductions that would not otherwise occur. NEFCO disbursed part of the ERU payments in advance to facilitate the implementation of the project. The wind park became fully operational in December 2008 and the first verification and issuance of Emission Reduction Units is expected in early 2010.

THESE TWO WIND park projects reduce carbon dioxide emissions by displacing fossil fuel-based electricity generation with clean wind power in the Lithuanian national grid. NEFCO buys the projects' emission reductions on behalf of the public and private investors of the TGF, which can use these ERUs to meet their emission targets under the Kyoto Protocol and EU Emissions Trading Scheme. TGF investors include Nordic and German governments and companies.

Journalists visit NEFCO-financed projects in Murmansk

■ **A GROUP** of Finnish environmental journalists visited NEFCO-financed projects on the Kola Peninsula, Russia, in August. The trip included visits to the Murmansk wastewater treatment plant and to day-care centre and hospitals in Kirovsk and Apatity. The visiting journalists, together with local experts, NGO-officials, civil servants and NEFCO representatives, also attended a seminar in Murmansk.

DURING THE TRIP, which was organized by the Association for Finnish Environmental Journalists, a press conference was held aboard the Lenin Icebreaker Museum and attended by officials from the Russian Federal Centre for Nuclear and Radiation Safety.



Exploring environmental hot spots at a seminar in Murmansk.

Windmill for Dolgoschelye village

■ **A windmill**, with a generating capacity of 90 kW, was installed in the village of Dolgoschelye in the northern part of the Archangel region of Russia in November. The windmill was purchased, transported and installed with the help of a loan disbursed from NEFCO's facility for energy savings.



The sole source of power for this village, of slightly over 700 inhabitants, which depends on small scale fishing for its livelihood, has been four diesel generators, which require 240-250 tonnes of fuel at an annual cost of some EUR 120,000.

"This windmill will enable the local community to reduce its dependence on diesel fuel and provide clean energy for the village's school, day-care center, library and health centre, to mention a few examples. The project has, in other words, been both environmentally and socially beneficial, says NEFCO's Senior Manager, Elisabet Paulig-Tönnnes.

Measurements on wind conditions was collected from the nearby Abramovsky Mayak meteorological station.

"We hope that this investment will stimulate similar clean energy projects in other remote municipalities in the Archangel region", says Anna Kulikovskaya, an energy engineer with the Arkhangelsk Oblast Energy Efficiency Center.

The Dolgoschelye windmill project will reduce the release of carbon dioxide by some 204 tonnes per year.



Thanks to a loan from NEFCO, the Ukrainian company Svitlovodskpobut provides hot water to this municipal swimming hall.

Hot water for Svitlovodsk's public swimming hall

■ A NEW co-generation electric plant has been installed in Svitlovodsk, Ukraine, with the help of a loan disbursed from NEFCO's facility for cleaner production. The plant, which is owned by the local company Svitlovodskpobut LLC, will generate electricity for the company's own needs and also supply hot water to municipally owned buildings.

The main purpose of the project is to replace the use of heavy crude oil with natural gas, which will be produced by a 630-kW gas engine power unit (GEPU). The heat and power generated from the plant can be used for heating and providing hot water to private and public buildings, as well as power for production process purposes.

"Apart from saving energy, the co-generation plant benefits the local community by providing hot water to the public, municipal swimming hall", says NEFCO's Technical Consultant, Andriy Katashov in Kiev.

PRIOR TO THE installation of the co-generation electric plant, the swimming hall had been closed for 15 years. Svitlovodskpobut LLC and the municipality have also signed a contract for the supply of electricity to the Palace of Sports Complex.

For the city of Svitlovodsk, the main economic benefit from the project is that Svitlovodskpobut LLC is charging less tariffs for its electricity than its competitors.

"It is very pleasing to see an energy saving project creating vital social improvements. Thanks to this project, the children can now use the swimming hall all year round", says Andriy Katashov.

The project is expected to reduce emissions of carbon dioxide by some 1,716 tonnes a year.

Increased funds for cleaner production

■ NEFCO's Board of Directors decided in September to replenish the corporation's facility for cleaner production by EUR 4 million.

The facility for cleaner production was established in 1997 to promote technological investments in industrial projects in order to curb the emission of harmful substances into the environment. The facility can finance up to EUR 350,000 or 90 per cent of the investment cost for such projects in the form of subsidized loans.

Since the establishment of the facility, NEFCO has granted loans worth EUR 13.8 million for 63 projects. The facility's current geographical focus is mainly on Russia and Ukraine.





The odour of sawdust and bark permeates the entire mill site as we walk round CJSC Sawmill 25 on the outskirts of Archangel. Here the region's green gold is converted into boards and pellets - most of which are exported to the European market to be processed into energy, wood floorings, stairs and furniture.

Energy from green gold

WE EXPECT TO produce around 341,000 cubic metres of timber by the end of 2009 - most-

ly pine and spruce, the predominant species in these regions. Our timber is procured from an area within a 650 km radius of the sawmill. Freight is carried by train or boat," says the mill's Production Manager Margarita Panteleeva.

The company's traditions go back a long way, with the first sawmill established in the Maimaksa district already in 1898. Today, the sawmill employs around 1,200 people.

Panteleeva takes us to the dams where timber sorting used to be carried

out, leading to releases of oxygen consuming particles to the river Dvina. These discharges corresponded to the untreated emissions of 120,000 people annually. Previously, the sawdust generated in production was stockpiled high on the mill site, which produced methane emissions. Thanks to NEFCO's investments in a new timber sorting line, the mill's by-products can now be used for heat generation.

"We use bark, chips and sawdust to produce heat. Bark accounts for around 50 per cent of the fuel mix and if its moisture content is too high, we increase the share of sawdust in incineration. Most of the heat is used for drying timber and heating the buildings on the mill site," says Boiler House Operator Ivan Zheludkov.

Untapped resources. Sawdust waiting to be burned in Tsiglomen, Archangel.



Rolling logs. New timber sorting line at Sawmill 25 in Maimaksa, Archangel.



“Plans are underway to install a third boiler,” says Dmitry Lukashevich.



Gazing at the heat. Anna Kulikovskaya from AOEEC.

WITH A TOTAL capacity of 15 MW, the plant provides more heat and electricity than what is needed at mill site, which has inspired the mill’s management to explore possibilities to provide heat for the local inhabitants of Maimaksa.

“Switching to renewable energy and upgrading production have generated new revenues as part of the sawdust is pelletized and sold to international markets.”

SWITCHING TO RENEWABLE energy and upgrading production have generated new revenues as part of the sawdust is pelletized and sold to international markets.

“We pelletize around 50,000 tonnes of sawdust and sell it to foreign buyers. Once we have the third production line on stream, we expect to be able to produce about 67,000 tonnes of pellets in 2010,” explains Panteleeva.

THE NEFCO-FINANCED PROJECTS at Sawmill 25 were implemented in collaboration with the Arkhangelsk Oblast Energy Efficiency Center, which is responsible for monitoring and verifying the cuts in emission together with the sawmill management.

Encouraged by the success achieved in Maimaksa, CJSC Sawmill 25 decided to install two 2.5 MW boilers for heat generation at the company’s production facility in Tsiglomen some 30 minute’s drive from Archangel.

“The heating plants here in Tsiglomen eat up around 15,000 cubic metres of bark and 4,800 cubic metres of sawdust per year. We’re planning to install a third boiler to increase heat generation,” discloses Dmitry Lukashevich who heads the energy unit at Tsiglomen.

“THE ARCHANGEL REGION offers huge potential for increasing the share of renewable energy. After all, the region accounts for a sizeable percentage of Russia’s timber and paper production and has in place the infrastructure required for the supply of timber and woodchips for energy production. And by making use of the residues created in the production of pulp and timber, companies can achieve major savings,” says Anna Kulikovskaya, AOEEC’s Power Engineer. **N**

Engineering solutions to fix dead zones in the Baltic Sea



COLUMNIST
Daniel J. Conley
 Professor
 Department of
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There is growing optimism that we have turned the corner regarding reducing eutrophication in the Baltic Sea.

There are positive signals that nutrients are being reduced with measures being implemented in agriculture and with advanced sewage treatment being broadly implemented. There is a HELCOM Baltic Sea Action Plan with country-specific nutrient reductions supported by implementation of the EU Water Framework. Never before has there been such a broad political commitment to reduce nutrients to the Baltic Sea.

CLEARLY, THERE IS MUCH WORK left to be done to achieve our goals. However, a frequently raised question is whether engineering solutions may be appropriate to help speed the recovery process. Such measures are meant to be temporary solutions while nutrients are being reduced. They are quite popular because society can see something physical happening and often they may be considerably cheaper than real long-term solutions.

“There is no silver bullet or quick solution to reduce eutrophication”.

ONE OF THE MOST FREQUENTLY suggested engineering solutions is adding oxygen to dead zones on the bottom. The lack of oxygen not only kills the organisms living there, but also creates conditions for the continued bottom release of phosphorus stimulating summer algal blooms. Bubbling has been a partially successful measure in lakes, so maybe it might be appropriate for the Baltic? Numerous large-scale projects have been suggested with a number of pilot projects underway in the coastal zone. The relevant question is can they work on the scale of the Baltic Sea?

IN A SERIES OF WORKSHOPS 60 scientists met to evaluate different large-scale engineering solutions. Specific solutions could not be evaluated individually, instead we examined generalized solutions through two different numerical models. We examined 1) how much oxygen was needed to keep bottom watersoxic, 2) the effect of opening/closing the Danish Straits to change the inflow of saltwater into the Baltic, and 3) mid-water mixing to blend oxygen richer water at 50 metres depth with water lacking oxygen at 100 metres depth.

MITIGATING ALL DEAD ZONES would require adding 2-6 million tonnes of pure oxygen. To place this quantity in perspective, it is equivalent to 20,000-60,000 railway cars of pure liquid oxygen every year. Clearly, this amount is too large to add artificially. Adding more saltwater, while temporarily increasing bottom water oxygen concentrations will reduce the mixing and actually create more problems with dead bottoms. Closing the Danish Straits would improve conditions on the long-term (>30 years), but would result in more dead bottoms on the short-term. Both manipulations would change the salinity; this is not only illegal because of habitat requirements, it is also probably not desirable to change the Baltic Sea ecosystem. Finally, mixing of mid-waters works theoretically, however, many questions remain regarding its practicality, costs and environmental effects.

OUR CONCLUSIONS ARE CLEAR: Large-scale engineering approaches are not the solution to repairing the dead zones in the Baltic Sea. Specific engineering solutions in the coastal zone and archipelago areas may be appropriate and of interest to society, however, they do not address the large-scale problems of eutrophication plaguing the Baltic Sea. There is no “silver bullet” or quick solution to reduce eutrophication. We should redouble our efforts and use the momentum present today and implement both public and private partnerships to reduce the load of nutrients to the Baltic Sea. **N**

At the end of the main pedestrian street in Archangel stands one of the city landmarks - a skyscraper that once played host to the Communist Party's head office. Today, the building houses a wide range of companies including the Arkhangelsk Oblast Energy Efficiency Center (AOEEC), which works in collaboration with NEFCO on several energy and other environmental projects in the region.

Renewable energy for local needs

Currently, we have over 50 energy projects underway in the Archangel region. The first priorities at the moment are to improve energy efficiency in municipality-owned buildings and to expand bioenergy production – not least because the high price of gas is compelling local companies to look for optional energy sources,” says Vadim Eremeev, AOEEC’s CEO.

THE CENTRE, WHICH employs 13 people, was originally co-funded by Norwegian government agencies. Today, AOEEC is financially self-sustaining and in a position to finance its activities by providing consultancy services to local firms and the authorities.

GEOGRAPHICALLY, THE ARCHANGEL region covers an area as big as France. With a large number of peripheral vil-



Vadim Eremeev, CEO at the Arkhangelsk Oblast Energy Efficiency Center.

lages and towns located out of reach for the national gas and oil pipelines, there is keen interest in alternative energy sources. Even so, only 10 per cent of the local energy production is based on biomass with rest being imported from outside the area. At the same time, about 5 million cubic metres of unexploited wood residues are generated in the region’s forests every year.

“According to the plans we’ve drawn up, Archangel could cover most of its energy requirement by making use of wood residues, pellets and the by-products from the sawmills and pulp mills in the region. We’ve calculated that it would be possible to fell approximately 22 million cubic meters of timber per year for local energy needs,” says AOEEC’s Energy Expert Sergey Vakrushev.

“Many sawmills don’t use the bark and sawdust they generate during production. It’s an untapped resource or a ‘low-hanging fruit’ that’s just waiting to be picked,” he adds.

THE PLAN VAKRUSHEV is referring to calls for extensive investments in new heating plants and a logistic system capable of ensuring continuous fellings, haulage and pelletizing of wood residues to secure a reliable supply of local energy. The outlays required under this ambitious plan reach up to EUR 125 million, the idea being that costs could be split between local authorities, regional investment funds and foreign investors.

NEFCO HAS ALREADY financed such projects in the region. One such success story is a pilot project in Onega where the local heating plant switched from coal to biomass in its heat generation already in 2007. As a result of the investment, carbon dioxide emissions fell by some 12,200 tonnes per year.

“Many sawmills don’t use the bark and sawdust they generate during production.”

To promote the concept in other localities in Archangel, NEFCO is currently co-funding a pre-feasibility study to analyse the potential for expanding bioenergy production in the region. The study is financed by NEFCO’s Barents Hot Spots Facility in consultation with AOEEC and the Research Institute for Project Based Industries, PBI, which is based in Turku, Finland.

“By doing so, we want to support a local initiative while at the same time gathering solid data to help us and others to make decisions on investing in renewable energy in the region,” says NEFCO’s Special Adviser Henrik G. Forsström. **N**



At crossroads. A considerable share of the buildings in Archangel could be heated with local biomass.

“The children have already gone up for their afternoon nap but if you make it snappy, you’ll have time to take a few photos,” says day-care centre Director Natalya Bykova as she hurries upstairs.

Novodvinsk invests in energy-saving heating

NEATLY FOLDED clothes lie on chairs. Added cosiness is provided by pastel colours, cuddly toys and beautiful murals. At the sink the staff is cleaning up after lunch.

Naturally, the wide-eyed foreigners carrying tripods and cameras arouse curiosity. Flashlights go off and general merriment prevails. Children giggle delightfully at the opportunity of playing tricks on us. Strangely enough, peace is restored as soon as we leave the room to make a tour of the facility.

Down in the basement, the municipality has had a new heat exchanger installed. The technical system was delivered by the Estonian company Eesti Termotehnika while NEFCO funded the project under its facility for energy saving credits.

OVER THE PAST few years, Novodvinsk, a town of 42,000, has made a range of investments to improve the energy efficiency of municipally-owned premises. More than 90% of the buildings in the town are connected to the district heating system and the drive to cut down on energy consumption is shared by all members of the town administration. Novodvinsk’s economy is based on the pulp industry - by far the biggest single employer in the region. However, as a result of the current recession, tax revenues are dwindling which means that many foreseen energy projects have been frozen.

“Despite the circumstances we’ve succeeded in completing a couple of



Getting ready for the afternoon nap at the day-care centre number 15 in Novodvinsk.

projects this year," says Power Engineer Anna Kulikovskaya of the Archangel Energy Efficiency Center.

PRIZE-WINNING SCHOOL

DAY-CARE CENTRE NO. 15 is not the only facility in Novodvinsk to have benefited from the financing provided by NEFCO. A stone's throw away stands a 74-year-old school with a total of 333 pupils. This school no. 1 boasts upgraded boilers and heat exchangers, new thermostats and thermally insulated classroom windows. Corridors are lit with low-energy fluorescent tubes.

"We've saved around 300,000 roubles per year in heating and electricity costs, meaning that we're able to pay for the project with two years' savings," says Principal Valentina Sivova.



Director Natalya Bykova heads day-care centre 15 in Novodvinsk.

ASIDE FROM GENERATING cash revenues, the project has benefited the environment in the form of reduced carbon, sulphur and nitrogen dioxide emissions. The school's energy consumption has fallen by over 59% and carbon dioxide emissions by 218 tonnes per year.

The pupils in a classroom we pop into on our tour are studying algebra. Environmental awareness is evident in other school activities as well - as seen recently when the school was awarded

a prize worth one million roubles by the Ministry of Education in recognition of its achievements in teaching ecology and natural history. Among other things, the prize made it possible to set up an IT class with new computers.

ART SCHOOL BUYS NEW SYNTHESIZERS

THAT INVESTMENTS IN the environment make sense is nothing new to Principal Svetlana Zadvornaya, Head of the local art school that offers club activities for school children and young people in the afternoons. Over 500 pupils study subjects such as visual arts, dance, choreography, choir singing or take piano lessons at the school.

Parents pay for about 20% of the costs - equivalent to a monthly expenditure of 300 to 500 roubles depending on the subject involved.

"Thanks to the upgrading of the school's boiler and reduced energy consumption, we've been able to make major savings as the energy bills no longer impose such a burden on our finances as in the past. Savings benefit the pupils in many ways. For example, we've bought new synthesizers and outsourced cleaning services with the money we've saved," says Zadvornaya.

"Thanks to reduced energy consumption, we've been able to make major savings".

THE ART SCHOOL has evolved into a sort of hub for local residents who long for cultural pursuits. It is not only pupils who spend time in the building. On the ground floor, painter Pavel Leshukov is busy hanging his watercolours and oil paintings for the opening of an exhibition scheduled for the same week.

"I love the wooden houses built in the traditional style with their heavy floorboards and beautiful cut details. I'm lucky that there are many of them here in the Archangel region as they give me energy," reflects Leshukov. **N**



Upstairs. School number 1 has saved around 300,000 roubles per year in heating costs.



Providing colours. The art school in Novodvinsk has facilities for art exhibitions.

Jūrmala's deserted streets are not at their most charming in November. But in summer, this celebrated resort is transformed into something of Latvia's own Riviera, its fine, sandy shoreline and shallow waters inviting beachgoers in for a swim. With its 55,000 inhabitants and wooden houses, the city is also a popular destination for those living in nearby Riga. The local train to Jūrmala only takes around 30 minutes.

Blue Flag beaches and cleaner rivers



Sigulda. The local wastewater treatment plant will be connected to three more villages soon.



Jūrmala. The new wastewater treatment plant in Sloka treats around 6,200 cubic metres of wastewater daily.



The Gauja river. An important spawning ground for the local salmon stock.

JŪRMALA HAS INVESTED heavily in wastewater treatment in a bid to upgrade the locality's status as a holiday destination. Within the framework of an extensive project focused on enhancing water management and wastewater treatment, the municipality has succeeded in reducing releases of phosphorus by around 26 tonnes annually, and nitrogen by around 37 tonnes per year. The project has received financing from the Swedish International Development Cooperating Agency Sida, the EU structural adjustment fund, ISPA/Cohesion fund, the Latvian state, Jūrmala Municipality, NEFCO, and local water maintenance firm Jūrmalas Ūdens. The project has also led to a substantial improvement in access to clean drinking water, and extended the sprawling municipality's sewerage network.

"We've renewed the pumping stations and established a new wastewater treatment plant in Sloka, in the western part of the city. In the eastern part of Jūrmala, around 30 per cent of the city's wastewater flows into Riga's sewage system for treatment," says Economist Anda Zake from water maintenance firm Jūrmalas Ūdens.

"The new wastewater treatment plant in Sloka treats around 6,200 cubic metres of water daily. Thanks to modern technology and external financing we've already succeeded in reducing phosphorus releases from 9 milligrams to less than 1 milligram per litre of wastewater, which is in line with EU requirements," Zake adds.

"Friends of mine who fish regularly tell me that the size of their catch has increased, and the water become clearer recently."

THE WORK HAS borne fruit. The local beaches have been awarded Blue Flag status, which means that Jūrmala may use the international eco-label for beach water quality. Around 3,200 beaches are entitled to fly the Blue Flag worldwide.

Part of the project remains to be completed, however. Around 26 per cent of the city's inhabitants are yet to be connected to the city's sewerage network. According to EU requirements, the degree of coverage should be at least 95 per cent before the end of 2011. The local water maintenance firm calculates that conclusion of the project will cost around EUR 25 million, which will require international financing. Moreover, the Baltic Sea Commission HELCOM sets even more stringent criteria for Latvian wastewater treatment. According to HELCOM's new requirements, member states should invest in improving wastewater treatment to the point where phosphorus does not exceed 0.5 milligrams per litre of wastewater.

"Here NEFCO can take specific measures to hasten such investments. According to our new credit policy for the Baltic countries, NEFCO now only grants loans in support of objectives which form part of the Baltic Sea Action Plan, and which thus reduce nutrient discharges into the Baltic Sea," says Vice President Solveig Nordström, responsible for NEFCO's investments in the Baltic.

"Our loan portfolio for BSAP-projects in the Baltic states is rather limited, however, since we're successively winding down our presence in the Baltic region. But through to the end of December 2011, we're still accepting financing applications," Nordström points out.

IN CONSULTATION WITH the Latvian Environmental Investment Fund (LEIF), NEFCO has financed an extended series of water treatment projects in small and medium-sized municipalities in Latvia. One of these projects has been implemented in the 800-year old city of Sigulda, which lies north of Riga.

With the help of a loan from LEIF, the city has now managed to build pumping stations, basins, compressors and an automated water aeration system to carry out wastewater treatment at a distance of 2.7 kilometres from the city centre.

"Last year around 200 more households were connected to the sewage treatment works. We treat around 1,800 cubic metres of wastewater daily, but have the capacity for at least twice that much. We therefore decided in principle to connect the villages of Kipari, Peltes and Kalnabeites to our wastewater treatment system and extend local coverage," reports Janis Vicieps, local Manager of the treatment works in Sigulda.

THE TREATED WASTEWATER is released into the shallow Gauja River, which flows through Sigulda before meeting the Gulf of Riga. The river is an important spawning ground for the local salmon population.

"Friends of mine who fish regularly tell me that the size of their catch has increased, and the water become clearer recently," Vicieps notes. **N**



Economist Anda Zake is in charge of upgrading wastewater treatment in Jūrmala.

Ilze Purina, Chair of the Board of the Latvian Environmental Investment Fund (LEIF), meets us at the office entrance in Riga. Half of the six persons staff of LEIF are out in the field evaluating on-going projects.

Environmental funding in Latvia

LEIF IS A LATVIAN SUCCESS STORY. Even though the country is more or less paralyzed by the economic downturn, banking crisis and extensive unemployment, the local environment fund has held its ground.

“Thanks to our prudent risk policy we’ve luckily not been hit by the financial crisis as hard as other local funds and foundations. So far, there have been no defaults on the loans we’ve extended to Latvian municipalities and private companies,” says Ilze Purina who heads the daily work at LEIF.

LEIF WAS FOUNDED as early as 1997 to improve the availability of funding for environmental projects in Latvia.



“So far there have been no defaults on the loans we’ve extended to Latvian municipalities,” says Ilze Purina at LEIF.

LEIF, now a limited company, is wholly owned by the Latvian state.

LEIF LENDS MONEY for various environmental projects related to climate issues, wastewater treatment or mitigation of environmental toxins. A considerable part of project funding is provided by external financiers such as NEFCO and the EU’s Cohesion Funds, including the European Regional Development Fund.

“We also offer consultancy services and technical advice, which ensures that the projects we’ve given the green light to in the first screening have been prepared down to the last detail. Meticulous preparations are a necessary prerequisite for any funding extended to small and medium-sized municipalities wishing to improve efficiency in wastewater treatment,” underlines Purina.

Since its establishment, LEIF has signed no fewer than 230 loan agreements to a total value of EUR 72 million. Some of the funds managed by LEIF are revolving credits meaning that loans repaid to LEIF are subsequently used for financing similar projects in other parts of the country.

Even though Purina radiates confidence and optimism, the stream of project inquiries landing on LEIF’s desk is dwindling. Many potential borrowers are laying low waiting for a recovery of the Latvian economy. This is an opportune moment, therefore, for international financing institutions to step in to alleviate the impact of the crisis and stimulate local growth.



LEIF’s office is located in an Art Nouveau building in the city centre of Riga.

THE WASTEWATER SECTOR is one of the fund’s highest priorities. LEIF has, within the framework of the most recent financing agreement, granted loans to a total of 30 municipalities that have upgraded their wastewater treatment facilities in 42 areas in Latvia. NEFCO, for its part, has extended EUR 6.5 million for two of LEIF’s framework programmes related to several small and medium-sized wastewater projects. Due to the fund’s revolving financing mechanism, LEIF was able to finance wastewater investments for totally EUR 12 million thanks to NEFCO’s investment.

LEIF and NEFCO are currently negotiating a new loan agreement within the framework of NEFCO’s new lending policy for the Baltic countries. **N**

Roland Bebris, Director of the Environmental Protection Department at the Ministry of the Environment, is responsible for implementing the Baltic Sea Action Plan for Latvia's part. The mood in the ministry is sombre as we meet on a gloomy wind-ridden November afternoon. Latvia's budget deficit and the stimulus package offered by foreign creditors to the Latvian Government call for major cuts in spending.

Ministry of the Environment struggles with shrinking resources



Roland Bebris heads the Environmental Protection Department at the Ministry of Environment in Latvia.

“WE’VE BEEN compelled to lay off around 50 employees at the Ministry of the Environment, meaning that there are fewer and fewer people to administer the projects. Our small department is now six people short, which makes it tough to meet the administrative requirements imposed by the EU Water Framework Directive and the Baltic Sea Action Plan,” says Rolands Bebris.

When it comes to upgrading the existing wastewater treatment plants in the largest cities and controlling the biggest point-source emissions in Latvia, EU funding accounts for around 80% of all investment costs with the central government contributing 10% and the municipalities the rest.

“With the current financial crisis, it’s becoming increasingly difficult for us to provide the stipulated local and central government funding for the ongoing wastewater treatment projects,” admits Bebris.

And at the same pace as state financing is cut back, the Ministry of the

Environment is compelled to choose among the wastewater projects being prepared or implemented. As Bebris explains: “We have to give priority to the projects designated by the EU in order to meet the requirements set forth in the urban wastewater treatment directive and water framework directive. Of course, the Baltic Sea Action Plan adds value to the directive but it’s not binding in terms of international law.”

Even though money is tight, it is now cheaper in Latvia to buy construction materials and technical equipment for the wastewater projects. According to Bebris, costs have fallen by up to 30%, which will reduce the total outlays required for the measures to decrease phosphorus and nitrogen discharges to the Baltic Sea from Latvia.

“UNDER THE CIRCUMSTANCES it’s increasingly important to identify cost-effective solutions to cut down on the discharges of nutrients as cheaply as possible. For this, we need a helping hand from the international financial institutions,” concludes Bebris. **N**

Baltic Sea Action Plan (BSAP), in brief

IN 2007, ENVIRONMENTAL ministers and senior government officials from Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and the EU adopted a comprehensive plan to reduce pollution and restore the ecological balance of the Baltic Sea by 2021. Denmark became a signatory to the agreement in 2008.

IN PRACTICE, WHAT became known as the Baltic Sea Action Plan (BSAP), aims at reducing the release of phosphorus and nitrogen by some 15,000 and 133,000 tonnes, respectively. To achieve these targets, coastal countries must develop national programmes and implement other specified pollution reduction measures.

THE IMPLEMENTATION OF the Baltic Sea Action Plan (BSAP) is monitored by the Helsinki Commission or HELCOM, an inter governmental organ that works to curb pollution and maintain the ecological balance of the Baltic Sea.

Energy innovation and cooperation – a winning formula for the Nordic region



COLUMNIST
Anne Cathrine Gjørde

Director, Nordic Energy Research

If the Nordic region is to lead the development of clean energy technologies, smart heads need to come together.

Energy technologies will be at the heart of climate change negotiations at COP15 this December, and are demanded by an increasingly lucrative – not to mention competitive – global market. The Nordic region is well positioned with key competencies and a long experience with clean energy technologies. But how can the region capitalise on this opportunity?

ANSWERING THIS QUESTION requires a proper understanding of how energy innovation works, both in the Nordic region and beyond. This is exactly what a recent series of seven policy studies financed by Nordic Energy Research looked to contribute to, by mapping and assessing the energy research and innovation systems in the Nordic region, as well as looking at opportunities for international cooperation.

UNIQUE NORDIC COMPETENCIES

COMBINED, THE FIVE Nordic countries offer expertise in a range of clean energy technologies. The studies highlighted both the diversity and complementarity of these competencies by describing and measuring various aspects of the innovation systems. One such measure explored in the studies was the relative European patenting activity of each country.

IN AN INTERNATIONAL context, the Nordic region does very well for its size. But significant research and innovation activity in China, the United States and other countries is threatening Nordic and European leadership in some technologies, and taking the outright lead in others. Despite this increase in activity however, much more energy research and innovation is needed to meet our common challenge of climate change.

“Energy research needs a helping hand in terms of funding, and a leg up in terms of cooperation.”

A NEED FOR FUNDING

THE INTERNATIONAL ENERGY Agency has drawn attention to the vast increase in energy research funding needed to mitigate climate change. Public spending on energy research peaked in most OECD countries during the oil crises and has seen a steady decline since. Spending has started to increase again, but governments still allocate less money to energy research today in absolute terms than in the late 1970s. Energy research needs a helping hand in terms of funding, and a leg up in terms of cooperation.

GREATER COOPERATION

INTERNATIONAL COOPERATION IN research generates synergies, reduces duplication and is a key ingredient in accelerating the development and eventual commercialisation of energy technologies. The Nordic region offers a prime example of such cooperation, whether through joint programming such as the Top-level Research Initiative, or in the common Nordic electricity market. But there are significant untapped opportunities to cooperate further, bilaterally and inter-regionally, at the Nordic, European and Global level.

BY PROVIDING POLICY-MAKERS with a better picture of the strengths and weaknesses of the energy innovation system, they can better craft policies to achieve our climate and energy goals. Nordic Energy Research is currently working to fulfil this need by commissioning the development of a comprehensive set of indicators to be published as a Nordic strategic energy technology scoreboard in 2010.

WITH A BETTER understanding of the energy innovation system, increased research funding and greater international cooperation, we will be one step closer to achieving the ambitious targets we hope to come out of COP15. **N**

New appointments at NEFCO

■ Amund Beitnes, from Norway, has been appointed investment manager at NEFCO. Before joining NEFCO, Amund worked for Innovation Norway where he was responsible for equity financing in the CIS, with special attention to northwestern Russia.

Amund also has experience from the environmental sector. From 2003-2007, he worked with Barents Cooperation projects under the office of the County Governor of Finnmark. At NEFCO Amund will work with the Arctic Council Project Support Instrument (PSI) and also manage our business operations in northwestern Russia.



Amund Beitnes

■ Master at Law Ebbe Thalín from Sweden will be replacing Senior Legal Counsel Tita Anttila at NEFCO during her maternity leave starting 17.12.2009. Thalín has previously worked for the Nordic Investment

Bank as Head of Legal Affairs at the NIB Lending Department. Thalín will as Senior Legal Adviser be in charge of issues related to NEFCO's legal affairs.



Measuring the sewerage network in Jūrmala. Finding the optimum prices for reducing environmentally harmful discharges.

New cost efficiency database

■ NEFCO HAS upgraded its internal database in order to provide its investment managers with an integrated, up-to-date financial and environmental data system. The new system will, among other things, make it easier to process data and make speedy decisions on environmentally cost efficient projects.

"I THINK THESE updates will help us to target our investments more efficiently and identify those sectors and envi-

ronmental measures, which give the biggest bang for the buck", says Senior Manager Karl-Johan Lehtinen, who is in charge of NEFCO's environmental unit.

NEFCO IS ALSO currently processing information on optimum price levels for reducing discharges of phosphorus into the Baltic Sea by the surrounding countries. This process is expected to be completed before the end of 2009.

This is NEFCO

The Nordic Environment Finance Corporation, NEFCO, is an international financial institution established in 1990 by the Nordic countries – Denmark, Iceland, Norway, Sweden and Finland. Its primary objective is to finance cost-efficient environmental projects in its neighbouring areas in Eastern Europe. NEFCO provides financing for projects which aim at reducing environmentally hazardous emissions and discharges.

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Moonlight in Archangel. Photograph: Patrik Rastenberger.



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