



ENERGY EFFICIENCY IN RUSSIA: A CHANCE TO EXCEL OR A HARD LESSON TO LEARN?

Unless urgent measures are taken against inefficient energy use the Russian heat and power sectors will hinder overall economic growth argues Jeroen Ketting, Director, Lighthouse Business Management Russia

Russia has a low level of energy efficiency (EE) in all aspects of energy generation, distribution and consumption. Add to this Russia's harsh climate and energy intensive industry and the result is a country that consumes roughly three to five times more energy per Euro of GDP than its Western European neighbours.

This low level of energy efficiency impairs economic competitiveness, creates social pressure, and causes harmful environmental effects. Continued economic growth and increased living standards in Russia depend not only on the vast export of natural resources, diversification of the economy and increase in the volume and quality of industrial production; but also on more efficient use of energy in the generation, distribution and consumption of heat and (electric) power. Without taking urgent measures against the inefficient energy use the Russian heat and power sectors will hinder overall economic growth.

The Russian government recognises this problem. According to the official Russian Energy Strategy 2020, present-day energy consumption in Russia could be lowered by 40% to 48%, or 360-430 million tons of coal equivalents, in 2020 through effective energy efficiency measures and structural change in the Russian economy. That means that almost half of Russian energy consumption could be conserved if energy saving potential were fully realised. It is obvious to all that there are substantial EE gains to be achieved in Russia.

There are several reasons for the low level of EE in Russia.

Throughout the planning economy of the Soviet era, energy cost was not considered by managers responsible for generation, distribution and consumption of heat and power. Even during most of the post-Soviet period, energy tariffs were still

so low that they played no role of importance in cost price calculations.

Recently, cause for concern has risen along with energy tariffs and it is apparent that an energy deficit is looming. Heat and power tariffs in Russia are still substantially lower than in the EU, but the yearly increases in Russian tariffs are much higher than those in the EU. Russia still has a system of cross-subsidisation for residential end users of energy at the cost industrial end users. As a result, Russia has the unique situation where industry pays higher tariffs than households.

However, this situation is changing as a result of the reforms in the communal housing sector and the energy sector that will finally lead to households paying the full price for heat and electricity. Today, tariffs for industrial and for residential end users are rising, whereby the steepest tariff increases are for the latter group.

As Russia's GDP grows, energy consumption increases in parallel. The Russian energy sector is already experiencing difficulties in meeting this increasing demand for energy. In 2008, energy demand will equal the available energy generation capacity. This means that there will be an energy deficit. This deficit cannot be reduced in a short time span as the minimum period for building new energy generating capacity and reconstructing existing installations is about 4 years.

As this past winter has shown, breakdowns of boiler-houses and heat networks happen regularly during periods of intense cold resulting in interruptions of the supply of heat and hot water to end. Heat consumption increases during these cold periods and generating capacities are not capable of supplying the necessary heat and hot water to end users.

When people use electric heaters and domestic boilers to compensate for the lack of heat, the limits of power generation are quickly reached. The reason for this is the outdated energy infrastructure in Russia. About 80% of all gas fired boiler-houses (producing heat) operate at between 60% and 80% of their capacity. Due to poorly maintained heat transportation and distribution networks, another estimated 30% of generated heat is lost during transportation to the end user.

Considering the fact that domestic consumption of gas is rising along with the growth of GDP, the question of how Russia is going to meet its gas export commitments has arisen. The objective of the Russian Government is to double the GDP by 2012. Without a strong EE effort resulting in a reduction of domestic gas consumption, it may become difficult for the Russian government to combine a doubling of GDP with secure international gas supplies.

Although it is clear enough that Russia has a strong need for EE still very little is being done.

The Government is aware of the need for EE but no effective action has yet been undertaken. Ambitious goals, objectives and programs have been formulated but the implementation of the numerous programs that aim at the development of EE throughout the country leaves much to be desired. Government programs often do not define the implementation mechanisms nor do they identify the institutional bodies responsible for implementation. Legislation concerning EE is seen more as a set of recommendations than as a strict legal framework. Russia's difficulty in implementing an institutional framework for dealing with the Kyoto Protocol is a clear example of this. Many joint implementa-

tion projects, reducing harmful emissions at sites such as industries, land fills and power plants, are waiting to be implemented but the proper institutions are still to be put in place.

Market mechanisms are either completely lacking or functioning poorly in the Russian energy sector. On one hand, competition between companies involved in energy generation, distribution and consumption is weak; on the other hand, the government strictly regulates pricing. Mechanisms, incentives, subsidies, taxes, support, and knowledge are among the missing elements to effective implementation of EE by the energy sector. Taking full advantage of the development of EE in a country like Russia may be achieved only by establishing a system with a clearly designated legal structure and unified rules of cooperation for participants. The lack of such a system is the bottleneck hindering the the development of EE initiatives as this moment.

One could wonder why so little is done while the rationale for EE in Russia is so strong and pressing. For any EE project to work three components are needed: an object where EE can be improved, technology that allows for increasing EE at this object, and money to finance technology and implementation of the project. There is a choice of objects – installations where EE can be improved – in Russia. Objects can be industrial end users of energy, such as fertiliser and metallurgical plants, but also energy generators and distributors, such as municipal district heating companies. A score of EE technologies are available that have proven results, are relatively simple to work with and can be applied to a wide range of projects, and allow for relatively short payback periods.

The biggest problem is the lack of the third component required for the development of EE: finance. Whereas on the supply side, increases in the capacity of energy generation and distribution require considerable political will and substantial investments, changes on the demand side require control of consumption, individual will and relatively modest investments. However, even modest sources of financing for EE investment projects in Russia are virtually unavailable. This is because EE financing in Russia faces a classic development problem: capital markets will not organise to finance energy efficiency unless there is a

sufficient volume of commercially viable (ie providing competitive returns) EE projects that need financing, but the market cannot develop a sufficient volume of projects without adequate financing. In addition to this there is a great lack of energy management skill in Russian industrial enterprise and a lack of awareness of the potential economic benefits that EE may bring to company managers and financiers. Despite the commitment of the Russian Government to energy efficiency as expressed in its “Federal Program for Energy Conservation in Russia”, the financial sources for energy efficiency from its programs are limited. The implementation of the federal program depends mainly on the financial involvement of regional administrations and the private sector.

In order to increase EE initiatives in Russia a number of measures could be taken.

- Increasing energy tariffs in Russia and thus increasing margins for energy savings and increased revenues that should be reinvested in improving energy infrastructure. In order to raise energy tariffs in a fair way, based upon a modern economic rationale, the existing system for tariff setting should be modernised first.
- Fiscal incentives at consumer level could be created by the government and a clear and transparent legislative framework favouring and enabling EE in the entire energy value chain could be established. This, in combination with further liberalisation of the market, would allow private players to take the risk of investing in medium to long term EE projects.
- The establishment of a mechanism of reciprocity of EU investments in Energy Efficiency in Russia would guarantee that the EU supply of know-how, technologies and funding to Russia will in turn guarantee secure energy supplies by Russia to the EU. The volume of such supplies could be linked to the actual amount of savings realised.
- The creation of guarantee and insurance mechanisms addressing non-commercial risks of EE projects may be among the measures that are easiest to implement and may have the biggest effect. It is of course important that legislative frameworks are created for EE projects, but if a project is guaranteed for a pe-

riod of seven to ten years against political and legislative contingencies most financiers and entrepreneurs would be ready to invest.

The benefits of taking these measures and increasing EE in Russia could be sizeable

- A new area of business opportunity could develop in a promising market that capitalises the vast EE potential in Russia through realisation of the increasingly large potential for financial savings.
- Developing EE initiatives in the framework of EU-Russia relations may provide a good opportunity for a balanced, positive and not politically charged area for cooperation. The EU could supply technology and funding to Russia whereas Russia could match the EU's need for security of energy supply.
- The environmental gains would be to the benefit of the entire planet.

An example of a possible business model where the three main ingredients for a successful EE project are brought together is the Dutch-Russian company Lighthouse Energy Investments (LEI). The company initiates, operates and finances decentralised heat and power generation projects for industrial end users of heat and Municipal District heating companies. Recently, LEI built a privately owned 2.2 Mega Watt boiler house in a municipality of the Moscow Region. With this boiler house LEI generates heat that it sells to the local district heating company. Investments were made from company funds and from funds provided by the Dutch Ministry of Economic Affairs.

LEI is also involved in Energy Efficiency projects and Energy Performance Contracting. The main aim of Energy Performance Contracting (EPC) is the implementation of the whole spectrum of energy-saving measures on a long-term contractual basis between the client and LEI whereby the latter's profit is an agreed percentage from the total amount of the saved energy resources.

Energy Efficiency in Russia can be achieved and the country can for once answer the eternal question “Shto Delat” (“what to do?”) with a positive concrete answer that will lead to increased business opportunities, reduced environmental harm, greater sustainability of supply of resources and most important of all, improved living standards. The element that is lacking is affirmative action. 