

# Cleaner production in the Oil and Gas sector, Komi Republic, Russia

A Cleaner Production and Energy Efficiency Programme implemented in the oil and gas industry in North West Russia identified potential savings of 3 820 050 USD/year through measures which could lead to emission reductions and significant savings in resources at all companies, regardless of size, profile or age.

## Introduction

Within the Norwegian long-term capacity building programmes on Energy Efficiency and Cleaner Production in Northwest Russia, the Cleaner Production and Energy Efficiency (CP&EE) programme in the Republic of Komi started in September 2004, and was completed in May 2005.



The main goal of the CP&EE programme is to show companies how they can identify and implement measures that benefit both their company finances and the environment. This is achieved as follows:

1. By assisting the industrial participants in identifying, developing and implementing their own CP&EE measures and in initiating a long-term internal CP&EE process
2. By disseminating methodology to local experts who can promote and implement future CP&EE programmes.

The Programme consisted of an information seminar and four training sessions with homework in-between. As homework the participants audited their production facilities and identified CP&EE measures of different kind and size. The measures were evaluated both technically and economically, and many of them were implemented during the Programme period.



Savings	Identified potential (May 2005)	Achieved result (May 2005)	Unit
Electricity	12 087 756	1 224 290	kWh/yr
Heat	11 949	5 212	Gcal/yr
Water	4 837 029	623 439	m <sup>3</sup> /yr
Gas	39 407	1 902	m <sup>3</sup> /yr
Raw material	1 177	32	t/yr
Fuel (diesel, gasoline, mazut)	543	115	t/yr
Waste water	7 588	7 088	t/yr
Reduction of air emissions	322	39	t/yr
<b>Total economic savings</b>	<b>3 820 050</b>	<b>590 440</b>	<b>USD/yr</b>

Table: Main results from the CP&EE programme in the Republic of Komi

Norsk Energi, The Norwegian Association of Energy Users and Suppliers is an independent competence centre within the following areas: ENERGY - ENVIRONMENT - SAFETY. Today, we have 75 employees and 206 member companies from industry and public administration and thus represents a forum for energy producers and consumers. Currently, our members utilize 90% of the energy consumption of Norwegian industry.

## Results

In total 57 profitable CP&EE measures of different kind and size were identified representing a potential saving of 3 820 050 USD/year. The measures already implemented by the end of the Programme represent savings of 590 440 USD/year. Approximately 50% of the measures identified are no- and low-cost category A measures with a short payback period.

### SELECTED EXAMPLES OF CP&EE MEASURES FROM THE PROGRAMME

#### Neftehimontage-Lukoil: Optimised routing for motor transport

Neftehimontage provides transport and contracting services to its parent company, Lukoil. Previously, when called out on a specific assignment, vehicle drivers made no attempt to use the optimum route, or to organise assignments in order to reduce travel time and distance. This resulted in significant and excessive use of vehicle fuel. During the programme the working team implemented a computer based logistics package that optimises the route for every assignment, and calculates the amount of fuel required for each trip. Individual vehicles are then only provided with the quantity of fuel required for each specific trip. The measure was implemented during the programme. The low investment for purchase of the computer software was covered by the company itself.

Measure:	Investments (USD)	Savings (USD/year)	Payback (years)
Formulating work sheet for optimum route	400	37 750	--

As a result of this measure the company reduced the costs of fuel, in addition to time and labour cost for the drivers.

#### Ukhtavodokanal: Improved water supply

Ukhtavodokanal treats and supplies drinking water to all cities and settlements within the Ukhta District. The company is in a phase of development and renovation, and has identified loss of water through leaks in pipes as a major issue.

During the programme the company developed a project for refurbishment and automatic control of water distribution through the pipes, involving introduction of automation and frequency converters on supply pumps. This will allow the company to

balance the water pressure according to demand, and will significantly reduce leakage. Savings in electricity will also be significant as a result of the use of frequency converters on the supply pumps.

The investments required for this project amount to approximately 573 000 USD. The annual savings are estimated to be about 345 000 USD/year, giving a payback period of less than 2 years.



*Water distribution pumps*

Measure:	Investments (USD)	Savings (USD/year)	Payback (years)
Automatic controll system for water distribution	573 000	345 000	1,7

### Conclusions and lessons learnt

The results of the CP&EE Programme showed that there are good opportunities for companies in the Komi Republic to save significant amounts of money and improve their environmental performance. CP&EE is applicable in improving the competitiveness of local industries, in particular small and medium sized enterprises, and can make significant contributions to improving the environmental performance of industries in the region.

### More information

For more information of this project and to find out the benefits of Energy Efficiency please contact Norsk Energi,

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