

ENERGY EFFICIENCY FOR ENERGY SECURITY IN THE RUSSIAN FEDERATION

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Introduction

The area of the Russian Federation is 17.1 million km² with the population of 143.5 million. The Russian Federation is a state based on democratic federal law with a democratic form of government.

With its 2.5% of the global population, the Russian Federation has almost 45% of natural gas, 13% of oil, 23% of coal, and 14% of uranium potential world resources, i.e., almost 30% of traditional natural energy assets of the Earth while it produces more than 10% of the world's primary energy.

At the same time, Russia's energy efficiency is twice that of the United States, 2.3 times higher than the world average, and three times higher than the one in the developed European countries and Japan.

The main reasons for high energy intensity of the Russian economy are:

- Climatic conditions characterized by low average temperatures requiring substantial use of fuel and energy for safe and sustainable energy supply to consumers;
- The economic structure characterized by a high share of energy intensive industries (more than 60% of the industrial sector) and a relatively low share of services having low energy intensity in the GDP;
- Substantial amount of outdated energy equipment.

The energy saving potential is estimated at 45% of the Russia's current energy consumption.

High energy intensity affects economic and environmental indicators of Russia in the following way:

- Affects competitiveness of the Russian producers;
- Entails extra financial costs (including investments) for the country's energy supply;
- Results in substantial amounts of environment pollution;
- Increases the use of non-renewable natural fuel resource, especially hydrocarbons.

Recognizing the above factors the Energy Policies of Russia developed as the Energy Strategy of Russia till 2020 (as approved by the Government of the Russian Federation on August 28, 2003), declare the improvement of energy efficiency (energy saving) as a vital economic policy direction of the state and envisage a 50% reduction of energy intensity of the Russian economy by 2020 as compared to 2000.

Energy Efficiency Priorities

In general all energy end-use sectors are treated as equally important in terms of the need for better energy efficiency. The best impact is expected from improvements in energy intensity per unit of production in electrical engineering, metallurgy and other energy intensive industries, as well as a result of an overall restructuring of the economy by reducing the share of the most energy intensive structures, which could bring about two thirds of the forecast decrease of per unit energy intensity. Market based economic methods are the main tools of economic restructuring.

Energy Efficiency Financing

Energy saving activities are financed by federal and regional budgets and by economic entities' own resources.

Federal and regional budget resources are used for energy saving activities in the amounts specified in the budgets. Such sums are generally used to attract private investments.

In the Russian Federation Constituent Entities energy saving funds may be established using resources of economic entities and regional budgets to be used for specific activities within the framework of regional energy saving programs. The Federal Law on Energy Saving envisages the right of economic entities to internalize in electricity tariff setting energy saving related costs and establish procedures for their use.

International Co-operation

Presently, Russia cooperates actively in energy efficiency with many countries of the world within bilateral and multilateral formats. Russia – EU Energy Dialogue is vigorously pursued since 2000 with a special area dedicated to energy efficiency.

Memorandum of Understanding between the Ministry of Industry and Energy of Russia and the Ministry of Economy of the Netherlands Regarding Energy Efficiency and Renewable Energy Sources was signed in 2006; the Joint Ministry of Industry and Energy of Russia and U.S. Department of Energy Working Panel on Energy Efficiency has been active for the last 10 years; efficient energy use issues are reflected in the documents of various intergovernmental commissions.

END-USE SECTORS

Energy consumption trends in the major end-use sectors are described below.

Housing (Residential) Sector

During the period 1990-2005, primary energy consumption rose by 8.9% (from 180 to 196 Mtoe). The period before 1995 was an exception when as a result of a general economic crisis in the country the energy consumption in the sector dropped by 3.1% (to 174 Mtoe).

During the same period, despite the overall drop of the energy consumption in the country, the share of residential consumption rose from 20.4% in 1990 to 29% in 2005. Electricity consumption in the residential sector increased in 2005 as compared with 1990 by 18% (from 182 to 215 bln kWh) and accounted for 22.9% of the country's total electricity consumption.

Energy saving potential in this sector is estimated at 67-77 Mtoe or 26-27% of the total fuel and energy consumption.

3.2. Industrial Sector (including construction)

Due to a drop of industrial production in the country in 1995 by 50.3% as compared with 1990 and by 25.7% in 2005 energy consumption in the sector dropped in 1995 by 35.2% (from 384 Mtoe to 248 Mtoe) and in 2005 by 15.7% respectively, i.e. to 323 Mtoe. In the period of 1990-2005 share of the sector in overall primary energy consumption increased from 43.6% to 48%.

Electricity consumption in this sector dropped from 560 billion kWh in 1990 to 382 billion kWh in 1995 and thereafter increased in 2005 in connection with relative growth of industrial production to 410 billion kWh. In 2005 the share of electricity consumed by this sector represented some 44% of the total consumption, while in 1990 it represented 52%.

The energy saving potential in this economic sector is estimated at some 100-123 Mtoe.

Services Sector

There is no statistical data on energy consumption in the services sector.

In the Russian statistics transport is considered a service, while within the context of this review's methodology transport is examined as an individual sector.

Transport Sector

Energy consumption of fuels in the transport sector in 2005 was 40 Mtoe (5.9% of the country's total consumption), electricity – 75 Billion kWh (8%). Energy saving potential of this sector is estimated at 15-18 Mtoe (39-44% of consumption) of fuel and 7-11 Billion kWh of electricity amounting to 9-19% of consumption.

ASSESSMENT AND FUTURE PLANS

Since assessment of energy efficiency, successful instruments, emerging difficulties in the area of energy efficiency, as well as recommended improvements to the National Energy Efficiency Improvement Program are interrelated and affect one another, all the above aspects of this Section can be presented in a single document.

The idea of further improvement of the existing and introduction of entirely new legal regulatory mechanisms to the energy saving area with a view to ensure economic incentives for implementation of energy efficiency programs by fuel and energy producers and consumers taking on board the above considerations, should form the basis of the updated draft law.

The objective of the updated draft law should be to provide a legal basis for the development and implementation of financial, technical, and organizational measures aimed at achievement within a relatively short time of an optimal level of energy efficiency both, for individual economic actors, and for the economy at large.