

Market Study: Energy efficiency in Russian industry



Opportunities for Dutch companies

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NL Agency
Ministry of Economic Affairs



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1. Executive Summary

Background

Russia is a high growth market and home to various heavy industries. The country possesses vast reserves of gas and oil which exercise a downward pressure on the domestic energy prices. The countries' fast economic development and abundance of natural resources have not stimulated the Russian economy to be energy efficient.

However, as Russia's energy intensity imposes significant costs in terms of industrial competitiveness and environment, the topic is rising on the public policy agenda. In its Energy Strategy (2009), the Russian government has set energy efficiency as a priority for the period up to 2030. This strategy aims at a 56% energy reduction by 2030 (compared to the 2005 level).



Due to its population density, relatively high energy prices and stimulating government policy, many companies in the Netherlands have developed and implemented various measures in order to be energy efficient.

Dutch-Russian cooperation

In 2010 a Memorandum of Understanding has been signed between the Dutch and Russian government in order to intensify the economic cooperation in the field of energy efficiency. Industrial energy efficiency has been defined as one of the focus areas.

There are 3 main energy intensive industries in Russia, which hold a considerable energy saving potential. These are the metallurgical, paper and cement sector. Jointly these industries represent 53% of Russia's energy saving potential.

The scope of the assignment derives from the notion that although the afore mentioned three industries are relatively small in the Netherlands, Dutch companies do have a lot of expertise with regard to energy efficiency and could add value to Russian companies in order to reach their energy efficiency goals.

The main aim of the assignment is to determine whether there are, and consequentially map, the possibilities for Dutch companies to implement technology, knowhow and knowledge with regard to energy efficiency improvements in Russia.

Potential

Due to low energy prices and a lack of government incentives, Russian companies had limited incentives to implement energy efficiency solutions. However, it appears that they are increasingly aware of the potential benefits of energy efficiency and how to achieve those benefits.

The Dutch industry has been subject to various financial and legislative incentives to increase the development and implementation of energy efficiency measures. The Netherlands, together with Germany and the Scandinavian countries, are among the European frontrunners in implementing energy efficient practices.

Characteristic for the Netherlands is the presence of a relatively vast number of companies (though small in size) which provide consultancy, engineering services and support on the implementation and use of energy efficiency measures. In contrast, there is a relatively small number of Dutch companies which produce technology and hardware that bring about energy savings for these specific sectors.

Metallurgical industry

The Russian metallurgical industry consist of large Russian firms with international presence. Currently investments are postponed due to the economic downturn. However, investments are expected again within 2 to 3 years. The obligatory energy audits for Russian companies provide a framework for these investments. Current demand focuses on creating smart systems and optimizing processes (through consultancy). Dutch companies can provide these solutions. Energy efficiency projects are only interesting if the return on investment period is no longer than three years.

Paper industry

The Russian paper industry needs to modernize itself. Foreign paper companies are well developed but Russian companies still use old technology. New plants are built and old ones are modernized. Current demand of Russian companies can be divided into general consultancy services, insulations and the creation of smart systems. Next to that there is a demand for (recovery) boilers. In general waste water treatment services, CHP systems and alternative fuels are also interesting for Russian companies (see the Step project in Appendix II). Dutch companies can provide these services.

Cement industry

The Russian cement industry is characterized by the large share of plants which produce according to the wet production process which is less energy efficient as the dry production process. Dutch companies have the opportunity to supply energy efficiency solutions to both types of plants. Current demand focuses on the creation of smart systems through frequency control devices (for electrical motors, compressors), moisture meters for sludge, registration systems for energy consumption, etc. Other technology concerns boilers (small energy generating facilities) and insulation. Furthermore, general consultancy services on matters of production and inputs are applicable.

Improving Dutch commercial involvement

Dutch companies entering the Russian market face several obstacles. The main barriers include a lack of knowledge about the market, the absence of a local network, the presence of local and foreign competition and intransparent (local) government policies.

The success of Dutch companies offering energy efficiency products and services in Russia depends first of all on a good understanding of the local market. Secondly, the capability to establish relationships with potential Russian clients is crucial. On an individual basis, Dutch companies should adapt their sales strategy to the Russian situation.

This includes having a permanent presence in the market, for instance by appointing an agent or teaming up with a local partner. Having a local partner will furthermore allow to offer efficient after-

sales services. Secondly, by investing in contacts with potential clients (both top-management as well as engineers and financial management) the company will become more acquainted to the Russian business environment. Finally, having marketing material in Russian is preferred.

The Dutch government could add value by improving the positioning of Dutch companies. This could be achieved by facilitating joint branding (creating of online platform, joint presentation at fairs) and the demonstration of Dutch products and knowhow in the form of local pilot projects.

2. Introduction

On behalf of the Ministry of Economic Affairs of the Netherlands, represented by Agentschap NL (hereinafter referred to as “NL Agency”), Larive International has executed this market study.

This market study addresses the opportunities that exist for Dutch companies to implement energy efficiency solutions in the metallurgical, paper and cement industry in the Russian Federation, hereinafter referred to as Russia.

Russia has set in its Energy Strategy (2009) energy efficiency as a priority for the period up to 2030. This strategy aims at a 56% energy reduction by 2030 (compared to the 2005 level). In December 2010 the Dutch Minister of Economic Affairs, Mr. Verhagen, and the Russian First Deputy Prime Minister, Mr Zubkov, signaled their intentions to intensify economic cooperation between The Netherlands and Russia. On the 18th of May, 2011, both Ministers signed a Memorandum of Understanding (MoU) dealing with energy efficiency and renewable energy. With regard to energy efficiency, the focus was on industrial energy efficiency.

As a start of this cooperation, Dutch consultants executed Energy Potential Scans (EPS). This is a methodology that gives companies insights in their energy consumption and opportunities for improvement. The EPS has been implemented already within one Russian company, Proletarsky Zavod (machine building enterprise), and is currently executed at Seversky Tube Works (metallurgy).

The Dutch Ministry of Economic Affairs aims at extending the cooperation. Besides energy advisory, there might be other business opportunities for Dutch companies to contribute to energy efficiency improvements in Russia (e.g. products, services). This market study is the next step in this process and maps these opportunities for Dutch companies.

This study identifies opportunities for Dutch companies in implementing energy efficiency improvements in the Russian metallurgical, paper and cement industry, by delivering technology, services and/or knowledge. The metallurgical, paper and cement industry are the three main energy intensive industries in Russia. Jointly they represent 53% of Russia’s energy saving potential (World Bank Group, 2008). With regard to the metallurgical industry, the focus of the research is on the ferrous metal producing industry. The ferrous metal industry makes up over 95% of total production of the metallurgical industry in Russia (Rosstat, 2011).

This study is based on desk and field research and comprises the following:

- A short introduction about the Dutch market and the Dutch companies active in the field of energy efficiency improvements and the products and services they could deliver in the targeted sectors.
- An overview of the Russian market and Russian companies active in the targeted sectors.
- An analysis of the opportunities for Dutch companies in these sectors in Russia with regard to energy efficiency improvements.
- Advice on how to improve the Dutch commercial involvement in the targeted sectors.
- Practical information on the best ways to enter the Russian market for Dutch companies.

Both desk and field research have been carried out in the Netherlands and in Russia. However, the main part of the research has been conducted in Russia. Interviews have been conducted with representatives of companies and branch organizations of the respective sectors as well as with government officials.

3. Market Indicators and Trends

This chapter provides an overview of the three sectors in both the Netherlands and Russia.

3.1. The Netherlands

The heavy industries present in the Netherlands are relatively small compared to other north-western European countries. Though given the economic size of the Netherlands the paper industry is substantial. Industrial sectors with a stronger presence in the Netherlands are the food processing, chemicals, oil refinery and electrical devices manufacturing industries. Although “small”, the metallurgical, paper and cement industries in the Netherlands are from a technical point of view highly developed.

Half of all energy consumption in the Netherlands is based on natural gas. Gas revenues amount to EUR 12 billion and the industry employs 70,000 people (2012). In comparison, the renewable energy sector has a turnover of EUR 3.3 billion and employs 10,000 people. The Netherlands is a frontrunner in the field of renewable energy resources and electricity produced from sun, wind, water (hydropower) and biomass, made up 9.1% of the total electricity consumed in 2010. This increasing amount lowers the import volume of electricity needed. In 2009 between 15 to 20% of the electricity consumed in the Netherlands was imported. In 2010, imports of electricity only accounted for 2.5% of total electricity consumption. Current national policy is focused on realising a reduction in the emission of green house gasses of 20% and realizing a share of 14% of total energy consumption derived from renewable energy sources, by 2020. Increasing energy efficiency is an integral part of reducing green house gas emissions.



Around 1990 the Ministry of Economic Affairs initiated the Covenant Long Term Agreements (LTA) on Energy Efficiency. This covenant entailed agreements between the government and Dutch companies with regard to realizing energy savings. Due to the success of the first Covenant two more covenants followed involving more public and private parties. In 1999, the Dutch government initiated the Covenant Benchmarking energy-efficiency. The metallurgical, paper and cement industry participated in this covenant. The Covenant Benchmarking energy-efficiency was replaced in 2009 by the MEE Covenant. It was designed for the energy intensive industries which were subject to

the European Emissions Trading System (ETS) and it included, amongst others, the metallurgical, paper and cement industries (Agentschap NL, 2012).

Apart from the covenants, the Dutch government has an active fiscal policy with regard to providing financial incentives to be energy efficient. Examples are the ECOTAX, the Energy Investment Deductions for energy efficient technologies and the high fuel taxes. The financial incentives also include subsidies for implementing energy efficiency measures or using renewable energy. The Netherlands also participates in the ETS.

As of 2011 the Government has developed a new policy focussed around so-called Top sectors¹. Energy is one of those Top-sectors. The activities within these top sectors focus on various energy related issues like energy efficiency and bio-energy. The sector includes companies active in producing energy and companies which offer services with regard to energy savings. Some provide general energy saving measures and others provide them specifically for the metallurgical, paper and cement sectors.

The following sections contain a short overview of the Dutch market regarding the identified sectors and of the current developments concerning energy saving measures per sector.

3.2. Industrial Sectors of the Netherlands

3.2.1. Metallurgical sector

Within the Netherlands the metallurgical industry consist of producers of primary metals like Tata steel, and Nyrstar (zinc) and big producers of semi finished or end-products like Nedstaal and FNSteel. These companies are united through the branch organization VNMI, which has approximately 25 member companies.

The Dutch metallurgical sector provides roughly 50,000 fulltime jobs (direct and indirect) and generated a turnover of approximately EUR 8 billion in 2010. About three quarters of the production (EUR 5.6 billion) was exported of which 80% to other European countries. The sector grew between 2003 and 2008, measured in turnover, from EUR 5.5 to EUR 9.5 billion but was hit hard by the crisis and saw its turnover decrease after 2008 (Nyfer, 2012).



The largest domestic consumer of basic metals is the metal products industry which accounts for over 43.5% of total domestic demand. Other large consumers are the machine industry, the car and transportation industry, the construction and the energy (distribution) sector (Nyfer, 2012). Note, that from hereinafter, the definitions steel and metal refer to all metal products produced in the metallurgical sector.

¹ For more information (in English), see: www.government.nl/issues/entrepreneurship-and-innovation/investing-in-top-sectors.

The metallurgical sector has been very active with regard to improving energy efficiency. Through the branch organization of the sector, the VNMI, the metallurgical sector has participated in every LTA on Energy Efficiency since 1992. This resulted in a decrease of 22.6% in energy usage by 2007 compared to the level of 1998. The Third LTA is still ongoing. The aim of the LTA to implement all cost-effective measures and to investigate strategic energy efficiency improvements for the long term (VNMI, 2011). The metallurgical sector tried to realize energy efficiency by focusing on three segments: process efficiency, product chain efficiency and sustainable energy:

- Process efficiency:
 - Good housekeeping
 - Energy monitoring
 - Lowering oven temperatures during inactivity
 - Reducing pressed air usage
- Product chain efficiency:
 - Reducing raw material usage
 - Optimizing distribution
 - Recycling
- Sustainable energy:
 - Application of electricity generated by sustainable resources

The metallurgical industry is constantly looking for further reductions in energy usage. In this regard, close cooperation with their partners in the product chain is becoming increasingly important. Starting from January 1, 2013, a new and more extensive round of emission trading will start. So far the steel industry is given a preferential treatment but this will be slowly reduced resulting in their full participation in the ETS by 2020.

Realizing energy savings can bring about huge cost savings. 13% of the production costs of one ton of crude (liquid) steel are related to energy costs. This includes the subtraction of 27% of generated energy through recuperated heat. For the production of aluminium, costs of energy as a share of production costs can amount to even 69% (Nyfer, 2012).

Current developments and innovation regarding the quality of the metals, focus on adding nanotechnology and increasing the strength whilst reducing the weight of the metal. Developments regarding product and process innovations focus on increasing efficiency with regard to the use of inputs which can, amongst others, be reduced by realizing more energy efficient furnaces, recycling of waste and reducing CO₂ emissions (Nyfer, 2012).

The basic production process of steel products is visualized in the figure below.



The production of steel starts with the gathering and preparation of the inputs. Iron ore and limestone are sintered in a sinter plant where agglomeration of iron ores takes place.

Simultaneously, coal is devolatilized in a coke plant. The sinter and coke are charged into a blast furnace in which the iron ore is reduced and melted. In the next step, the molten iron is charged in a basic oxygen furnace. Scrap is added and oxygen is blown into the surface of the hot metal in order to reduce the carbon content. After this is done the steel can be casted into slabs. The slabs are reheated and enter the hot rolling process. After hot rolling the product can be sold or processed further to cold rolled and or galvanized/plated product.

In the production process of steel products the biggest sources of energy loss is the waste heat from the various melting and reheating steps. Furthermore the combustible gasses that are formed throughout the processes of coke making, blast furnace iron making and in the BOF shop are often flared. This valuable product is better used as natural gas replacement or in boilers/engines for the production of electricity.

3.2.2. Paper sector



For a small country such as the Netherlands, it harbours a relatively large paper industry with 23 paper factories which are divided over 16 companies of which 70% is in the hands of foreign companies. Given this market size the Dutch industry is on the tenth spot in Europe. The major players in the Dutch market are Smurfit Kappa, Kappa Graphical and Mayr-Melnhof. In 2010 the turnover of the Dutch paper and cardboard industry amounted to EUR 1.8 billion and the industry employed an estimated 4,500 employees (Roadmap Dutch paper industry, 2011). Note that from hereinafter, paper will be used as a definition which includes all sort of paper products, including board.

The paper industry is an energy intensive industry. The annual energy costs of the Dutch paper industry amount to EUR 160 million and make up 15% of the costs of production. A lot of energy is used for drying and to power the machines (pumps etc.). For the drying process mostly natural gas is used. In order to reduce energy costs many paper companies install a Combined Heat and Power system (CHP). This system simultaneously generates steam and electricity from fuel, such as gas, allowing for an energy reduction between 10 to 50%. Already in 2002, 17 out of 27 factories in the Netherlands had a CHP system (VNP, 2003).

With regard to energy efficiency, the Dutch paper industry has been very active the last decade. It has participated in the LTA's on Energy Efficiency. A consequential result of these agreements was the start of the Energy Transition Paper chain trajectory in 2004. The trajectory was initiated by the VNP (Branch organization of the Dutch paper industry) and its members and cosigned and supported by the Ministry of Economic affairs. The industry managed to reduce its energy usage with 11.3% by 2011. By 2020, a reduction of 50% is envisioned to be achieved. (Routekaart VNP, 2011).

The energy reduction of 11.3% was realized due to a focus on the following topics:

- Adjusting the mindset: Increase commitment and understanding of employees with regard to saving energy due to exchange of knowledge, seminars and visualizing results of implemented energy efficiency solutions.

- Sharing of best practices: Increase availability of process optimization techniques for companies.
- Developing benchmarks: Through benchmarking, facilitate comparisons between factories to stimulate an active policy and award those which realized the largest reductions.

In the period 2011 to 2030 the focus will be on the following topics in order to achieve more energy efficiency:

- Sustainability: Achieved through a more efficient use of energy and materials, the development of fully integrated mills for production and the use of bio-based materials and waste.
- Innovation: The competitive position of the Dutch paper industry can be increased if product-, services and process innovations are achieved.

The basic production process of paper is visualized in the figure below.



The production of paper starts with collecting and processing of the inputs. The inputs mainly comprise wood fibers. Recycled material such as waste paper can also be used. The inputs have to be turned into pulp for which there are several methods. The pulp itself contains a lot of water and therefore this has to be drained. Possible ways to drain the water are via gravity and vacuum. After the draining, the pulp is transported to the paper machine where it is formed into paper by the process of pressing and drying, through numerous large cylinders which are heated by steam. The paper can then either be packed or processed further by cutting them into sheets.

In the production process of paper the drying requires a lot of energy as it takes up more than 50% of the total energy usage. Furthermore the production process leads to a lot of paper waste and waste water.

3.2.3. Cement sector

The cement sector in the Netherlands is a small but innovative industry. In 2008 6.2 million tonnes of cement were consumed. In 2009 and 2010, due to economic downturn, consumption dropped over 25%. Cement consumption in the Netherlands is relatively low. In 2010 the consumption of cement per inhabitant of Belgium was with 538 kilo far higher than in the Netherlands which only amounted to 287 kilo per inhabitant.

Most of the cement in the Netherlands (60%) is for producing concrete which is used at construction sites. 35% is used for the production and manufacturing of concrete products. The rest is supplied to small contractors and traders (Cement&BetonCentrum, 2013).

There is only one company active in cement production in the Netherlands, which is the Eerste Nederlandse Cement Industrie B.V. (ENCI). There are three production locations of which only one produces clinker (Maastricht location). The other two production locations use the Maastricht clinker and blast furnace slag to produce cement. The three locations supply most of the demand on the Dutch market and the rest is imported. It employs almost 400 people and in 2011 it sold 2.3 million tonnes of cement (ENCI, 2013).

The cement industry is a very energy intensive industry in which 30-40% of the production costs can be related to energy usage. Furthermore 80% of the total Co₂ output of the whole concrete production chain can be related to the production of cement (MVO Beton, 2013). With regard to the production of cement, clinker is the main input and the burning of this input is the most energy intensive part of the production process during which a large part of the total Co₂ emission is emitted. The lower the clinker content the less energy has to be used and the lower the Co₂ emission (European Commission, 2010).

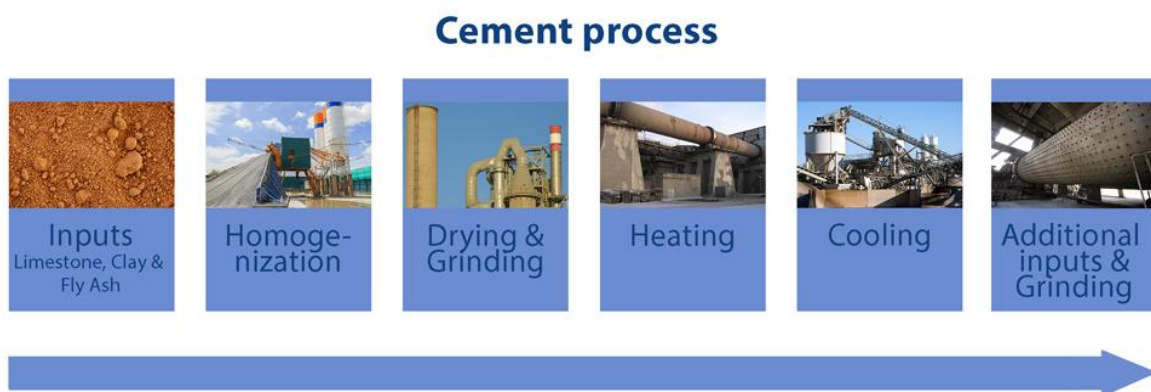
The cement produced in the Netherlands has, on average, the lowest clinker content in the world which is approx. 50%. Belgium and Germany follow (Cement&BetonCentrum, 2010). This means that the production of Dutch cement is relatively energy efficient and that Co₂ emission is low. According to Dutch experts the Dutch cement sector is the most efficient in the world and leader in the usage of efficient technology that reduces the Co₂ emissions. In the Netherlands next to clinker also coal fly ash and blast furnace slag are used which enable the reduction of the amount of clinker used. This results in a different type of cement to be produced (European Commission, 2010). In other countries these products are not readily available as it requires the presence (and proximity) of other industries such as the metallurgical industries which produces blast furnace slag in its production process. Or they are lacking the required knowhow of alternate chemical compositions to produce the same quality of cement. Another innovative element of the Dutch cement industry is the use of a variety of alternative fuels, like household waste, tyres, waste oil, bio-mass and sewage sludge. This allows the Maastricht location to reduce the use of natural gas in certain situations to less than 10% of the normal use. This not only saves energy (gas) but is also a sustainable solution to use biomass or waste as an energy source. As the quality of cement is the most important factor, knowhow on the chemical consequences of the use of alternative fuels and raw materials is required. The Netherlands have this knowhow and vast experience as one of the few countries in the world.



In September 2011, the Green Deal program “Verduurzaming betonketen” (English: Sustainability production chain concrete) was established and it forms a cooperation agreement between the Dutch Ministry of Economic Affairs, MVO Netherlands² and twenty companies from the construction sector, including cement producers. The aim is to increase the sustainability of the production chain of concrete through cooperation and the sharing of knowledge and information. ENCI also participates in the MEE Covenant.

In principle the production process of cement can either be wet or dry. The wet production process is more energy consuming.

The basic production process of cement is visualized in the figure below.



The production of cement starts with the extraction and homogenization of the raw materials. The main raw materials are limestone (80%), clay, fly ash and iron ore. These are processed in order to produce clinker. The raw materials are first dried and grinded to produce raw meal. The raw meal is then heated in a cement kiln in which sintering occurs at a temperature of 1,450 degrees Celsius. The clinker then leaves the kiln and is stored after cooling. After this process different materials are added and grinded together in the cement mills in order to produce different qualities of cement. These materials are for example fly ash, blast furnace slag and limestone. Gypsum is added for the control of the binding process of cement with water. The produced cement is then stored and shipped to the clients.

The examples below provide an indication of what energy efficiency improvements might entail in this sector:

- Production process: Roll crushers are less energy consuming than ball mills.
Alternative fuels to heat the oven like biomass.
- Techniques: Grate preheater technique.
Energy monitoring system.
Modern grinding technologies.
- Inputs: The reduction of the use of clinker and the addition of alternative materials.

² MVO Netherlands: is the national knowledge centre and network organisation for corporate social responsibility)

3.3. Energy efficiency in the Netherlands: European front runner

The Netherlands has shown years of commitment towards the development of a sustainable economy. Already around 1990, the LTA on Energy Efficiency in industrial sectors was introduced. Furthermore the Netherlands participates in the EU Emission Trading System (ETS). In 1995 minimum standards were introduced for new buildings and with other incentives such as the “Meer met minder” program (English: “More with less”) the government signed voluntary agreements with representatives of the Dutch construction, energy and housing sectors to reduce energy consumption in existing buildings (Odyssee MURE project, 2012).

With regard to the relevant industrial sectors, energy efficiency increased as well. Already in the period 1990-2000 big steps were made regarding energy efficiency in the industrial sectors under review. Energy usage was reduced by 16.5% in the metallurgical industry, 22.9% in the paper industry and 21% in the cement industry (Ministry of Economic Affairs, 2001).

During the Benchmark covenant period (2000-2007) the results were: 5.9% in the metallurgical industry, 4.4% in the paper industry and 9.6% in the cement industry (Verificatiebureau Benchmarking Energie-efficiency, 2008)

As of 2008 the energy reductions realised in the third LTA period were: 12.4% in the metallurgical industry (benchmark year 2005), 4.1% in the paper industry (benchmark year 2009) and 15.6% in the cement industry (benchmark year 2005) (Agentschap NL, 2012).

These developments show that the Netherlands is committed to establishing a sustainable economy and that its industries have recognized the potential of realizing sustainability through energy savings. Hence, the Netherlands has the expertise to improve energy efficiency in the industrial sector, which can be applied in other countries, such as Russia.

3.4. The Russian Federation

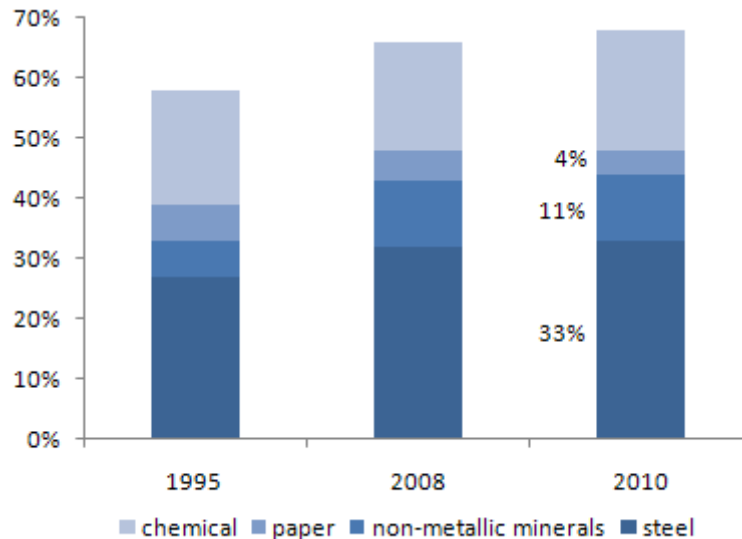
Russia is the largest country in the world given geographical coverage and is in the possession of vast amounts of natural resources such as fossil fuels and forests. Russia holds the world's largest natural gas reserves, the second-largest coal reserves, and the ninth-largest crude oil reserves. Russia is one of the top producers and consumers of electric power in the world with an installed generation capacity of more than 220 million kilowatts. Russia was the world's second-largest producer of oil (after Saudi Arabia) and the largest producer of natural gas in 2012. Internally, Russia gets over half of its domestic energy needs from natural gas.

Russia is a major producer and exporter of oil and natural gas and its economy largely depends on energy exports. Russia's economic growth continues to be driven by energy exports given its high oil and gas production and the elevated prices for those commodities (EIA, 2012).



Due to the abundance of natural resources and governmental policy, the energy price is relatively low. Energy consumption per capita in Russia in 2010 was twice as high as the world average, at nearly 5 toe/cap (Tonnes of oil equivalent per capita) (Enerdata, 2011).

Russia is home to a lot of heavy industries and the metallurgical, paper and cement industry are well represented. These energy-intensive industries in Russia are gaining importance, which shows the opposite trend compared with most countries: the share of the metallurgical, paper, cement and chemical industries of the total energy consumption of the industrial sectors increased from 56% to 68% between 1995 and 2010. See the graph below for a graphical representation.



Source: ABB, 2012.

The metallurgical sector is the largest energy consuming sector (33% in 2010, from 27% in 1995). The share of the non-metallic minerals industry (including the cement industry*) increased over the period, from 6% to 11%. Pulp and paper production accounts for 4% of industrial energy consumption.

The investments in the metallurgical, paper and cement sectors lack behind those in other industries and there is a need for renovating the old production facilities.

* The term "non-metallic minerals industry" is used which includes but does not single out the cement industry.

3.5. Industrial sectors Russia

3.5.1. Metallurgical sector

The Russian metallurgical sector is enormous and hosts various global players such as Mechel, Severstal, Norilsk Nickel, Evraz and Magnitogorsk. The metallurgical companies active in Russia are Russian multinationals with production facilities around the globe, however these companies are registered and have their head offices in Russia. The whole sector employed approximately 969,900 people in 2011. This makes it almost 20 times larger than the metallurgical sector in the Netherlands.

Production levels in 2012 amounted to the following:

Iron	50.5 million tonnes
Steel	70.4 million tonnes
Ferrous rolled	61.8 million tonnes
Steel pipes	9.7 million tonnes

The map below shows the locations of Russian metallurgical companies. There is a strong geographical concentration of companies in three metallurgical bases - Central, Ural and Siberia.



Though international demand decreased in recent years, especially due to the recession in Europe, Russian metallurgical companies were able to expand their activities because of the strong growth of the internal market. Steel demand in Russia has been led by robust growth in the pipe and tube sector due to realization of various large projects initiated by oil and gas companies such as Gazprom and Transneft. Furthermore, the growth of the Russian automotive industry increased local demand for metal parts (Fitch Ratings, 2012).

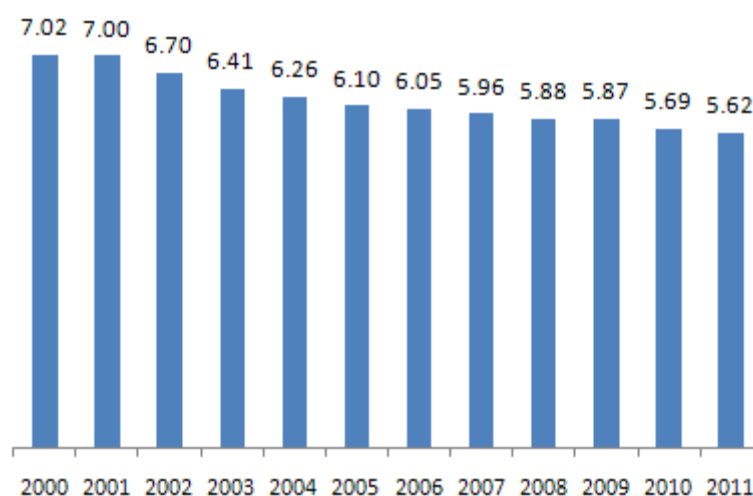
However, global cool down of the economy has had a downward pressure on commodity prices. Russian metallurgical companies therefore aim to maximize the utilization of existing capacity and find new customers/markets for their products. Most sector experts do not expect the sector to recover before 2014.

Important drivers of steel demand in the future will include the Student Games in Kazan in 2013 and the Olympic Games in Sochi in 2014. Preparations for the world football championship in 2018 will underpin subsequent demand. The 2018 football championship in Russia is estimated to require some 3 million tonnes steel products for the stadium construction alone (RT, 2011).

During the last 5-7 years the largest players in the metallurgical sector in Russia have realized a number of ambitious investment projects aimed at renovating old or creating new facilities on the base of state-of-the-art equipment and technologies, with a high grade of energy efficiency solutions. For example the electricity self-sufficiency level at Severstal has reached 53% in 2011. In the period 2000 – 2011, internal electricity generation increased by 29%.

Cherepovets steel mill (part of Severstal) achieved energy savings of 20% per tonnes since 2000 (Severstal, 2012). Cherepovets steel mill has become one of the world's most energy efficient integrated steel producers, with an energy consumption of 5.6 GCal/t (Giga calorie per tonnes³) in 2011. When compared to the world's best practices for integrated steel producers of 5.5 GCal/t this is quite efficient.

The figure below shows the energy consumption dynamics at Cherepovets steel mill in GCal/t.



Source: Severstal, 2012

As mentioned before, the Russian metallurgical sector faces the effects of global recession. Therefore the focus on energy efficiency projects will shift to a middle-low priority level, as all existing resources are concentrated at finding new customers/markets for their products. However with rising energy-prices on one side and under-utilization of existing production facilities, on another, the interest for energy efficiency solutions should increase in the coming years.

³ One Gcal is equal to approximately 4.19 gigajoule.

3.5.2. Paper sector

Russia is home to a large and growing paper and board industry. Production levels in 2012 amounted to:

Pulp	7.7 million tonnes
Newsprint	2.2 million tonnes
Offset	0.4 million tonnes
Office	0.7 million tonnes
Packaging paper (bags etc.)	0.5 million tonnes
Cardboard	2.9 million tonnes
Laminated paper and carton(incl. corrugated cardboard)	253 million m ²

In 2011 the paper industry and related industries (people active in publishing activities) employed over 364,300 people, making the sector several times larger than in the Netherlands.

Major players in the paper sector include multinational companies such as Mondi, International Paper and Smurfit Kappa and Russian companies such as Solikamsk, Turinsk PPM and Archangelsk PPM. There is a strong geographical concentration of companies in the northwest and western regions. The map below shows the locations of Russian paper companies.



Russia is a large exporter of low quality paper grades, such as newsprint (approximately 1.4 million tonnes is exported) and packaging paper and liners (Kraft liner). Also around 25% of the domestic pulp production is exported.

On the other hand, Russia imports large quantities of the higher quality paper and board grades; in 2012 around 220,000 tonnes of coated wood free paper was imported, 300,000 tonnes of publication paper (wood free mechanical) and 100,000 tonnes of high quality office paper. Also large quantities of graphical board are imported and most of the consumption of specialty papers (self-adhesive, self-copying, designer paper).

The Russian paper and board sector was developed during the Soviet times and played an important role in supplying the countries under Soviet influence with a variety of printing papers. The production capacity of Newsprint is for example 3 times the local consumption in Russia. Most of the Russian paper and board mills are completely outdated and consequently are highly energy inefficient. These Russian companies mostly lack the funds to make the necessary investments. Only a few have been modernized and brought to state of the art level. This concerns the international players active on the Russian market:

- Mondi: has modernized and expanded the Syktyvkar mill to approximately 1 million tonnes.
- International Paper: has modernized the Svetogorsk mill (around 550,000 tonnes capacity) and is in the process of modernizing Kotlas paper mill and constructing a coated wood free paper mill.
- Stora Enso: has built 2 new corrugated board mills.

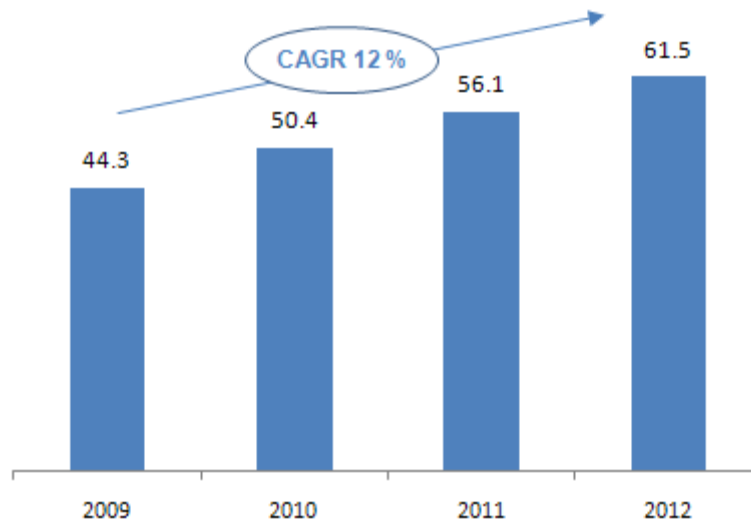
Not only is the size of the industry in Russia of a different magnitude compared to the Netherlands, also the composition differs completely. In the Netherlands there is little production of paper, only Crown van Gelder and Sappi produce various grades of white paper. Furthermore, the industry in the Netherlands is mainly focused on the production of solid and corrugated board of recycled material, whereas in Russia most of the paper and board is produced from virgin fibre.

There is also a big difference in the growth perspective: in the Netherlands the consumption of paper is declining and the demand for board remains more or less stable. In Russia where overall per capita consumption of paper is at a level of 30% of the Netherlands, consumption is growing at an annual rate of 4 to 10% depending on the paper and board grades.

3.5.3. Cement sector

Russia has a large cement industry. In 2012 61.5 million tonnes of cement was produced. This is over 10 times more than the annual consumption in the Netherlands in 2012 (Cement&BetonCentrum, 2013).

The cement market recorded a significant reduction in production and demand during the global financial crisis, which hit the Russian economy from late 2008. Many impending construction projects were postponed and the cement market was adversely affected. However, during the last 4 years the cement industry has recovered and production of cement grew at CAGR 12% (Compound annual growth rate). The Russian cement market follows the trend of the country's construction market, during both the review and forecast periods. The figure below shows the development of cement production in Russia.



Source: Rosstat, 2013.

The development of the cement production in Russia has been driven by the construction of roads in the region surrounding Moscow, improvements in the Far East Federal District ahead of the 2012 APEC Summit, ongoing Winter Olympics' preparation in Sochi and the preparation for the 2018 FIFA Football World Cup, which will be held at a number of new constructions across many cities.

The Russian cement market comprises over 50 cement plants. The main cement producer in Russia is the Eurocement Group. This is a Russian company with over 14 plants. There are several strong regional players and various multinationals present in the Russian market, including Lafarge, Holcim, HeidelbergCement and Dyckerhoff.

The maps below shows the locations of Russian cement producing companies. The bulk of the plants are in the west of the country near to Moscow. Other plants are located east of Chelyabinsk in the Central Federal District and in the two most eastern districts, the Far Eastern Federal District and the Siberian Federal District.



Larger cities such as Moscow, St. Petersburg, Novosibirsk, Chelyabinsk and Nizhny Novgorod have significant building activity. Recently, they have been joined by Sochi, which will host the Winter Olympics in 2014.

Market players have positive expectations of the future development of the cement market and expect increased investments in the western part of Russia, with a significant emphasis on the elimination of older, inefficient wet processing capacity. New plants will open and some old ones will close (Global Cement Magazine, 2011).

The current infrastructure of the Russian cement industry was built mainly under Soviet rule. Due to an emphasis on production totals (rather than efficiency) much of the Soviet-era industry was of comparatively low efficiency.

Wet cement manufacturing is the dominant production process for cement in Russia and over 80% of the production plants use this process. This is a more energy intensive production process compared to the dry production process. The wet process implies drying of slurry (with a moisture content of approximately 28-40%) in a kiln. The energy consumption at that stage makes the wet technology less energy efficient than the dry one.

Meanwhile, Russian cement producing companies such as Eurocement do not plan to change from wet technology to dry at their current production locations in the coming years (Eurocement has 13 plants in Russia). The main motive is that this shift will require to stop the production of cement at the plant at least for one year and the total costs of reconstruction (together with investment costs of hardware, construction works, etc.) will be inappropriate. Secondly, cement producing companies such as Eurocement are satisfied with the quality of wet cement.

However, possible renovations (including energy-efficiency solutions) of existing plants with wet technology are widely encouraged. Eurocement will decrease the share of wet technology for

cement production by the construction of new production facilities (near the existing plants with wet technology or at new locations). Most new companies setting up plants in Russia are opting for dry process plants.

4. Market Potential Assessment

4.1. The Russian Federation

This section describes the business needs of Russian companies in the metallurgical, paper and cement industry for products and services that could contribute to energy savings. The described needs are based upon (face-2-face) interviews Larive has executed with representatives of Russian companies and organizations active in the three sectors.

4.1.1. Business needs Metallurgical sector

Based on the interviews with Russian companies active in the metallurgical sector, the main business needs related to energy efficiency can be categorized as follows:

- Substitutes for Open Hearth Furnace, which is still often used. However it is an outdated technology and very polluting and inefficient.
- Energy and flow meters.
- Products and services related to:
 - Process optimization, especially the rolling processes.
 - Heat convergence.
 - Management software to verify energy usage.
- Boilers.

The market situation is not favorable due to the world wide slowdown and therefore Russian metallurgical companies are looking for max effective projects which require minimal investments. Investments in quality and assortment of final products have a higher priority level than energy efficiency projects. Representatives of the Russian metallurgical industry confirm that current investments are postponed and that the focus is on improving the utilization of the capacity of the current plants. However, within 2-3 years some plants will be outdated and old (depreciated) assets will need to be renovated.



One of the bottlenecks for the investment projects in energy efficiency, according to experts, is the different point of view between decision makers (owners) and executive management:

- Owners are trying to minimize the investment costs and tend to approve the projects with minimal pay-back period (1,5-3 years).
- Executive management have deep understanding of the most promising investment projects, but mostly take decisions in the sphere of maintenance works and have limited influence on investment decisions.

Though the return on investment (ROI) period should be no longer than 3 years for energy efficiency projects, with regard to equipment such as boilers a longer ROI period is allowed (15-20 years).

Market experts emphasize an important development for Russian metallurgical companies, the obligatory energy audit. Many completed the process of the obligatory energy audit in 2012 and created their own “road-maps” of energy-efficiency reserves and the most promising solutions, as a base for further energy efficiency projects.

In appendix I, the needs resulting from such an audit of the Russian metallurgical company “Metalloinvest” can be found. This audit provides a concrete example for Dutch companies to see which (and to what extent) alterations are made after an energy audit has been conducted.

4.1.2. Business needs Paper sector

The industry urgently needs to reposition itself to supply the growing demand for higher quality papers and modernize itself if it wants to be competitive with neighbouring countries like Finland and China. Russia has become a member of the WTO, but has not adjusted its import tariffs of paper and board (these are at the level of 10 to 15%). It is unlikely that this can be maintained.

Based on the interviews with Russian companies active in the paper sector, the main business needs related to energy efficiency can be categorized as follows:



- New construction of paper mills and/or rebuilt of existing ones:

Recent examples are the rebuilt of the Syktyvkar mill by Mondi, the coated wood free mill of International Paper and the new board mill of the SFT Group.

This offers possibilities for Dutch suppliers of technology and equipment and engineering companies. Currently, main contractors come either from Finland (Metso), Germany (Voith) or Austria (Andritz).

- Investment in modernization and reduction of energy consumption:

This offers possibilities for Dutch consultants, engineering companies and suppliers of technology and equipment. Examples of possibilities include:

- Energy efficiency audits: to evaluate current energy efficiency.
- Consulting and engineering: to specify and realize energy savings and to establish a model to be able to analyze different scenarios and how to realize the most energy efficient solutions corresponding to such a scenario. An example of engineering is adjustments to the filter press resulting in the use of less pumps whilst maintaining the same efficiency. An example of consultancy regarding the implementation of available new techniques is the usage of air during the drying process.

- Instrumentation and measuring equipment: to create smart systems due to which process optimization can be achieved.
- Insulation of pipes: in order to reduce the loss of heat.
- Boilers: for instance the use of a recovery boiler to realize energy savings and reduce CO₂ emissions.
- Recycling: creating closed circuits enabling the recycling of water and waste paper.

Furthermore, waste water treatment systems, CHP systems and the use of alternative fuels provide paper companies with good solutions to increase energy efficiency.

The STEP project that was implemented at Mondi Syktyvkar provides a good example for other paper companies of how energy efficiency can be realized. An elaborate case study can be found in Appendix II.

4.1.3. Business needs Cement sector

The cement sector in Russia mostly uses plants which utilize wet technology. The sector will be looking to decrease the high energy costs associated with this production process. Owners of those plants have a clear understanding of the high energy consumption related to wet technology and the worse cost-efficiency compared to dry technology. That situation is pushing the wet plants to implement all possible improvements in the wet production cycle, including energy-efficiency solutions.

Based on the interviews with Russian companies active in the cement sector, the main business needs related to energy efficiency can be categorized as follows:

Production process:	Techniques:	Business improvements	Solutions:	Requirements:
1. Mining	Extraction and transportation of raw materials	Improvement of existing park of electric excavators, trucks and tractors	Replacement of "relay-contact type of control" at "SCR's (thyristor) control"	Operational reliability and automation
		Replacement of existing old park of electric excavators, trucks and tractors	New machines, but same technology	High level of operational reliability and automation
			New technology and equipment (conveyers, etc.)	High level of operational reliability and automation
2. Primary processing of raw materials	Loading of raw materials and correction materials	Improvement of existing park of electric excavators, grab cranes, etc.	Replacement of "relay-contact type of control" at "SCR's (thyristor) control", etc.	High level of operational reliability and automation
		Replacement of existing old park of excavators, grab cranes, etc.	New machines, but same technology	High level of operational reliability and automation
			New technology and equipment	High level of operational reliability

			(conveyers, etc.)	and automation
	Crushing, milling, homogenisation	Electric motors	Frequency-control	Reliability and automation
		Moisture meter of sludge	Moisture meters for sludge	Precision, reliability and automation
		System of water and sludge transportation	Improve or replace the pipelines	Reliability, decrease of the water and sludge losses
3. Secondary processing	Kilning	Electric motors of smoke exhausters, coolers, etc.	Improving (frequency-control, switchers, etc.) or replacement of the motors	Energy efficiency, operational reliability and automation
		Other improvements of energy consumption	Use of alternative fuel (utilization of old tires, biomass), commissioning of new types of gas burner, heat recuperation, co-generation, etc.	Energy efficiency, operational reliability and automation
4. Grinding	Grinding of clinker	Improving of grinders	Use of cement separator to shift from "open" to "closed" grinding process	Energy efficiency, operational reliability and automation
		Replacement at new grinders	New machines	Biggest capacity, low energy consumption, high level of operational reliability and automation
	Loading of clinker	Modernization of grab cranes	New components and solutions to reinforced the cranes	Usability, high level of operational reliability and automation, low energy consumption
		Replacement of grab cranes	New technology and equipment (system of storage hoppers and conveyors/belt loaders, etc.)	Usability, high level of operational reliability and automation, low energy consumption
5. Other indirect processes and/or common solutions	Compressed air	Modernization or replacement of compressors to decrease electricity consumption	Frequency control units, other automation systems, decrease the number of compressors due to installation new units with bigger capacity.	Biggest capacity, low energy consumption, high level of operational reliability and automation

	Boiler rooms, small energy generation and heating network	Modernization or construction new boiler rooms (if necessary) and small energy generation facilities, reconstruction and insulation of heating network, etc.	New technology, equipment and materials, replacement of old-fashioned pipes at new high-technological solutions	Low energy consumption, high level of operational reliability and automation
	Lighting system	Improvement of lighting system	Use of motion sensors, ambient light sensors, etc.	Low energy consumption, reliability and automation
	Registration systems	Registration systems of electricity and gas consumption	Registration systems per unit of equipment, connection with global system of automatic control	Low energy consumption, reliability and automation

Though mentioned in the table above, the use of alternative fuels does not seem to appear on a wide scale. Old tyres are only used occasionally and rather out of private initiative of the companies than stimulated by official policy.

The international and the biggest local players in the Russian cement market are also developing dry production process lines. The most common way is the construction of new plants next to the existing wet plants or at new sites (greenfield). Supply of facilities and services/solutions for the new cement plants in Russia could also be an interesting opportunity for the Dutch companies.

4.2. What Dutch companies can offer

The following section provides an overview of what Dutch companies could offer to Russian companies active in the metallurgical, paper and cement industries with regard to energy efficiency solutions.

In general, according to Dutch experts, most of the Dutch companies active in the energy efficiency sector are relatively small and provide consultancy and engineering services. There are only a few firms that produce energy saving products/technologies for the three specific sectors. There do not seem to be any Dutch suppliers of specific production equipment for these sectors. However, there are various Dutch companies active that could add value to Russian industrial companies. Their services include consultancy services, engineering services and general products.

Companies from emerging markets, including Russia, are generally focused on investments with a relatively short return on investment (ROI). Investments in energy efficiency applied in the

Netherlands normally have a ROI between 6 to 10 years, which is too long from the point of view of Russian companies in the three target sectors. Dutch companies that aim to do more business in Russia should therefore focus on products and services with a relatively short ROI (max 5 years).

Dutch companies should be aware that in the Netherlands, most attention goes to chain efficiency nowadays. In Russia however, the focus is still on process efficiency. Therefore measures need to have a direct effect on the height of the energy bill of the company itself. These measures relate to the optimization and/or replacement of current technologies and/or changes in the production process itself.

According to Dutch experts, energy savings are best realized if the whole picture is taken into account and employers are trained to become aware of energy saving and what it is about and how to realize it. When it comes to energy efficiency, it is best to start with making an overview of the energy balance of a company which can be done quickly when using historical data. An instrument for this is the energy potential scan (EPS). The EPS provides for short term energy saving solutions which in turn lead to cost savings. Next to short term options the EPS also identifies long term options. The successes of the short term solutions result in better housekeeping and increased awareness which eventually lead to increased commitment.

4.2.1. Opportunities Metallurgical sector

According to Dutch experts there are only a few Dutch players which produce products for the metallurgical sector, especially those which offer an energy saving potential. However, there are various service suppliers in the Netherlands, though these are not that distinct from service suppliers in Russia and other European countries. An advantage is that Dutch companies can operate independently, since they are not tied to any specific supplier of technology (as for example various German and Scandinavian companies are).



Dutch experts agree that the Russian companies in the metallurgical sector are in general technically well developed. Russian representatives of the sector confirm that over the last years several projects related to energy efficiency have been carried out. Currently the industry is in a bad shape due to the global economic slowdown.

According to Dutch experts the most distinctive element Dutch companies can provide is a total package of energy reducing measures. These measures are not dependent on specific types of hardware (since the Netherlands does not have any of such brands) and therefore offers unbiased

optimal solutions. However, Russian metallurgical companies have expressed that the ROI on energy efficiency measures should be between 1,5 to 3 years.

The energy saving solutions Dutch companies have to offer can be divided into the following three segments:

- Consultancy
 - EPS
 - Financial feasibility studies
 - Environmental issues
- Engineering + contracting
 - Refractory services
- General products
 - Insulation materials
 - Boilers
 - Smart systems and management software
 - Flow meters, valves and frequency control systems

Apart from these measures one can think of the energy supply of the company itself and the potential of renewable energy sources or the recuperation of residual gasses instead of flaring them which is still done in Russia.

The Russian market is a difficult market to enter and competition is already present on the market. Chapter 5 comprises advice on the best approach for Dutch companies to enter the Russian market and offer their services.

4.2.2. Opportunities Paper sector

According to Dutch experts the paper industry is a conservative industry. Energy costs are often perceived as a given thing. For an old paper factory these costs amount to about 40% of the cost price of paper. However, waste water treatment and CHP systems are regular features of a Dutch paper factory.

In the Netherlands there are companies which concern themselves with the maintenance of machines but hardly any that concern themselves with process software. These are often foreign companies. Furthermore, Dutch companies have a lot of attention for 'recycling' waste heat of the production process.

As mentioned before the Russian paper industry needs to modernize if it wants to be able to compete. Dutch companies are able to offer the Russian paper sector several services and products related to process efficiency. These can be divided into the following three segments:

- Consultancy
 - EPS
 - Heat transfer
- General products
 - Insulation materials (for pipes)
 - Boilers
 - Smart systems and metering and management software
- Waste water treatment systems

Furthermore, Russian paper companies could participate in development projects of the Paper and Board Knowledge Centre (KCPK) or benefit from the developed technologies. The KCPK is a R&D centre and part of the VNP and cooperates with Dutch and international companies to develop knowledge and technology (with regard to paper production), including in the field of energy efficiency.

The paper industry is an interesting industry as it generates a lot of biomass suitable for generating bio-energy and bio-products. Waste water, sludge and waste paper are just several examples of alternative inputs which can be used by paper companies when a closed circuit is created.



As stipulated before, several Russian paper companies are investing in the construction of new mills or are in the process of modernizing old ones (see the STEP project for a detailed example in chapter 6.3.). This offers opportunities for Dutch companies. However, the Russian market is a difficult market to enter and competition is already present on the market. Chapter 5 comprises advice on the best approach for Dutch companies to enter the Russian market and offer their services.

4.2.3. Opportunities Cement sector

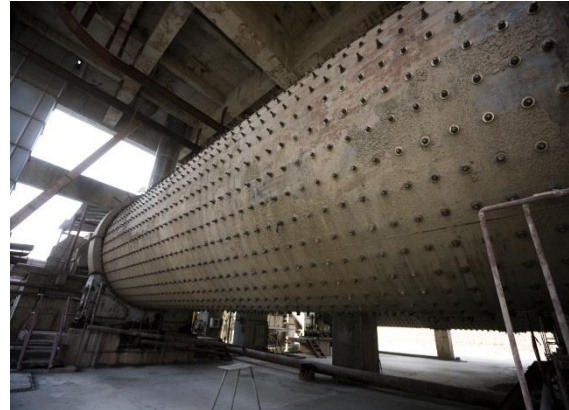
The Dutch cement sector achieved the lowest clinker content in the world and thereby it is one of the most energy efficient cement industries in the world. According to Dutch experts all the large cement producers develop their own technology (indoors) with regard to energy saving measures and often try to copy the ENCI factory in Maastricht. The Netherlands only has one Dutch cement producer and the sector itself is also not very large therefore there are not many generic suppliers of energy efficiency solutions for this sector in the Netherlands.

Dutch companies are able to specifically offer the Russian cement sector:

- Consultancy
 - Energy saving issues in regular cement production
 - Application of alternative fuels and raw materials as well as the chemical process adaptation to adjust the inputs mix of cement but maintaining quality
 - Cooperation with related industries (recycling sector)
- General products
 - Insulation materials
 - Boilers
- Control devices of technological regimes

- Moisture meter of sludge, frequency control, level meters for silos, registration systems of electricity and gas consumption, etc.

As mentioned before, the Russian cement sector is characterized by plants which produce cement in a wet production process. The Russian companies are aware of the inefficiencies of the wet production process. Newly build plants will be using the dry production process. Dutch companies can therefore focus on both the dry and the wet market. The Russian market is a difficult market to enter and competition is already present on the market. Therefore chapter 5 comprises advice on the best approach for Dutch companies to enter the Russian market and offer their services.



5. Improving Commercial Involvement Dutch Companies

5.1. Market entry strategy

General

Dutch companies considering entering the Russian market for energy efficiency solutions should adapt their sales strategy to the Russian situation. In general the following recommendations can be given:

- a. Business intelligence; there is little market information or official statistics available in Russia. So gaining a quick overview by trying to “google” the required info is not really possible. Also Russian business associations do not have/provide much information about their business sector. On the other hand there are a number of Russian research companies, who do have access to government data and information and are willing to sell this. This data ranges from import statistics to financial data of companies. Also a number of Dutch business consultancies are active in Russia.
- b. Finding a reliable partner is key; this can be an agent, distributor and/or joint venture partner. The lack of transparency, the different way of doing business and the language barrier, just to mention a few constraints, pose serious hurdles for SME companies to enter the Russian market on their own.

A number of Russian research companies have specialized in doing background and reference checks on persons and companies. It is recommendable to do this before starting a cooperation. Next to this, Dutch legal and business consultancy firms can be of assistance in the setting up of joint ventures and other forms of cooperation. Alternatively, Dutch companies could set up their own subsidiaries/representative offices in Russia. Needless to say that the recruitment of Russian management and staff is key in these cases. Use of specialized staffing agencies is recommended.

- c. Business development in Russia requires first and foremost good personal contacts; building up mutual trust is essential for any business transaction to succeed. Overcoming the language barrier is another important issue; company brochures should be translated, a Russian version of the website is helpful, and having Russian speaking staff/agents helps a great deal.
- d. Building up business with private companies is a much easier approach then trying to sell something to public companies or governmental institutions. The last should preferably be done through Russian partners.

The regions

The operating companies in the 3 sectors are scattered over the regions, with a few in the vicinity of Moscow; see also the three maps presented in chapter 3.5. However, most of these companies have their head office or at least a representative office, in Moscow or St Petersburg. Establishing contacts at head office level is necessary before a visit to a production location can be made.

For project preparation a site visit is recommended; usually the head office is not completely informed about the situation on the ground (Top down hierarchy is the main explanation).

Specific recommendations for each sector will be described next.

Metallurgy

The Russian metallurgical sector is dominated by large internationally operating Russian owned companies. They require local presence from their suppliers; for most of the Dutch suppliers of engineering and technology it is advisable to find partners in Russia for their market entry. Besides, there is scope for a joint presentation/marketing of knowhow from the Dutch side. Since most of the companies concerned do know each other and are cooperating on a regular basis, this joint market approach should be further explored. Around Danieli-Corus, which already has a local office in Moscow, such a group could be formed.

The Netherlands is not home to the major competitors of the Russian metallurgical sector and therefore is considered to be a neutral country. Besides a number of Russian metallurgical companies have already chosen the Netherlands as a location from where they coordinate their international investments (for instance Mechel, Evraz and ENRC (Eurasian National Resource Company, with Gazprom as its largest shareholder). Therefore a joint presentation of the Dutch knowhow in the metallurgical sector aimed at addressing energy efficiency and environmental issues in Russia looks promising.

Appendix IV contains an overview of the main players active in the three sectors in Russia. This overview provides a foothold for Dutch companies looking for potential clients in Russia. Chapter 5.6 provides an overview of some relevant parties which could help Dutch companies with market entry in Russia. Appendix VI contains an overview of events related to the three identified sectors. These events could be attended by Dutch companies and provide relevant information regarding the market and developments and contacts.

Paper and board sector

The paper and board sector has lately seen some major investments by international players (Mondi, International Paper and Stora Enso) and local companies (Sft Group, Lesinvestprom, etc.). A trend which is expected to continue.

Getting involved in these projects is probably done the easiest by contacting the major contractors in the paper industry: Andritz (Austria), Voith (Germany), Vaahto Paper Technology and Metso (Finland) (see chapter 5.6). Direct business opportunities with Russian paper producers are best pursued through a Russian partner. As far as foreign companies are concerned (Mondi, International Paper, Stora Enso, UPM and SmurfitKappa), direct contacts in Russia and/or at their Head Office are very much possible.

Cement sector

At this moment there are 2 major contractors, who build cement factories, active in Russia: KHD Humboldt (Germany) and Renaissance construction (Russian) (See chapter 5.6). Especially, KHD Humboldt is actively pursuing renovation projects in existing cement mills, which are mostly driven by the need for energy efficiency. With an expected average growth rate of 8% in cement consumption in the coming years and the outdated state of the industry, there is an interesting market for suppliers of technology and equipment. The case study below provides an example of a project conducted by a contractor (Tebodin) for a cement producer. In such a project, opportunities exist for Dutch companies to offer their products.

The cement companies can also be contacted directly, most of them have an office in Moscow and are keen to learn about opportunities to reduce the cost of energy consumption. Eurocement (Russian) is by far the biggest group with 13 cement plants in Russia.

For cooperation in the field of knowledge exchange, research and training it is recommended to contact the Belgorod university (See chapter 5.6), which has specialized in cement technology.

Case study: *Cooperation between Lafarge and Tebodin Moscow (case-study of a successful project of a Dutch company).*⁴

Tebodin Moscow has been performing engineering services for a Lafarge cement plant in Russia since July 2010. The project is being realised in the Kaluga region close to the village of Ferzikovo, 200km south-west of Moscow. The designed plant capacity is 5,000t/day.

A unique feature of the project is that the Oka river separates the quarry and the production site. This natural obstacle has been considered during the design phase of the project.

The philosophy that has been adopted is to extract raw materials from the quarry and to undertake the primary crushing on the quarry side of the site. The material is then transported along a long belt conveyor to the production site on the other side of the Oka.

From June 1st, 2011 Tebodin Moscow started performing technical services. Under this new contract Tebodin was responsible for the technical supervision (scope of works and works quality), construction works control, client control function and further commissioning on the site.

Source: Global Cement Magazine, 2011.

Skolkova

In 2009, the then Russian president Dmitry Medvedev announced the construction of the Russian silicon valley near the village of Skolkova. The Skolkovo Innovation Center is planned to be a high technology business area with the aim to stimulate the development of a new advanced technologies and intellectual capital. The center will form a concentration of science and technology companies. Companies who take part will receive financial support from the government.

The Skolkovo Innovation Center will connect companies from five different areas which will be included into five specialized clusters. The five clusters are: IT, Energy, Nuclear Technologies, Biomedicine and Space Technologies.

As all employees will live nearby, the local village is expected to expand into a city. The plan is for the city to be an energy efficient city with minimal or zero emissions of environmentally harmful substances that ensures the total recycling of household and municipal waste. At least 50% of the energy consumed by the city will come from renewable sources. Other initiatives include energy passive buildings and environmental friendly waste disposal.

The establishment of this center is an interesting development for Dutch companies active in the energy-efficiency sector. Participating Russian companies can be interesting future partners and the construction of the center and city itself provide opportunities to offer its services.

⁴ Case study derived from an interview with a representative of Voskresenskement.

Russian Energy Agency

The Federal State Institution "Russian Energy Agency" (REA) of the Russian Ministry of Energy was created in December 2009. The main goals of the REA are to improve the efficiency of the state policies in the field of energy efficiency and energy saving, to create a common platform for interaction among all market participants and to promote investment attractiveness of the energy sector in Russia.

REA is acting as a center for the exchange of information, monitoring, training, coordination and promotion of energy efficiency, renewable energy and innovation in the energy sector. It has 72 branches in different regions of Russia and the total number of personnel exceeds 2000 people.

The main activities of REA are:

- Information and analytical support in the areas of power generation, energy efficiency and renewable energy;
- Development of regional, municipal, and corporate energy saving programs;
- Coordination of international cooperation projects in the field of energy efficiency and renewable energy;
- Education in energy efficiency.

Appendix IV contains an overview of the main players active in the relevant markets in Russia. This overview provides a foothold for Dutch companies looking for potential clients in Russia. Chapter 5.6 provides an overview of some relevant parties which could help Dutch companies with market entry in Russia. Appendix VI contains an overview of events which could be attended by Dutch companies and provide relevant information regarding the market and developments and contacts.

5.2. Russian government policy



Energy efficiency is one of the priorities for the Russian economy for the next 10 years and therefore Russia aims to modernize its energy infrastructure. Part of the energy strategy is, that by 2030 the generation efficiency rate should be increased to at least 41% in coal-fired power plants, 53% in gas-fired power plants and 36% in nuclear power plants (Ministry of Energy of the Russian Federation, 2010). However, its geography (climate, territory size), low domestic energy prices (especially gas and electricity), inadequate and outdated energy infrastructure, as well as the lack of transparent auditing makes it a challenging process.

The Federal Law, (261-FZ) "On energy saving and energy efficiency improvements", was adopted in November 2009 to create the legal and economic framework for the promotion of energy efficiency. This law includes the obligation for industrial enterprises to carry out an energy audit with the help of an energy auditing company before the end of 2012. Most of the biggest players have executed the audit and, at least, have a general picture of inefficient facilities and a "road-map" of possible cost-efficient improvements.

Currently, the Russian government has launched public debates on the concept of law #584587-5, devoted to a complex of legislative initiatives in the sphere of environmental protection and economic stimulation of local companies. This law would include possible tax and/or financial benefits for industrial companies that would invest in progressive and up-to-date technologies. However, there are still a few obstacles before the law can be implemented. These include discussions about the definition of progressive technologies and the incentives offered by the Federal government.

The Russian Ministry of Industry and Trade is currently investigating the possibility of implementing new import duties on the foreign metallurgical equipment. In February 2013, the Ministry asked Russian companies (both equipment producers and metallurgical companies) to discuss the list of appropriate equipment regarding the new import duties. Further development of the case could lead to the application of import duties at the level of 5-10%.

With regard to regional policies, none were identified. This does not indicate that no regional policies concerning energy efficiency were developed but merely indicates that they were not identified in this research.

5.3. Grants and support programs Dutch government

The Dutch government offers the following grants and support programs for Dutch companies who are willing to invest in Russia (Agentschap NL).

5.3.1. NL Agency programs

Business partner scan

A business partner scan provides you with an overview of possible partners in Russia. These can be agents, distributors or production partners. The partner search will be conducted in collaboration with Dutch embassies, consulates and Netherlands Business Support Offices. They know the local Russian market and can cope with language and cultural barriers. After identifying possible partners these companies will be asked if they are interested in potential cooperation. Involved costs: € 500,-.

The Netherlands Business Support Office in Russia was closed in December 2011.

Website: www.agentschapnl.nl/nl/node/72376

Phone: +31 88 - 602 80 60

Economic missions

NL Agency regularly organizes economic missions to interesting countries under the guidance of a member of government. The presence of members of government and the network of diplomats can open doors and provide you with interesting contacts and remove barriers to business. Involved costs: EUR 950,-.

Activities include:

- Individual conversations;
- Interactive sessions;
- Network dinners;
- Network events.

Website: www.agentschapnl.nl/onderwerp/economische-missies
Phone: +31 88 - 602 80 60

Partners for International Business (PIB)

If clusters of companies and knowledge institutes want to enter Russia, NL Agency could support via the Partners for International Business (PIB) programme. Through economical diplomacy the government aims to remove business barriers.

PIB focuses on the Dutch 'Topsectors' (Energy, Life Sciences, Creative Industries, Water, Agro-Food, Horticulture, High Tech Material & Systems, Logistics en Chemicals). The cluster should consist of at least 3 companies. There are 27 focus countries, Russia is one of them.

Website: www.agentschapnl.nl/nl/node/179266 (only in Dutch)
Phone: +31 88 - 602 80 60

Starters International Business (SIB)

The Starters International Business facility provides advice and support for companies who wish to develop an internationalization strategy for Russia. The company can apply for a voucher (max. €2.400). With this voucher the company can hire an advisor from one of the cooperating organizations, who will examine the risks and possibilities and who will develop an plan of action.

Starters International Business is designed for SME entrepreneurs:

- With little or no experience of doing international business e.g. Russia;
- Who want to embed international business in the structure of their company;
- Who have adequate resources (HR, timing, funding);
- Who are willing to invest time and money to examine and start up business activities in Russia.

Website: www.agentschapnl.nl/nl/node/450824 (only in Dutch)
Email: sib@info.agentschapnl.nl
Phone: +31 88 - 602 80 60

5.3.2. Miscellaneous programs

Exportkredietverzekering (EKV)

Atradius Dutch State Business offers Dutch exporters of capital goods or international construction projects a wide range of insurance and guarantee products when doing business in emerging markets, including Russia.

Credit insurance on behalf of and for account of the Dutch State usually involves export transactions with credit periods or a completion time in excess of twelve months. These always involve the supply of capital goods such as machinery or equipment.

Through its insurance and guarantee products Atradius can assist you in winning export transactions and increase your financing capacity with your bank.

Website: www.global.atradius.com

The Netherlands

Email: customerservice.nl@atradius.com

Phone: +31 (0)20 553 9111

Russia

Contact: Joachim Osinski
Email: joachim.osinski@atradius.com
Tel: +49 (0)221 2044 0

Fund for Dutch Enterprises (FOM)

FMO is the Dutch development bank. With the Facility Emerging Markets (FOM - 'Faciliteit Opkomende Markten'), FMO stimulates Dutch enterprises to invest in emerging markets, including Russia. FOM is a joint initiative of the Dutch Ministry of Economic Affairs and FMO.

FOM provides medium and long term loans to companies or joint ventures in Russia that are majority owned or controlled by Dutch enterprises. In many cases, no appropriate commercial financing is available for these joint ventures and subsidiaries for the construction or expansion of a production plant or to buy new equipment. Also, tenors are often too short or excessive security is needed. FMO offers these joint ventures and subsidiaries the opportunity to strengthen their financial structure, by providing often unsecured or subordinated loans. As a result companies are in a better position to attract working capital from local banks.

FOM specifications:

- Financial package is tailored to the specific needs of the local enterprise;
- Financing amounts to a maximum of EUR 10 million;
- Maturity can range from 3 to 12 years.

Conditions:

- Local joint venture/subsidiary must be majority Dutch owned;
- The Dutch company must provide certain guarantees to strengthen the financial structure of the local enterprise;
- FOM will not finance Dutch companies that have entirely or largely transferred to emerging markets.

The costs of FOM-finance - interest and fees- are in line with market conditions and based on the risk-profile of each individual case. FMO is open for companies from all sectors, however the companies must have a focus on:

- Agribusiness;
- Water;
- Energy;
- Financial institutions.

Website: www.fmo.nl
Email: Info@fmo.nl
Phone: +31 (0)70 314 96 96

5.4. Upcoming events/exhibitions

The list of upcoming events is presented in Appendix VI.

5.5. Project finance

There are several financial institutions active in Russia that support investment in energy efficiency projects. The main institutions are described below.

European Bank for Reconstruction and Development (EBRD)

The EBRD invest in projects which have an investment volume greater than EUR 10 million. Smaller projects can be financed by the EBRD directly if these are part of a larger project or indirectly through special funds (see RUSEFF). The EBRD offers lenders relatively long financing terms (5-7 years).

The EBRD promotes best practices and encourages the implementation of energy efficiency investments. This is achieved by a combination of energy audits (such as the EPS), energy management training and technical advice to help companies unlock their energy saving potential.

The institute has an Energy Efficiency and Climate Change Team, which includes engineers dealing with industrial energy efficiency. In addition, the EBRD has access to energy efficiency consultants who can provide free support to the EBRD's clients (these services are financed through EBRD Technical Cooperation Funds).

Russian Sustainable Energy Financing Facility (RUSEFF)

The Russian Sustainable Energy Financing Facility (RUSEFF) is developed by the EBRD and is specifically dedicated to energy saving and renewable energy investments.

RUSEFF finances companies that are at least 51% privately owned and are registered and operating in Russia.

The equipment to be invested in should be approved by RUSEFF (online list) and have an energy saving potential of >15% and the project should have an IRR of >10%.

RUEFFF finances projects through partner banks up to RUB 300 million (approx. EUR 7.5 million). The credit assessment and decisions are made by the partner banks and the terms and conditions of the partner banks are applicable.

International Finance Corporation (IFC)

IFC provides financing for energy efficiency projects in Russia both independently and/or in cooperation with other financial institutes. IFC offers lenders relatively long financing terms (5-7 years).

IFC's eligibility criteria entail:

- Project size: USD 30-50 million;
- Loan covers < 40% of the total project size. Remaining 60% should be financed through other sources;
- Equity financing is possible, however should exceed 20% of the project size;
- Interest levels are in line with local market levels.

Bank for Development and Foreign Economic Affairs ("Vnesheconombank" or "VEB")

VEB is a state corporation and responsible for providing investment, insurance and consultative support for projects in Russia and abroad. VEB participates in investment projects if commercial financial institutions are unable to offer more competitive terms of financing as compared to those of VEB.

VEB's focus includes projects designed to enhance the efficiency of natural resources utilization, protection of/improve ecological environment and to improve energy efficiency.

VEB's eligibility criteria entail:

- Investment period: > 3 years
- Project payoff period > 5 years.
- Project size > RUR 2 billion (approx. EUR 50 million).
- Minimum participation > RUR 1 billion (approx. EUR 25 million).
- Term of decision making: 3-6 months.

In case the investment project doesn't fit the VEB's criteria, VEB could involve a partner and/or other commercial banks (SME Bank, Svyaz-Bank, etc.) to provide financing.

5.6. Contact details of relevant parties

The contact details of parties relevant for market entry are given. They include branch organizations, major contractors and miscellaneous parties such as the University of Belgorod and the Dutch embassy.

5.6.1. Branch organizations

Central Research and Development Institute of Paper

Contact details:

name: Central Research and Development Institute of Paper
phone: +7 (495) 9933623

Pipe industry development Fund

Contact details:

name: Pipe industry development Fund
phone: +7 (495) 9550072
website: www.frtp.ru
e-mail: frtp@frtp.ru
address: Leninsky ave., 2-2a, office 408, 119049, Moscow, Russia.

Russian Foundry Association

Contact details:

name: Russian Foundry Association
phone: +7 (495) 253-50-91
website: www.ruscastings.ru
e-mail: admin@ruscastings.ru
address: 14, Presnensky val, Moscow 123557, Russia.

Russian Association of Pulp & Paper Organizations and Enterprises “RAO BUMPROM”**Contact details:**

name: RAO BUMPROM
phone: +7 (495) 7830601
website: www.eng.bumprom.ru
e-mail: office@bumprom.ru
address: Philippovsky lane 9 room 23, 119019, Moscow, Russia.

Union of cement producers “Soyuzcement”**Contact details:**

name: Soyuzcement
phone: +7 (495) 2294395
website: soyuzcement.ru
e-mail: inter@soyuzcement.ru
address: ul. B. Kalitnikovskaya, 42, office 313, 109029, Moscow, Russia.

5.6.2. Major contractors**Andritz****Contact details:**

name: Adritz AG
phone: +7 (499) 7509183
website: www.andritz.com
address: Profsojusnaja 73, 117342 Moscow, Russia.

KHD Humboldt Engineering**Contact details:**

name: Dr. Kirejev Yuri (Deputy Head of “Service & Commissioning” Division)
phone: + 7 (495) 6219937
mob: + 7 (963) 6893648
website: www.khd.com
e-mail: yuri.kirejev@khd.com
address: Building 1, office 108, Miasnitskaya str. 24/7, 101000 Moscow.

Metso**Contact details:**

name: Metso Recycling
phone: +7 (495) 9152930
website: www.metso.com
address: St. Nikoloyamskaya, 11/1, 109240, Moscow, Russia.

Renaissance Construction**Contact details:**

name: St. Petersburg Renaissance Construction
phone: +7 (812) 7406370
website: www.rencons.com
e-mail: stpetersburg@rencons.com
address: 26/A Ulitsa Shatelena, St.Petersburg 194021, Russia.

Vaahto Paper Technology**Contact details:**

name: ZAO Slalom
phone: +7 (812) 9748010
website: www.vaahto.fi
e-mail: slalom@slalom-spb.ru
address: Constitution sq., bld.7, office 626, 196247 St. Petersburg, Russia.

Voith**Contact details:**

name: Voith Paper Technology Russia
phone: +7 (812) 3249797
website: stpetersburg.voithpaper.com
e-mail: VPOfficeSPB@Voith.com
address: Startovaya str., 6, Jupiter Business Center, 196210, St. Petersburg, Russia.

5.6.3. Miscellaneous parties**Association of European Businesses****Contact details:**

name: Metso Recycling
phone: + 7 (495) 2342764
website: www.aebrus.ru
e-mail: info@aebrus.ru
address: Krasno proletarskaya ul. 16 bld. 3, entrance 8 (4th floor), 27473, Moscow, Russia.

Association of Industrialists and Entrepreneurs**Contact details:**

name: The Association of Industrialists and Entrepreneurs
phone: + 7 (812) 4215391
website: http://apppiter.ru
e-mail: info@apppiter.ru
address: St.petersburgskoe shosse 88, 198515 Strelna, Russia.

Belgorod State Construction University

Contact details:

name: Prof. Viktor Klassen
phone: +7 (905) 6715047
e-mail: xtsm@intbel.ru.
address: ul. Kostyukov 46, 308012, Belgorod, Russia.

Royal Netherlands Embassy in Moscow

Contact details:

name: Royal Netherlands Embassy in Moscow
phone: +7 (495) 7972900
website: rusland.nlabassade.org
e-mail: mos@minbuza.nl
address: Kalashny Pereulok 6, 115127 Moscow, Russia.

References

- ABB, 2012, *"Russia: Energy efficiency report"*, data from Enerdata, last update February 2012.
- AgentschapNL, 2012, *"Resultatenbrochure convenanten Meerjarenafspraken energie-efficiëntie 2011"*, version 1.1. November 2012.
- Cement&BetonCentrum, 2010, *"Cement, beton en CO2: Feiten en trends"*, Brochure.
- Cement&BetonCentrum, information retrieved from the website on January 14th, 2013.
Website: www.cementenbetonness.nl
- EIA, 2012, *"Country analysis: Russia"*, US Energy Information Administration, September 18 2012, information retrieved from the website on January 20th, 2013.
<http://www.eia.gov/countries/analysisbriefs/Russia/russia.pdf>
- ENCI, information retrieved from the website on January 16th, 2013.
Website: www.heidelbergcement.com/benelux/nl/enci
- Enerdata, 2011, *"World energy statistical Yearbook 2011"*.
- European Commission, 2010, *"Reference Document on Best Available Techniques in the Cement, Lime and Magnesium Oxide Manufacturing Industries"*.
- Fitch Ratings, 2012, *"2013 Outlook: CIS Metals and Mining"*.
- Global Cement Magazine, 2011, *"Russian Cement Focus"*, October 2011.
- Koninklijke Vereniging van Nederlandse Papier- en kartonfabrieken (VNP), 2003, *"Energieverbruik in de Nederlandse papier- en karton industrie: Een overzicht van beleid, cijfers en besparingsmogelijkheden"*, Hoofddorp 2003.
- Koninklijke Vereniging van Nederlandse Papier- en kartonfabrieken (VNP), 2011, *"Routekaart VNP"*.
- Ministry of Economic Affairs, 2001, *"Long-Term Agreements on Energy Efficiency: Results of LTA1 to year-end 2000"*, prepared by Novem, November 2001.
- Ministry of Economic Affairs, 2011, *"Energierapport 2011"*.
- Ministry of Energy of the Russian Federation, 2010, *"Energy Strategy of Russia for the period up to 2030"*, Moscow 2010.
- MVO Nederland, information retrieved from the website on January 16th, 2013.
Website www.mvonderland.nl/product-dienst/beton
- Nyfer, 2012, *"De basis moet goed zijn! Economisch belang van de metallurgische industrie in Nederland"*.
- Odyssee Mure, 2012, *"Energy Efficiency Profile: The Netherlands"*.

Rosstat (Federal State Statistics Service of Russian Federation), 2011, "*Metallurgy Bulletin*", information retrieved from the website on January 20th, 2013.
www.gks.ru

Rosstat, Yearbooks and other official statistics, information retrieved from the website on January 20th, 2013.
www.gks.ru

Routemap Dutch paper industry, 2011, "*Routekaart 2030*", prepared by the VNP.

RT, 2011, "*Global steel demand outlook leaves Russian major looking home*", published July 22 2011, information retrieved from the website on January 20th, 2013.
<http://rt.com/business/steel-major-looking-home/>.

Severstal, 2012, Corporate Presentation July 2012, information retrieved from the website on January 20th, 2013.
www.severstal.com/eng/ir/conferences_presentations/business_presentations/6487.pdf

Vereniging Nederlandse Metallurgische Industrie (VNMI), 2011, "*MeerJarenPlan Energiebesparing Metallurgiesector in het kader van de MeerJarenAfspraken Energie Efficiency Verbetering 2009-2012*".

Verificatiebureau Benchmarking Energie-efficiency, 2008, "*MONITORINGRAPPORT 1999 – 2007: Rapportage monitoring resultaten van het Convenant Benchmarking*", June 1st 2008, Utrecht.

World Bank Group, 2008, "*Energy Efficiency in Russia: Untapped Reserves*", Washington 2008.

Appendices

I. Energy Audit Russian metallurgical company Metalloinvest – Forecasted steps

- 1 Purchase and installation of frequency control devices on pump's motors
- 2 Increasing the efficiency of electric motors of mills MS and RG
- 3 Purchase and installation soft starters for conveyors P1 - P4
- 4 Replacement of the burner for drying drum SB 3.5 * 2.7
- 5 Purchase and installation of frequency control devices on the motors for fans and blowers
- 6 Replacement of burners for kiln machines OK-306 # 1-4
- 7 Replacement of burners for drying drum SB 3.5 * 1.8 and for furnace of drying agent of mill
- 8 Repair of the insulation of gas flues of the kiln machines OK-306
- 9 Purchase and installation of high voltage frequency control devices at the pumps NOVS-1 and NOVS-2
- 10 Purchase and installation of frequency control devices for potable pumping stations
- 11 Compensation of reactive power in the company networks
- 12 Purchase and installation of more efficient power transformers
- 13 Replacement of analogue devices TE-8 to digital devices
- 14 Reduce of electricity consumption for own needs at electrical substations, electrical distribution points, main step-down substations
- 15 Development of external power supply systems of the company
- 16 Replacement of contact network of railway spans from simple semi-compensated suspension to chain semi-compensated suspension, with parallel installation of reinforcing wires
- 17 Purchase and installation of balance-unbalance transformers at railway sub-stations
- 18 Increasing the efficiency of excavator equipment
- 19 Recovery of missing or damaged insulation of heat networks
- 20 Adjustment of the water heating system
- 21 Purchase and installation of autonomous steam generators
- 22 Replacement glass on polycarbonate at selected objects

- 23 Purchase and installation of equipment to collect and return condensate
- 24 Purchase and installation of utilizing turbo expander plant at gas distribution station
- 25 Purchase and installation of utilizing turbo expander plant at gas distribution sub-station
- 26 Modernisation of industrial boilers
- 27 Purchase and installation of air separation plant
- 28 Purchase and installation of lower-capacity compressor at Central compressor station
- 29 Installation of cyclic-flow system of ore transportation
- 30 Purchase and installation of frequency control devices on pump's motors
- 31 Adjustment of the mill's motor efficiency
- 32 Purchase and installation of soft starters for conveyor's motor
- 33 Purchase and installation of frequency control devices on smoke exhausters and fans, using at Pellet plant
- 34 Replacement of burners for kiln machines OK-520 #1, 2
- 35 Purchase and installation of frequency control devices on pump station at the Chern river
- 36 Purchase and installation of frequency control devices on pump station HPV-4
- 37 Purchase and installation of frequency control devices on pump station ABK RU
- 38 Purchase and installation of digital exciters
- 39 Recovery of missing or damaged insulation of heat networks
- 40 Installing of the automatic control system of the building heat consumption
- 41 Purchase and installation of equipment to collect and return condensate
- 42 Purchase and installation of utilizing turbo expander plant at gas distribution sub-station
- 43 Increase the surface of boiler's economizers (DKVR 10/13 #2,3)
- 44 Replacement of burners for drying drum SB 3.5 * 18 and for furnace of drying agent of mill
- 45 Replacement of the burner for drying drum SB 3.5 * 27
- 46 Purchase and installation of insulation of exterior surfaces of 10 drying drums SB 3.5 * 27
- 47 Purchase and installation of frequency control devices on smoke exhausters and fans, using at steam boilers of Boiler #1

- 48 Purchase and installation of frequency control devices on smoke exhausters and fans, using at steam boilers of Boiler #2
- 49 Purchase and installation of frequency control devices on motor of compressor 2BM4-27/9
- 50 Purchase and installation of autonomous source of electricity and heat for consumers of "Mine #5"
- 51 Purchase and installation of autonomous source of electricity and heat in the area of boiler #1
- 52 Improvement of distribution system of recycling air on annealing furnace at Long product rolling mill #2
- 53 Optimization of furnace charging area at slow-cooling furnace
- 54 Modernisation of the burner of tube-type furnace #2
- 55 Installing the system of satellite monitoring of vehicles and fuel accounting
- 56 Purchase and installation of heat-recovery boilers behind the metalling facilities
- 57 Purchase and installation of frequency control devices on smoke exhausters PGUU AKOS-1 and ESPC AKOS-2
- 58 Replacement of 2 turbo-compressors K-250 CKS at modern compressors
- 59 Replacement of 2 turbo-compressors K-500 KS at modern compressors
- 60 Modernization of registration systems of energy production and consumption at the company facilities
- 61 Modernisation of steam boilers BKZ-1 and BKZ-2 with replacement of automation and control systems and Purchase and installation of frequency control devices
- 62 Modernisation of hot-water boilers KVGM-2,3,4 with replacement of automation and control systems
- 63 Recovery of missing or damaged insulation of steam lines
- 64 Recovery of missing or damaged insulation of hot water supply networks

II. STEP project Mondi Syktyvkar

The STEP project included the total renovation of a paper mill dating back from Soviet times (the mill was commissioned in 1970). Mondi bought the mill in 2003 and immediately made some investments to improve the productivity (new packaging line for cutsize paper). The total renovation of the mill, under the code name STEP, was started in 2006 and completed in 2010.

The investment has enabled Mondi to increase its product quality and output for containerboard, uncoated woodfree (offset and cutsize) and newsprint paper. Furthermore, the STEP project ensures that Mondi Syktyvkar can meet the BAT requirements in accordance with environmental legislation.

The wood yard has the capacity to debark and chip four million cubic meters of soft and hardwood logs annually – an increase of 25% – with a projected fibre production of 900,000 tonnes. Production of board, paper and market pulp is expected to increase by more than 20% to over a million tonnes per year.

Some of the most impressive upgrades are the installation of a new lime kiln with daily burnt lime production of up to 700 tonnes, a new recovery boiler that burns 3,560 tonnes of dry solids per day and a 100MW turbo generator. The mill has also been fitted with modern equipment of the highest possible environmental standards that will reduce daily water consumption by 40% to 206,000m³, trap 99.9% of dust and odorous gasses arising from the burning process.

STEP at a glance:

- The new mill facilities spans 48,000 square meters – an area equivalent to the size of seven football fields.
- Construction of a new wood yard to handle 4 million m³ of wood per year.
- Rebuild of softwood and hardwood pulp production lines.
- Rebuild of White Liquor plant, construction of a new lime kiln with the capacity of 700 tonnes of burnt lime per day.
- Construction of a new soda recovery boiler. Capacity: 3,560 tonnes of dry substances per day.
- Installation of a new turbo-generator with the capacity of 100MW.
- New evaporation plant with the capacity of 550 tonnes of water per hour and two new cooling towers.
- Rebuild of PM 14 (office paper production) and PM 21 (board production).

Environmental modernization:

- A new evaporation train with the capacity to hold 550 tonnes of evaporated water per hour has contributed to reductions in water consumption and two cooling towers permit water re-use. In total, the new equipment has resulted in a decrease of water usage from the Vychegda River from 349,000 m³ per day down to 206,000 m³.
- The new lime kiln traps 99.9% of the dust arising from the burning process.
- The new soda recovery boiler replaced the three older boilers and any odorous gases from the burning process are now collected and burnt in the recovery boiler.
- Together with this recovery boiler, a new 100 MW turbo generator was constructed from which the Republic of Komi receives additional green energy, produced from biomass.

III. Overview interviews

The table below gives an overview of the interviews executed in Russia on behalf of this market study.

#	Company name	Name	Function
1	Belgorodsky cement (part of Eurocement group)	Mr. Andrey Rogozniy	Chief Power engineer
2	Central Research and Development Institute of Paper	Mr. Evgeniy Tyurin	CEO
3	Danieli Corus	Mr. Alexander Rostovsky	Marketing manager
4	Eurocement group (head-office)	Mr. Yevgeny Mironov	Chief Power engineer
5	European Bank for Reconstruction and Development (EBRD)	Mr. Pavel Teremetsky	Leading manager of Energy efficiency and climate change Team
6	“GasMetalProekt” Ltd - managing company of “Novorocement” JSC	Mr. Vitaly Vorobyov	Power engineer
7	International Finance Corporation (IFC)	Mr. Alexey Zhikharev	Head of investor and government relations Russia Renewable Energy Program ECA Advisory Services
8	Managing company Metalloinvest	Mr. Andrey Gusev	Chief Power engineer
		Mr. Roman Bocharov	Engineer of Energy & energy resources department
9	Managing company MMK	Mr. Alexei Buryak	Head of Department for Government relations
10	Mechel Energo	Mr. Yury Yampolsky	CEO
		Mr. Vyacheslav Goryunov	Deputy Chief Engineer
11	Ministry of Industry and Trade: Forest and Consumer Industry Department	Mr. Mikhail Klinov	Department Director
		Ms. Vera Khmyrova	Division of Forest, Woodworking, Pulp and Paper Industry
		Ms. Olga Golub	Division of Forest, Woodworking, Pulp and Paper Industry
12	Mondi Group	Mr. Klaus Peller	CEO Mondi Syktyvkar
13	SFT Group	Mr. Roman Shteinberg	Director for Corporate Development and Investment
14	Union of cement producers “Soyuzcement”	Mr. Mikhail Kiselyov	CEO of Soyuzcement
15	VneshEconombank (VEB)	Mr. Nikolay Zdorovitskiy	Adviser of the Structural and Debt finance Department
16	Voskresenskcement (branch of Lafarge Cement Russia)	Mr. Ramez Haddadin	Optimization Manager

The table below gives an overview of the interviews executed in the Netherlands on behalf of this market study.

#	Company name	Name	Function
1	Bronkhorst High-Tech Systems	Pim van der Hall	Sales Manager
2	Cement & BetonCentrum	Wim Kramer	Technical Marketeer Infrastructure
3	Danieli-Corus Netherlands	Gert-Jan Apeldoorn	Director Marketing & Sales
4	Energy Experts International	Michiel Steerneman	Director
5	Heatteq	Jan Soonius	Managing Director
6	IC&C Cement	Wim Heldens	Director sustainable projects
7	KCPK	Laurens de Vries	Project Employee
8	Meta	Bruno Mulder	Owner
9	SteelConsult International	Gilles Calis	Owner
10	Stork Thermeq	Jurjen Siegersma	International Sales Manager
11	VNMI	Frank Buijs	Director VNMI
12	Wasabi Energy	Nico Bleijendaal	President International

IV. Company profiles main players in Russia

The company profiles of the main players on the Russian market are presented below. Note that the list is not exhaustive.

Metallurgical (ferrous and non-ferrous) companies

Ashinskiy metallurgical works



Asha Metallurgy Plant is a steel complex with a full production cycle, from preparation of iron ore to downstream processing of ferrous metals. It derives the bulk of its revenues (about 88%) from the sale of hot-rolled plate and sheet iron. It is the top-13 company in Russia by volumes of steel and steel-rolled products. It was established in 1898 making it one of the oldest companies in the Ural. The company is owned for 100% by its management.

Due to the launch of new production facilities and fixed assets upgrade, the company has boosted production in the first decade of the millennium. It has replaced its open hearth furnaces with electric arc furnaces. It also commissioned the build of a thermal power plant which delivers the electricity needed by the company.

Contact details:

name: JSC Ashinskiy metallurgical works
 phone: +7 (35159) 3-20-42
 website: www.amet.ru
 e-mail: info@amet.ru
 address: 9 Mira str., Asha, Chelyabinsk Region, 456010, Russia

Chelyabinsk Electro-metallurgy Works



Chelyabinsk Electric Factory is the largest producer of ferroalloys in Russia and can fully meet the needs of the domestic steel industry. It has a product range which includes more than 120 types of ferroalloys and master alloys and over 40 items of electrode production. Its products are widely used in the paint and rubber industry, road, industrial and residential construction, and in the agricultural sector.

The company was founded in 1929 and currently employs over 8000 people. In the first nine months of 2010 the company's sales revenue amounted to almost EUR 550 million.

Contact details:

name: Chelyabinsk Electro-metallurgy Works JSC
 phone: + 7 (351) 772-63-10
 website: www.chemk.ru
 email: info@chemk.ru
 address: bldg. 80, 80-p Geroev Tankograd str., Chelyabinsk, 454081, Russia

Interros

Interros is a major Russian private investment company, and the total value of Interros stakes in various companies amounts to \$30 billion as of January 1, 2007. The Group's companies operate throughout Russia, Europe, Asia, and North America. It focuses its activities on the following sectors: finance, mechanical engineering, mining and metallurgy, energy, oil and gas, housing and utilities, and mass media. The company was founded in 1990.

As of the beginning of 2012, the total value of assets managed by Interros was around EUR 11 billion. 80% of Interros's investments are located in the territory of the Russian Federation.

Contact details:

name: Interros
 phone: + 7 (495) 785-63-63
 website: www.interros.ru
 email: info@interros.ru
 address: 9, Bolshaya Yakimanka st., Moscow, 119049, Russia

Danieli Corus

Danieli Corus is one of the 3 largest suppliers of plants and equipment to the steel industry worldwide and is specialist in the delivery of mini mills.

Danieli Corus' roots are firmly linked to the steel plant in Ijmuiden (Tata Steel), where steel has been produced since 1924. In 1977, it was decided to initiate an engineering and contracting company, offering services to the global iron and steel industry. The company expanded in the North American market in 1989, resulting in the current two North American offices. In 1999, 50% of the shares in the company were sold to the Italian equipment manufacturer Danieli & C. Officine Meccaniche SpA, resulting in a joint venture called Danieli Corus. Currently, Danieli Corus is represented in 39 countries around the world, including Russia. In Russia it is concentrating on delivery of Blast Furnaces and the reconstruction of the blast furnaces (Danieli Russia Engineering LLC).

In 2010, Danieli Russia Engineering LLC's revenue amounted to over EUR 200,000.

Contact details:

name: Alexander Rostovsky (Marketing manager), Danieli Russia Engineering LLC
 phone: +7 495 981-90-73
 mob: +7 985 275-99-51
 website: www.danieli-corus.com
 e-mail: Alexander.Rostovsky@danieli-corus.com
 address: Floor 24, BC "Monarch", 31 A bldg.1 Leningradskiy prospect, Moscow, 125284, Russia

Electrozinc

The company became part of the Ural mining and metallurgical company in 2003. Electrozin produces zinc ingots, lead and sulphuric acid. In 2009 it employed over 2500 people. In 2009 it produced over 19,000 tonnes of lead and over 87,000 tonnes of zinc.

The company is steadily increasing output and is reconstructing and modernizing its production process. It has an extensive environmental and social program.

Contact details:

name: JSC Electrozinc
 phone: +7 (8672) 51-51-22
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 email: elz@osetia.ru
 address: 1 Zavodskaya str., Vladikavkaz, Republic of North Ossetia-Alania, 362001, Russia

Katur-Invest

The company is a part of UMMC - Ural mining and metallurgical company. Katur-Invest produces copper wire rod. The company currently employs 297 people and in 2010 it earned a revenue of almost EUR 72 million.

In 1999 the copper wire rod production was put into operation on the territory of copper refiner JSC Uralelectromed. In 2010 it produced over 10,000 tonnes of copper wire.

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Kosaya Gora Iron Works

Kosaya Gora Iron Works was established in 1897 and is one of the oldest metallurgical enterprises in Russia. It is one of the leading Russian producers of high-purity pig iron, ferromanganese, of industrial and art castings. Also the production of slag break stones and slag bricks is successfully developed by the company.

In 2010 the company employed 2,849 people. Furthermore, in 2010 it supplied to the Russian and Belarusian markets over 272,220 tonnes of pig iron constituting 26.9% of the total volume sold in these markets.

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Kyshtym Copper-Electrolytic Plant

Kyshtym (KCEP) is one of the oldest metallurgical companies in the Urals. The company's basis activity is fire and electrolytic refining of copper and the processing of copper in to end-products such as copper cathode, copper wire rod, precious metals from blister copper and processed cupriferous raw materials. It can produce up to 100,000 tonnes of copper wire rod and 120,000 tonnes of cathodes per year.

The company is a part of RMK - Russkaya Mednaya Kompaniya, a vertically integrated industrial holding comprising 10 operational enterprises. Currently RMK accounts for 16% of Russia's total copper production and about 1% of the world copper production.

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Mechel Energo

Mechel Energo was founded in 2004 and is the managing company in the Power segment of the Mechel Group. Mechel Group was founded in 2003 and is one of leading global coal and steel producers. Mechel Group's fully integrated business consists of four main segments: mining, steel, ferroalloys and power. The group represents over 30 production companies and has about 93,000 people employed. In 2011 Mechel Group's net revenue amounted to USD 12.5 billion, net income at USD 728 million and EBITDA at USD 2.4 billion.

Mechel Energo undertakes the following activities: electricity generation (capacity is 1,300 MW), heat production (capacity is 5,516 Gcal/hr), water supply. It is responsible for the energy and heat supply for all companies in the Group and has to achieve a profit. It is cooperating, buying and selling electricity to the grid and heating to local communities. It has plants at 15 different locations in Russia and employs several thousand employees.

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Metalloinvest

Metalloinvest is a leading global producer and supplier of iron ore and HBI (hot briquetted iron). Metalloinvest extracts and exploits iron ore from the second largest iron ore reserve base in the world, with approximately 14.9 billion tonnes of proven and probable reserves. Metalloinvest employs over 62,000 people.

The holding company Metalloinvest was created in 2006 on the base of assets of Metalloinvest JSC and Gazmetall JSC. The holding company comprises of the iron ore production facilities in Russia Lebedinsky GOK and Mikhailovsky GOK; the steel mills Oskol Elektrometallurgical Plant and Ural Steel; and the ferrous scrap enterprise Ural Scrap Company. Metalloinvest also supplies raw materials to production facilities, provides maintenance services, and has sales, logistics and leasing facilities.

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MMK Managing Company



Managing company MMK is a part of the MMK Group (Magnitogorsk Iron and Steel Works). The MMK Group is an association of more than 90 companies that are united by a unified management and control system. MMK Group is among the world's largest steel producers and encompasses the entire production chain of steel, including the production and processing of steel. In April, 2007, MMK conducted its IPO for over USD 1 billion followed by a listing on the London Stock Exchange.

In 2011 MMK Group produced 12.2 million tonnes of crude steel and 11.2 million tonnes of commercial steel products. The revenue of MMK Group stood at USD 9.4 billion 2011, EBITDA at USD 1.3 billion.

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 Plant address: 93 Kirov st., Magnitogorsk, Chelyabinsk region, 455002, Russia.

Norilsk Nickel



Norilsk Nickel is the world's largest producer of nickel (18%) and palladium (41%) and one of the leading producers of platinum (11%) and copper (2%). It also produces various by-products, such as cobalt, rhodium, silver, gold, iridium, ruthenium, selenium, tellurium and sulphur. In 2011 its profit amounted to USD 13.3 billion. Norilsk Nickel has its own global network of representative and sales offices in Russia, the UK, China, USA and Switzerland.

The main Russian production units are vertically integrated and include: the Polar Division ("the Taimyr Peninsula"); the Kola Mining and Metallurgical Company ("Kola MMC" or "the Kola Peninsula").

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Novgorod Metallurgical Plant



Novgorod Metallurgical Plant (NMP) is specialized in processing secondary raw materials with a copper content of 60 — 95%. The NMP's products include copper cathodes and high-quality copper wire rod. It has a production capacity of 75,000 tonnes of copper cathodes and 100,000 tonnes of copper wire rod per year.

The company is a part of RMK, Russkaya Mednaya Kompaniya (RMK), a vertically integrated industrial holding comprising of 10 operational enterprises. Currently RMK accounts for 16% of Russia's total copper production and about 1% of the world copper production.

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Novolipetsk Metallurgy Works Group



NLMK is a vertically integrated steel business controlling every stage of steel creation from mining to the final stages of steel processing and delivery to the customers. With more than 15 million tonnes of steelmaking capacity, NLMK is one of the world's foremost suppliers of slabs and transformer steel. Main production facilities are located in Lipetsk, in the centre of European Russia. The long steel division assets are located in the Urals region with scrap collecting facilities spread across all major regions of Russia. The Group along with its joint venture facilities has eight rolling plants in Europe and USA.

The Group's steelmaking operations are well-balanced through various methods: the basic oxygen furnace (BoF) route, representing over 80% complemented by the electric arc furnace (eAF) based production, representing around 20%. In 2011 its revenue amounted to EUR 8.75 billion and a net income of EUR 970 million. Furthermore, it employed approximately 60,200 people.

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Rezhnickel



Rezhnickel process nickel ores (installed capacities allows to process up to 700,000 of nickel ores annually) and nickel matte. The company was founded in 1936. Primary production concerns the melting, in the three blast furnaces, of nickel ore to produce nickel matte.

The company is a part of Highmetals KDS holding. Highmetals KDS manages 3 plants in the Sverdlovsk and Chelyabinsk regions and develops modern technologies for extracting and processing of nickel ores.

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RUSAL

RUSAL is the world's largest aluminium producer. The company's main products are primary aluminium, aluminium alloys, foil and alumina. RUSAL is a completely vertically integrated aluminium company with assets right through the production process. RUSAL operates in 19 countries on 5 continents. The company's core smelting capacities are located in Siberia, thus benefiting from the access to the renewable and environmentally clean hydropower and the proximity to the thriving market of China.

To meet the surging demand for aluminium, fuelled by the rapid growth of the emerging markets, RUSAL invests heavily in the expansion of its existing production capacities as well as into construction of new facilities (the company is currently constructing two aluminium smelters in Western Siberia).

It employs over 70,000 people. In 2011 its revenue amounted to EUR 9.2 billion. In 2011, RUSAL was the world's largest aluminium (4.7 million tonnes) and one of the largest alumina producers (11.5million tonnes).

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Severstal group

Severstal is one of the world's leading vertically integrated steel and steel related mining companies, with assets in Russia, the USA, the Ukraine, Latvia, Poland, Italy, Liberia and Brazil. Severstal's crude steel production in 2011 reached 15.3 million tonnes. In Russia, Severstal focuses on high value-added flat steel products.

Located in north-west Russia, the division's steel operations have convenient rail access not only to its mining supplies, but also to Russian customers and Baltic Sea ports. Raw materials self-sufficiency, a broad product mix and an extensive distribution network secure form their competitive advantage

In 2012 it employed over 70,000 people worldwide and it earned a revenue of almost EUR 12 billion.

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Southern Urals Nickel Plant

Southern Urals Nickel Plant (SUNP) accounts for 1% of the world's nickel production. It is part of Oriel Resources Ltd., which comprises all of Mechel Group's ferroalloys companies. SUNP is a part of Mechel Group. Mechel Group unites producers of coal, iron ore concentrate, nickel, steel, ferrochrome, ferrosilicon, rolled products, hardware, heat and electric power.

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 email: priemn@unickel.ru
 address: 1 Prizavodskaya str., Orsk, Orenburg region, 462424, Russia

Sredneuralsky copper smelter



The company is a part of UMMC since 2000 and it is the largest copper smelter in the Urals. Sredneuralsky copper smelter (SCS) produces blister copper and sulphuric acid. The company employs about 3.5 thousand people.

In 2010 it produced over 133,077 thousand tonnes of blister copper and over 755,162 tonnes of sulphuric acid. In the same year its revenue amounted to over EUR 250 million.

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Svyatogor



The company is a part of UMMC - Ural mining and metallurgical company. Svyatogor produces blister copper (80,000 tonnes per year), sulphuric acid (303,000 tonnes per year) and zinc concentrate. In 2011 it earned a net profit of over EUR 44.17 million.

The company was founded in 1925 and was turned in an open joint stock company in 1992. It currently is one of the largest metallurgical complexes in the Sverdlovsk region.

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Ufaleynickel



Ufaleynickel is the second largest producer of nickel in Russia with a 15% share of total domestic production and up to 1% of the world nickel production. The company is a part of Highmetals KDS holding. Highmetals KDS manages 3 plants in the Sverdlovsk and Chelyabinsk regions and develops modern technologies for extracting and processing of nickel ores.

Today the plant can produce up to 15,000 tonnes of metal per year.

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United Metallurgical Company

United Metallurgy Company is one of the major domestic companies that produce equipment for power, transport and industrial enterprises. OMK comprises 6 large metallurgical plants: Vyksa Steel Works (Nizhniy Novgorod Region), Almetyevsk Pipe Plant (Republic of Tatarstan), Chusovoy Steel Works and Gubakha Coke (Perm Region), Shchelkovo Steel Works (Moscow Region) and Trubodetal (Perm Region). United Metallurgy Company was established in 1992. The Company began its activity with the construction of a ferrotitanium plant using borrowed funds.

United Metallurgy Company was established in 1992. The Company began its activity with the construction of a ferrotitanium plant using borrowed funds.

The company is the leader in the solid-rolled railway wheels production (over 50% of the Russian market). It currently employs over 25,000 people. In 2010, company's revenue amounted to EUR 2.93 billion; net profit reached EUR 650 million; EBITDA: EUR 920 million.

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Ural mining and metallurgy company

UMMC is a vertically integrated company which unites operations of mining, metallurgy and metal-working industry into one technological chain. The major assets of the Group are concentrated in the fields of mining, non-ferrous metallurgical and automotive industry. The basis of the Group is its complete copper production chain: from mining to finished goods (copper wire rod, rolled products, cables and conductors, radiators, etc.). In addition to copper market UMMC holds strong positions on the markets of zinc, lead, precious and rare-earth metals. UMMC-Holding controls the key assets of the Group.

UMMC has 47 operations in 11 regions of Russia and covers about 40% of the Russian domestic copper, zinc and lead market and 25% of the Russian domestic market of base metals flat products. It employs about 100.000 thousand people in the whole group.

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Uralelectromed

The company is a part of UMMC - Ural mining and metallurgical company. Uralelectromed produces blister copper, copper cathodes, copper powder, gold bars, silver bars, powder products, copper sulphate, nickel sulphate, galvanized articles, zinc oxide, lead. The company carries out carries out the entire production cycle, from processing of blister copper and scrap, to production of copper products.

The enterprise currently employs over 8000 people and In 2011 it realized a net profit of over EUR 140 million.

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Paper companies**Archangelsk PPM**

Produces paper and pulp and manufacture corrugated board. Archangelsk PPM is one of the leading wood chemical mills in Europe. It is the major container board manufacturer and one of the leaders in Russian pulp production.

Under the conditions of growing competition Archangelsk PPM holds one of the leading positions at the Russian market. Containerboard market share of APPM is approximately 25 % of Russian market total volume, and concerning pulp 19 % from the volume of Russian goods market volume.

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 email: info@appm.ru
 address: Archangelsk region, 1 Melnikova St., 164900 Novodvinsk, Russia

Baikalsk Paper and Pulp Mills

Produces pulp and paper and was founded in 1961. The plant was closed in 2009 after new expensive waste water treatment equipment made the factory unprofitable after the global economic downturn. The mill voids its waste water in the world renown Baikal lake (World Heritage site).

In January 2010, following disturbances, the Russian government with the cooperation of its private owner reopened the factory and exempted it from pollution rules but lowered the workers' wages. The future of the mill and the town remain in doubt.

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Goznak

The company produces tints, photo paper and security papers and it is the oldest company in the field of security paper printing. Goznak was established on July 6, 1919, under the conditions of civil war, as an agency that administered the whole process cycle of bank note manufacturing.

Goznak used to combine paper and printing facilities, which manufactured money, government bonds, checks, letters of credit, savings-bank books, lottery tickets, postage stamps, blanks of

passports, birth certificates, marriage licenses, as well as publications of high artistic value, special and high-grade paper.

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Ilim Group



Ilim Group produces pulp, offset paper, WFC paper, container board and packaging. In 2012 Ilim Group's mills in Siberia and in the Northwest of Russia manufactured over 2.6 million tonnes of pulp and paper products. The figure includes 1.6 million tonnes of market pulp, 0.7 million tonnes of containerboard and 0.2 million tonnes of paper. The company covers 65% of the Russian market of pulp and over 21% of board. It currently employs 502 persons.

They use renewable forest resources and have an active environmental policy.

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International Paper



International Paper produces cut size, offset paper and liquid packaging board. International Paper is one of the leaders in the Russian cut-size market with its well-known office paper brands Ballet and Svetocopy. International Paper began its activity in Russia in 1998 with the acquisition of the Svetogorsk mill

It is the 50% owner of Ilim Pulp and Paper. Starting in 2008 it invested EUR 1.5 billion in 3 paper mills of Ilim Group.

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Kama Pulp and Paper Mill

Kama Pulp and Paper Mill manufactures newsprint and offset papers in Russia. It offers bulky newsprints, wrapping papers, and electrode pulverized pulps. It has a production capacity of 160.000 tons. It was acquired by Investlesprom (the holding company of Segezha), which in 2011 accomplished a large investment; the first Russian Light Weight Coated paper mill was commissioned (86.000 tons). The mill aims to replace LWC imports, which are substantial.

The company was founded in 1936 and is based in Krasnokamsk, the Russian Federation.

Contact details:

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 website: www.cbkkama.ru/main/
 address: ul.Shosseynaya, 11, Perm krai, Krasnokamsk, 617060, Russia

Kondopoga

Kondopoga Pulp and Paper Mill, now Joint Stock Company Kondopoga, is currently the largest newsprint producer in Russia and 7th biggest in Europe with an annual output of 750.000 tonnes per year. It exports about 80% of its production. The company was founded in 1922.

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Kotlas Pulp and Paper Mill

Kotlas Pulp and Paper Mill (KPPM) belongs to Ilim Pulp, the largest forest industry corporation in Russia. Kotlas Pulp and Paper Mill operates six paper machines and two power plants (for heat and co-generation, respectively). It produces approximately one million tonnes of pulp for cooking and also high-quality paper products such as kraftliner, fluting, offset paper, sack paper and wallpaper base each year.

Kotlas Pulp and Paper Mill recently invested more than US\$15 million to implement new chlorine-free technologies for pulp bleaching. The Kotlas Pulp and Paper Mill's commitment to high quality standards is also evident in its quality control system, which is certified above the ISO-9001 quality management standard, and environmental management system, which is certified to ISO-14001.

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Ministry of Industry and Trade: Forest and Consumer Industry Department

The Ministry of Industry and Trade of the Russian Federation (Minpromtorg of Russia) is a federal executive body with policy-making and regulatory functions in civil and defense industries, as well as in aviation technology development, technical regulation and standardization, science and technology for national defense and security, foreign and domestic trade.

The Department of the wood and light industry is aimed to look over the organizations which are involved into harvesting of wood, wood processing and trade, as well as the organizations of the light industry. The paper industry is also under their supervision.

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Mondi Group

Mondi is an international producer of packaging and paper. Mondi Group has production operations across 29 countries and about 26,000 employees. In 2011 Mondi generated a revenue of EUR 5.7 billion and a net result of EUR 457 million. Its key operations and interests are in central Europe, Russia, South Africa and emerging markets. Mondi is listed at the stock exchange in London and Johannesburg.

Mondi Syktyvkar is one of the leading producers of pulp and paper in Russia and part of the Mondi Group. In 2012 the company produced 1 million tonnes of paper and board. Mondi Syktyvkar and its subsidiaries employ more than 7,000 people.

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Neman Pulp and Paper Mill

Nemansky Pulp and Paper Mill engages in the production of paper. The company is based in Kaliningrad. The company takes the 3rd place in the country in terms of production volumes of offset and office papers, the 8th place for the production of all kinds of securities papers and the 15th place for the production of cooked pulp.

Thanks to the modernization NPPM increased production capacity, significantly reduced consumption of raw materials and energy, reduced harmful effects on the environment, improve the infrastructure and quality of life in the region location.

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SFT Group

The SFT Group started in 1992 when the Baikalsky Cellulosny Bumazhny Kombinat (Baikal Pulp & Paper Mill) turned from a state-run enterprise to a Joint Stock Company. Due to economic circumstances the mill had to shut down in 2002. In 2003 a restart was made with the acquisition of Kamenskaya Paper mill, which was producing solid board and testliner. After this a number of acquisition were made turning the company into a major player in the field of recycled liners and board. SFT Group now is a vertically integrated organization which consists of ten companies. Several well known ones are: JSC Aleksin paper and board mill, CJSC Kartonnestara, JSC Kamenskaya Paper and Cardboard and CJSC Famadar CartottesLimited.

In 2011 SFT Group achieved a turnover of EUR 162 million and an EBITDA of EUR 30 million. In the same year it produced 315 million m² of corrugated board, 200.000 tonnes of liners and solid board and 185.000 tonnes of boxes and packaging.

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Smurfit Kappa



Smurfit Kappa

Smurfit Kappa is one of the leading producers of paper-based packaging with operations in 32 countries and around 41,000 employees worldwide and third party sales revenue amounting to EUR 7.3 billion in 2012. It produces 5.2 million tonnes of corrugated packing and 5.3 million tonnes of containerboard in 2012.

In Russia the company has three production sites. The company is a leading manufacturer of corrugated packaging in North-West Russia and the leader in sales package bag-in-box filling wine and liquid food products throughout the Russian Federation. With 490 employees it produces over 200 million per year of corrugated board and 30 million bags bag-in-box a year. Total sales amounted to EUR 60 million.

As part of a major program of Smurfit Kappa, their factory in Vsevolozhsk received a FSC certification in 2012. They have a strong focus on sustainability and over 63% of the electricity that is used in their mills is produced by CHP.

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Solikamsk Paper Mill



The Solikamsk Paper Mill was founded in 1941. In 1992 Solikamsk pulp and paper mill became a joint-stock company named Solikamskbumprom. JSC Solikamskbumprom is one of the leading enterprises of pulp and paper industry in Russia. It is a modern enterprise with advanced level of production. They produce high quality newsprint. They have received a FSC certification in 2007.

Production capacities of JSC Solikamskbumprom account for 0.6 million tonnes of newsprint per year. The newsprint is made for 50% of thermo-mechanical pulp (TMP), with the rest being stone groundwood (SGW), and kraft pulp. Approximately 56% of the mill's output is exported to countries outside the Commonwealth of Independent States.

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Stora Enso



Stora Enso is the global rethinker of the paper, biomaterials, wood products and packaging industry. Stora Enso employs some 28 000 people worldwide.

In Russia it employs over 1100 people and the focus is on the packaging. The business of Stora Enso Packaging Russia expands heavily. Today the company has four productions sites in Russia. There are three mills producing flexo printed corrugated packaging located in Balabanovo, Arzamas, Likhovitsy and one plant manufacturing corrugated packaging with offset printing which is as well located in Balabanovo. These mills are equipped with modern machinery of leading international companies.

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Turinsk Pulp and Paper Mill

The Turinsk paper mill produces wall paper, offset and cut size (among the cheapest in Russia). The installed capacity is around 40.000 tons and half is for producing wallpaper. The mill is outdated and needs urgent renovation. In 2009 it installed a new boiler room with assistance from the EU. Instead of gas, woodwaste is used for heat generation.

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 address: Sverdlovsk region, Dzerzhinskogo 2, 623900 Turinsk, Russia

Volga



JSC Volga engages in the production and distribution of paper. It offers newsprint and wrapping papers. JSC Volga was formerly known as Open-Type Joint Stock Company "Volga" and changed its name in December 1995. The company was founded in 1928 and is based in Balakhna, Russian Federation. JSC Volga is a prior subsidiary of Nizhny Newsprint Holdings.

They have established an Ecological Department and an Environmental Development Centre. They have waste water treatment facilities and are active in monitoring and controlling. In 2002, the company achieved the first FSC certification of one of its wood suppliers and continues to successfully influence wood suppliers to adopt internationally accepted FSC standards of forest management.

Contact details:

Name: JSC Volga
 phone: +7 8-831-44-4-10-10
 email: info@volga-paper.ru
 website: www.volga-paper.ru

address: Nizhniy Novgorod Region, Gorky st. 1. , 606407 Balakhna, Russia

Cement companies

BaselCement



countries.

BaselCement has the production capacity to produce, annually, 3.7 million tonnes of cement, 230,000 tonnes of lime, 250 thousand tonnes of alumina, 110,000 tonnes of bentonite products, 300,000 tonnes of mineral powder, 500 tonnes of gravel and other materials. About 5,500 people are working at the holding in Russia and other CIS

BaselCement's long term development strategy is the modernization of production facilities in Russia and the introduction of advanced, environmentally friendly technologies. These measures increase the volume of products, expand product range and strengthen positions in key markets and increase the sustainability of production.

Contact details:

name: Ltd BaselCement
 phone: +7 (495) 775
 website: www.baselcement.ru
 e-mail: info@baselcement.ru
 address: ul. Krzyzanowski, 31, 117218, Moscow, Russia

Belgorodsky Cement

Belgorodsky Cement JSC is a Russian producer of cement and part of the EUROCEMENT group. It was integrated in the EUROCEMENT group in 2005. The plant itself, was launched in 1949 and located in Belgorod, near the Russian-Ukraine border which enabled Belgorodsky Cement to deliver the production in different regions of Russia (with key attention to Belgorod region) and develop import-export transactions.

The company is producing cement via the wet production process and produces around 2 million tonnes of the cement annually. The company currently employs 860 people.

Contact details:

name: Andrey Rogozniy (Chief Power engineer), Belgorodsky Cement
 phone: +7 4722 30-03-72
 mob: +7 910 737-24-56
 website: www.eurocement.ru
 e-mail: Rogozniy@eurocem.ru
 address: Sumskaya street, Cemzavoda area, Belgorod, 308015, Russia

Cement north company (CNC).



The plant was launched in 1950. The CNC was created on the base of Vorkuta cement plant in 2011. CNC is a Limited Liability Company and the only one producer of cement in the European Arctic. The company is owner of "Levoberezhniy clay slates quarry" and deposit of limestone "Pravoberezhnoye". Newly discovered limestone reserves (near the "Pravoberezhnoye" deposit) are estimated at 149.5 million tons. Also the company has a storage facility in Syktyvkar.

Installed capacity of the plant is 430 thousand tonnes of cement/year, but it is utilized at 40-45% only. The cement production is based at the “Wet” process and the plant is using coal as a fuel for the furnaces.

The cement is distributed by the company “Ceverniy cement” Ltd, based in St. Petersburg (www.sevcement.ru).

Contact details:

name: Cement North Company
 phone: +7 (82151) 9-82-09, 9-82-19, 2-56-57, 2-57-14
 address: village North-1, Vorkuta, Komi Republic, Russia

Dyckerhoff AG



In Russia Dyckerhoff holds a majority interest (around 88 %) in an integrated cement plant at the Suchoi Log location, near Ekaterinburg (JSC Sukholozhskcement). The cement capacity at this plant was 2.4 million tonnes. In December 2010, a new kiln line started so that capacity in Russia increased to 3.6 million tonnes (from 2.4 million tonnes). In addition to the standard gray cements, well cements are of particular importance to the plant’s volume, given its proximity to the oil and gas fields in the Tyumen region.

Sukholozhskcement was established in 1972.

Contact details:

name: JSC Sukholozhskcement
 phone: +7 (34373) 7-90-38
 website: www.sl-cement.ru
 address: 20 Kunarskaya str., Sukhoy Log, Sverdlovskaya oblast, y624800, Russia

EUROCEMENT



The EUROCEMENT group is an international, vertically-integrated industrial holding company, which manufactures construction materials. The EUROCEMENT group is one of the biggest cement firms in the world. It has 16 cement plants across Russia, Ukraine and Uzbekistan, as well as several concrete mix plants, concrete goods factories and aggregate-mining quarries. Some of these plants use a wet production process. Main part of cement production facilities (13 plants of the holding) is located in Russia. The annual production capacity of the holding is 40MT of cement and 10M m3 of concrete.

In 2011 it reached a turnover of more than EUR 1.37 billion and it employed 12,500 people.

Contact details:

name: Yevgeny Mironov (Chief Power engineer), EUROCEMENT Group
 phone: +7 495 737-55-00, +7 495 795-25-80
 website: www.eurocement.ru
 e-mail: info@eurocem.ru
 address: 3/1, M. Golovin pereulok, 107045, Moscow, Russia

Gornozavodskcement



“GornozavodskCement” is an open Joint-Stock Company which manufactures cement. The company was founded in 1992 and is based in Gornozavodsk in Russia. It uses a wet production process. Installed capacity of the plant is 2.2 million tonnes of cement/year, but the capacity is utilizing at 45-65% only. The company employs more than 1700 people.

The distribution activities of the company are mainly concentrated in Permsky kray (35%), Sverdlovsk region (22%), Kirov region (10%), Moscow region (9%), Udmurtia (8,5%), Tyumen region (7%) and Tatarstan (4%).

Contact details:

name: Gornozavodskcement
 phone: +7 (34269) 4-11-33
 website: www.gcz.su
 email: sale@gcz.su
 address: Gornozavodsk, Perm Territory, 618820, Russia

Heidelberg Cement Rus



HeidelbergCement Rus was established in August 2006 in Podolsk in the Moscow region and is owned by HeidelbergCement Group. Country-wide services such as Technical Center, HR, General Administration, Health & Safety, Communication and Shared Service Center are centralised here and there are 111 employees working there. One of the important tasks is to promote the HeidelbergCement brand in the Russian Federation.

HeidelbergCement itself is the global market leader in aggregates and a prominent player in the fields of cement, concrete and other downstream activities, making it one of the world’s largest manufacturers of building materials. The company employs some 52,500 people at 2,500 locations in more than 40 countries. In Russia, the company has a cement capacity of 4.7 million tonnes.

Contact details:

name: HeidelbergCement Rus
 phone: +7 (495) 662-10-63
 website: www.heidelbergcement.com/ru
 email: contact.russia@heidelbergcement.com
 address: 29, 1st Brestskaya str., Moscow, 125047, Russia.

Holcim Rus



Holcim Group’s core businesses include the manufacture and distribution of cement, production, processing and distribution of aggregates (crushed stone, gravel and sand), ready-mix concrete and asphalt. The Company also offers consulting, research, trading, engineering and other services. Holcim is a global company employing some 80,000 people, with production sites in over 70 countries.

Holcim (Rus) is the only plant in Russia, producing the white cement and it is one of the first cement plants built in Russia (1870). It uses a dry production process.

Contact details:

name: Holcim Rus JSC

phone: +7 (495) 730-78-50
 website: www.holcim.ru
 e-mail: info@sibcem.ru
 address: 1, Tsementnikov street, Moskovskaya oblast, 140414, Kolomna, Russia

Iskitimcement



The company was founded in 1934. Today Iskitimcement is one of the largest businesses in Iskitim and the only company producing cement in the Novosibirsk region. The company has an installed capacity for cement of 1.64 million tonnes. In 2012 the company produced 1.34 million tonnes of clinker and over 1.5 million tonnes of cement whereas the planned production was only 1.37 million tonnes. In 2011 the company employed over 1300 people.

Its plans for the future are to modernize its production plants by introducing modern technologies to increase the quality of the products and to reduce the emissions of air polluting substances. Furthermore they want to maximize the automation of the production processes. The implementation of modern information technologies at every production stage should help realize that.

Contact details:

name: Iskitimcement JSC
 phone: +7 (383-43) 2-35-02
 website: www.iskitimcement.ru
 e-mail: iscement@iskitimcement.ru
 address: 1-a Zavodskaya str., Iskitim, Novosibirsk region, 633209, Russia

LRS Group



Founded in 1993, LSR Group is one of the leading real estate development, construction and building materials companies in Russia. Operations are concentrated in the three strategic markets: St. Petersburg and the Leningrad region, Moscow and the Moscow region and the Urals. It is one of the largest producers of ceramic bricks and aerated concrete in Russia. New cement plant complete the vertically integrated chain of building materials operations of the company. Its plants use a dry production process.

In 2011, its sales revenues were EUR 1.3 billion.

Contact details:

name contact: LSR Group JSC
 phone: +7 (495) 745-58-44
 website: www.lsrgroup.ru
 e-mail: mail@lsrgroup.ru
 address: 16 Tverskoy blv., Moscow, 125009, Russia

Lymex Holdings Limited



Lymex Holdings Limited produces and sells cement in the Far Eastern territory of Russia. The company was founded in 2000 and is based in Cyprus.

Spasskcement is a Russian vertically integrated company that operates two cement plants, Novospassky and Spassky, located in Primorsky krai. The plants manufacture portland cement and portland cement clinker. At total, their annual production capacity amounts to 3 million tonnes

of cement. JSC Spasskcement is headquartered in Spassk-Dalny, Russian Federation. JSC Spasskcement operates as a subsidiary of Lymex Holdings Limited.

Contact details:

name: Spasskcement
 phone: +7 42352 32 378
 website: www.spasskcement.ru
 address: Tsementnaya Street 2, Primorskiy Krai, Spassk-Dalny, 692210, Russia

Mordovcement



JSC Mordovcement was established in 1948 and in 1996 it was transferred to a joint stock company. In 2011 was 3.2 million tonnes of clinker and 3.6 million tonnes of cement were produced. Mordovcement is one of the leading suppliers of cement in the Russian market of construction materials. The company's share in the total production of cement in Russia is about 7.5%.

In 2004 the decision was made to build a new line of a semi-dry method of production with a capacity of 2,300 tonnes of clinker per day. The German company KHD Humboldt Wedag was selected to construct it. Mordovcement now also has implemented systems to reuse waste heat. For all their process innovations, German companies were hired.

Contact details:

name: Mordovcement JSC
 website: www.mordovcement.ru
 address: cement plant, Komsomolsk village, Chamzinsky district, Republic of Mordovia, Russia.

Novoroscement



Novoroscement is a cement company with the second largest total production capacity in Russia. It produced 4 million tonnes in 2010 which is about 8% of the total output of the sector. It was founded 1882. In 1992, the Novoroscement plant was privatised.

The company owns three cement plants in the Krasnodar Territory. These plants produce cement from high quality local raw materials, especially marl. Cement production in 2007 totaled 3.8 million tonnes, with total revenue EUR 300 million, and net profit of EUR 160 million.

Contact details:

name: Novoroscement JSC
 phone: 8 (8617) 61-35-18
 website: www.novoroscement.ru
 e-mail: secretary@novoroscement.ru
 address: 60 Sukhumi highway, Novorossiysk, Krasnodar Krai, Russia

Podolsk Cement



Podolsk-Cement offers consumers a wide range of building materials of new generation spetscement for construction and cement, dry mix in a wide range, structural concrete, mortar, concrete blocks, paving slabs and foundation blocks. All products comply with the latest environmental requirements. It uses a dry production process and produces about 300,000 tonnes annually.

Contact details:

name: JSC Podolsk Cement
 phone: +7 (495) 502-79-34
 website: <http://podolsk-cement.ru>
 e-mail: info@podolsk-cement.ru
 address: 15 Plescheevskaya str., Podolsk, Moscow region, Russia

Sebryakovcement JSC

The open Joint Stock Company "Sebryakovcement" was created in December 1992 on the basis of the Sebryakovsky cement factory, which was founded in 1953. Currently it is a modern company with a high level of production standards and advanced technology. The main activity of the enterprise is the production of cement and dry mixes. It currently 2160 employees. It produces about 6.6% of the total Russian cement produced. In 2010, cement production reached a level of

When it comes to investing the company focuses on the minimum payback period of a project and its direct implication on production. They care for a rapid return on investments. When selecting suppliers and contractors the main priorities are reliability, real time, cost and quality of work. They want to reduce the non-production costs such as payment for emissions, to modernize their plants and to expand their market share of cement and dry mixes.

Contact details:

name: Sebryakovcement JSC
 phone: (84463) 2-94-93, 4-14-09
 website: www.sebcement.ru
 e-mail: sc@reg.avtlg.ru
 address: 2 Industrialnaya str., Mikhailovka, Volgograd region, Russia

Siberian cement holding

Principal activities of the company and its subsidiaries are the production of cement and cement based construction materials. The group's manufacturing facilities are mainly located in the Siberian region. Two of its plants use a wet production process. It was incorporated as an open joint stock company in 2004. It has a production capacity of 5.5 million tonnes of cement.

In 2010, its revenue amounted to over EUR 220 million with a gross profit of almost EUR 110 million.

Contact details:

name: Siberian cement holding JSC
 phone: + 7 (495) 287-03-10
 website: www.sibcem.ru
 e-mail: info@sibcem.ru
 address: 17 Zhukovskogo str., Moscow, 105062, Russia

United Cement Group

United Cement Group is a large industrial holding company specialized in the production of general and special grades of cement of the highest quality. Their clients are the largest construction companies, reinforced concrete structures manufacturers, ore mining companies, oil and gas enterprises, and individual builders.

In 2011 the company sold over 4.5 million tonnes of cement. This resulted in a revenue and EBITDA of respectively EUR 370 million and EUR 77.5 million. This made it the second company by production volume in the CIS territory.

Contact details:

name: United Cement Group
 phone: +7 (727) 356-77-38
 website: www.unicementgroup.com
 e-mail: info@unicementgroup.com
 address: BC "Essentai towers", 77/7 Al-Farabi ave., Almaty, 050059, Kazakhstan

Verkhnebakansky cement plant



The plant was launched in 1965. As of 2011 the Verkhnebakansky cement plant is part of the Novoroscement cement plant. In 2011 it was rebuilt in order to increase the capacity of the plant to 2.3 million tonnes and use a "Dry" production process. Equipment and technological solutions were supplied by Danish company "FLSmidth".

The company is successful in the cement distribution at Krasnodar kray, Southern region and European part of Russia. Krasnodar, Novorossiysk, Sochi, Anapa, Gelendzhik, Crimea and Rostov are the core places of the customer locations.

Contact details:

name: Verkhnebakansky cement plant
 phone: +7 (8617) 27-64-25
 website: www.bakanka.ru
 email: sbyt@bakanka.ru
 address: 11 Orlovskaya str., Verkhnebakansky village, Krasnodar region, Russia

Voskresensk cement



Voskresensk cement was founded in 1913. In 1996 it formed a partnership with the international company Lafarge, a world leader in the production of building materials. Lafarge Group is a world leader in production of building materials, occupying the highest positions in all of its business lines: cement, aggregates, and concrete. Lafarge Group employs 68 000 people in 64 countries. The Lafarge Group in Russia currently owns and operates two cement plants in Russia: Voskresensk (Moscow Region) and Korkino (Chelyabinsk Region). Besides producing cement, the Lafarge Russia develops aggregates and concrete. In total Lafarge Russia owns 4 aggregates quarries.

Lafarge Russia employs over 2500 people and realized EUR 15.2 billion of sales in 2011.

Contact details:

name: Ramez Haddadin (Optimization Manager), Voskresensk cement
 phone: +7 495 926-71-31
 mob: +7 985 273-63-11
 website: www.lafarge.ru
 e-mail: ramez.haddadin@ru.lafarge.com
 address: Giganta st. 3, Voskresensk, 140200, Moscow, Russia

Financial institutions

European Bank for Reconstruction and Development



European Bank for Reconstruction and Development (EBRD) provide project financing for banks, industries and businesses, both new ventures and investments in existing companies. Activities include loan and equity finance, guarantees, leasing facilities and trade finance. Typically EBRD funds up to 35% of the total project cost. The investments should be done only in projects that could not otherwise attract financing on similar terms. Direct investments generally range in frames of EUR 5 - 230 million.

EBRD's strategy in Russia for 2013-15, focuses on addressing the longer-term core challenges of the Russian economy, including diversification, modernization and innovation, private sector development and regional development.

Contact details:

name: Pavel Teremetsky (Leading manager of Energy efficiency and climate change Team), EBRD
 phone: +7 495 787-11-11
 website: www.ebrd.com
 e-mail: TeremetP@ebrd.com
 address: BC "Ducat III", 6 Gasheka str., Moscow, 125047, Russia.

International Finance Corporation



The International Finance Corporation (IFC), is a member of the World Bank Group. It is the largest global development institution focusing exclusively on the private sector in developing countries. IFC coordinates its activities with the other institutions of the World Bank Group but is legally and financially independent. Established in 1956, IFC is owned by 184 member countries - a group that collectively determines IFC's policies (through a Board of Governors and a Board of Directors). Each country appoints one governor and one alternate. IFC employs over 3,400 people, of whom 51% work in field offices and 49% at the headquarters in Washington, D.C. IFC is active in more than a 100 developing countries.

IFC's operations are carried out by its departments, most of which are organized by world region or global industry/sector. IFC's three businesses are investment services, advisory services and asset management. The services IFC offer allows companies and financial institutions in emerging markets to create jobs, generate tax revenues, improve corporate governance and environmental performance, and contribute to their local communities.

Contact details:

name: Alexey Zhikharev (Head of investor and government relations Russia Renewable Energy Program ECA Advisory Services), International Finance Corporation
 phone: +7 495 411-75-55
 mob: +7 985 226-23-43
 website: www1.ifc.org
 e-mail: AZhikharev@ifc.org
 address: 36, bld.1, Bolshaya Molchanovka str., Moscow, 121069, Russia.

Vnesheconombank

The Bank for Development and Foreign Economic Affairs (Vnesheconombank or VEB) is a state corporation. Vnesheconombank operates to diversify the Russian economy, boost its competitive edge and encourage investment activity. VEB is responsible for providing investment, foreign economic, insurance and consultative support for projects in Russia and abroad aimed at developing infrastructure, innovations, special economic zones, environment protection, providing support for exports of Russian products, works and services as well as supporting small and medium-sized enterprises.

In 2011, VEB's loan portfolio exceeded EUR 12 billion.

Contact details:

name contact: Nikolay Zdorovitskiy (Adviser of the Structural and debt finance Department)
 phone: +7 495 721-94-74
 website: www.veb.ru
 e-mail: zdorovitskiy_na@veb.ru
 address: 9 Akademika Sakharova avenue, Moscow, 107996, Russia.

V. List Dutch companies







This list contains an overview of several Dutch players which provide energy saving solutions per specific sector and an overview of general providers of energy saving solutions (Miscellaneous).

BFBN	Cement
Cement&BetonCentrum	Cement
IC&C Consulting	Cement
Aldel	Metallurgy
Apt Kurvers	Metallurgy
Bronkhorst High-Tech B.V.	Metallurgy
Danieli Corus	Metallurgy
Deltastaal	Metallurgy
Heatteq	Metallurgy
LDM Brass	Metallurgy
SteelConsult Int.	Metallurgy
Stork Thermeq	Metallurgy
Triogen	Metallurgy
Unica	Metallurgy
Universal Steel Holland BV	Metallurgy
Vereniging Nederlandse Metallurgische Industrie (VNMI)	Metallurgy
AVEBE	Paper
Biothane	Paper
Feltest Equipment bv	Paper
Heatex	Paper
Kapp	Paper
Koninklijke Vereniging van Nederlandse Papier- en kartonfabrieken (VNP)	Paper
K-Pack	Paper
KCPK	Paper
KWA Bedrijfsadviseurs B.V.	Paper
Meta BV	Paper

Nijhuis Water	Paper
Parenco	Paper
QpoT	Paper
Accenda	Miscellaneous
Bronswerk Heat Transfer	Miscellaneous
Cofely Energy Solutions	Miscellaneous
DB-Pumps	Miscellaneous
Deltas Power	Miscellaneous
Ebatech	Miscellaneous
Ecorys	Miscellaneous
Energy Experts International	Miscellaneous
EnerQ	Miscellaneous
Gasunie Engineering B.V.	Miscellaneous
GEN	Miscellaneous
General Services Holland BV	Miscellaneous
Grontmij	Miscellaneous
Heatmatrix	Miscellaneous
Helpman (Alfa Laval)	Miscellaneous
Hencon	Miscellaneous
HP Valves	Miscellaneous
N+P Group	Miscellaneous
NEM Energy B.V.	Miscellaneous
Nexus BV Holland	Miscellaneous
Ovvia	Miscellaneous
Paques	Miscellaneous
Pastoor Consult	Miscellaneous
Ploos van Amstel Milieu Consulting	Miscellaneous
Primix	Miscellaneous
Redox	Miscellaneous
Thermafex	Miscellaneous
Visser & Smit Hanab	Miscellaneous
Vos Gekas & Boot	Miscellaneous

VI. Upcoming events



Metallurgy events

		Event	Description	Date	Place	Organizer	Site
1		BLECH Russia' 2013	Exhibition exclusively for the sheet metal industry in Russia, presents international suppliers of machines, tools and services.	12.03.2013 - 14.03.2013	St. Petersburg	Restec-Brooks LLC / Mack Brooks Exhibitions Ltd	www.blechrussia.com
2		St. Petersburg Technical Fair	Metallurgy. Casting. Metalworking. Mechanical engineering. Fasteners. Services for industrial enterprises. Non-metals for industrial purposes. Components and technologies for automotive industry.	12.03.2013 - 14.03.2013	St. Petersburg	RESTEC® Exhibition Company	www.ptfair.ru
3		Metallurgy - LITMASH	International Trade Fair for Metallurgy, Machinery, Plant Technology & Products	25.06.2013 - 28.06.2013	Moscow	Messe Düsseldorf GmbH, Metal-Expo	www.metallurgy-tube-russia.com , www.expocentr.ru
4		TUBE Russia	International Tube and Pipe Trade Fair in Russia	25.06.2013 - 28.06.2013	Moscow	Messe Düsseldorf GmbH, Metal-Expo	www.metallurgy-tube-russia.com , www.expocentr.ru
5		Aluminium / Non - Ferr.	International Trade Fair for Aluminium and Non-Ferrous Metals, Materials, Technologies and Products	25.06.2013 - 28.06.2013	Moscow	Messe Düsseldorf GmbH, Metal-Expo	www.metallurgy-tube-russia.com , www.expocentr.ru
6		INNOPROM	Exhibition and Forum of Industry and Innovations. Themes of the exhibition: Industry, Energy efficiency, Nano and Micro technologies, Medicine and Biotechnologies, Ecology and Efficient use of resources, Safety Technologies, Links and communication, IT, Education, Transport, Construction, Agriculture.	11.07.2013- 14.07.2013	Ekaterinburg	INNOPROM, on the base of IEC "Ekaterinburg-EXPO".	www.innoprom.com , www.ekaterinburgexpo.ru


Metallurgy events continued

		Event	Discription	Date	Place	Organizer	Site
7		Metal-Expo'2013	Whole range of ferrous and non-ferrous products, as well as the most state-of-the-art equipment and modern technologies.	12.11.2013 - 15.11.2013	Moscow	Metal-Expo	www.metal-expo.ru
8		Metallurg Mash' 2013	Platform for equipment manufacturers and suppliers. The exhibition is focused n promotion of innovative machine-building and engineering solutions in the Russian market.	12.11.2013 - 15.11.2013	Moscow	Metal-Expo	www.metal-expo.ru
9		Metall Trans Logistik' 2013	Establishing business and technical cooperation between freight forwarders, manufacturers of vehicles and enterprises of the mining and metallurgical complex.	12.11.2013 - 15.11.2013	Moscow	Metal-Expo	www.metal-expo.ru

Paper events

		Event	Discription	Date	Place	Organizer	Site
1		IPX Russia 2013	IPX Russia welcomes exhibitors presenting equipment, accessories and raw materials for pulp and paper and adjacent industries. (discontinued due to limited response from exhibitors, different possibilities and options to arrange the event is exploring).	09.04.2013 - 11.04.2013	Moscow	Adforum AB, Restec Brooks Company	www.ipxrussia.ru
2		PAP-FOR Russia	International Exhibition and Conference of the Russian paper industry.	28.10.2014 - 31.10.2014	St. Petersburg	Reed Exhibitions	www.papfor.com

Cement events

		Event	Discription	Date	Place	Organizer	Site
1		Cement. Concrete. Dry building mixtures' 2013	Innovation and effective technologies, equipment for cement industry, etc.	26.11.2013 - 28.11.2013	Moscow	Alitinform	www.alitinform.ru, www.expo cem.ru, www.expo centr.ru