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Energy Efficiency Policy in Russia: Scope for EU-Russia Cooperation

Alexander Gusev

The recently adopted EU-Russia Energy Roadmap until 2050 identifies the clear potential for EU-Russia cooperation in areas such as energy efficiency, electricity and renewable energy. Indeed, rising prices for electricity stimulate energy-saving programs at the company level and force the population to think about decentralized generation. The Russian energy market offers excellent opportunities as well as challenges. In order for both Russia and the EU to mutually benefit from cooperation, it is crucial to understand current trends and challenges. In the mid-term, electricity prices both for industry and private consumers will continue to rise and will reach EU levels in 2015–2016. Simultaneously, the increase of transmission fees in electricity prices in Russia will further stimulate the development of decentralized generation, which tends to be cheaper than centralized generation. Although these trends open new opportunities for bilateral projects, major problems, such as an incomplete legal basis and the prioritizing of administrative methods, remain in Russia. Moreover, policy on energy efficiency in Russia is slowed by the lack of long-term financial capital and the low qualification of energy auditors.

EU-Russia cooperation on energy efficiency is considered to be the cornerstone of the EU-Russia energy dialogue. This issue was discussed for the first time within the Partnership and Cooperation Agreement in 1997, and followed by annual discussions within the Thematic Group on Energy Efficiency. Between 2000 and 2004, the EU considered energy-saving measures in Russia, mostly through the prism of security of energy supplies to Europe and Europe's commitment to combat climate change. However, since the program "Part-

nership for Modernization" was established in 2010, energy-efficiency cooperation has been dominated mostly by economic interests. Indeed, Russia has huge energy-saving potential with mutual profits. Russia takes advantage of European technologies, solutions and experiences, and European companies gain from substantial economic benefits and possible spillover effects for upstream cooperation. Besides, energy efficiency is a less sensitive and politicized issue between Russia and the EU than, for example, gas. In this respect, energy-

efficiency programs are an excellent opportunity to increase mutual bilateral trust between Russia and the EU and tighten the links between Russian and European companies. However, there are a number of challenges to be taken into account in Russia.

An incomplete legal basis

Under Dmitry Medvedev's presidency from 2008 to 2012, discussions about improving energy efficiency were reanimated, and state policy on energy efficiency began to develop. The presidential decree of June 2008 was intended to decrease the energy intensity of Russia's GDP by 40 percent by 2020, considering 2007 as a basis. Thus, in 2009 a new federal law on "Energy saving and energy efficiency increase" was adopted (FZ-261). Although the law creates a legal basis for the implementation of energy-efficiency measures, it has been widely criticized by experts for incompleteness, prioritizing administrative methods and lacking long-term financial capital. Thus, by November 2010, there were 38 additional regulatory acts that were supposed to have been approved, but they were adopted only in 2012. Lack of an appropriate legal basis hindered the realization of energy-efficiency measures. For example, article 27 of the law on energy saving (FZ-261) declares governmental support for energy-efficient building construction. However, for every specific measure that increases energy efficiency, it is necessary to develop a corresponding regulatory act. The lack of necessary requirements on energy-efficiency (standards, labels) in house-building led to uncertainty in design, construction and renovation of buildings. Moreover, the law itself contains 41 pages, but there are already 500 proposed amendments, among which 150 are considered to be crucial to support the realization of energy-efficiency measures. Thus, the incomplete legal basis and the time-lag in the approval of regulatory acts have led to the slow implementation of energy-efficiency projects.

In January 2012, one of the leading internet platforms for discussions on energy efficiency (portal-energo.ru) held an expert opinion poll about the quality of existing legislation in the field of energy savings in Russia. The survey results are not very encouraging. The total score for the legislation is 2.23 out of 5 possible points; the current law on energy efficiency obtained only 1.69 points out of 5; and the relevance of Russian legislation on energy efficiency, as compared to EU legislation, received only 1.45 points. The survey results starkly illustrate a low level of credibility among experts, companies and the public regarding the current legislation in the sphere of energy savings. It is explained by the following caveats in lawmaking: firstly, the law does not establish the necessary parameters to determine the energy efficiency of the economy. The main target – to reduce the energy intensity of the GDP – is not a suitable indicator to assess the impact on the production and consumption of energy resources. Secondly, the law focuses on the sector that consumes only 12 percent of electricity (state-funded organizations). Thirdly, it does not seek to solve the conflict of interest between suppliers and consumers of energy resources. Finally, the law does not pay any attention to electricity grids, which play a crucial role in energy efficiency.

Top-down approach

Traditionally, in Russia the implementation of different laws is based on a "top-down approach." A new law, approved at the governmental level, spells out the terms (for example, energy efficiency and energy savings) and enumerates mandatory activities for achieving the goals. Then, in the form of an order, the governmental decisions are distributed to the regions without explanations. The regions are then required to fulfill the regulations "within the prescribed time limits" and "in the framework of allocated funding."

As most of the actors, such as regional and municipal authorities who have to im-

plement the regulations, simply do not understand the purpose and requirements, they follow principles such as “everybody for himself” and “just to report.” Consequently, the regulations are fulfilled “as luck would have it” and final results are certainly unsatisfactory. An alternative approach would be to develop energy policy using a “bottom-up” approach, where the initiative comes from the Russian regions as well as from local authorities who identify existing problems and propose corresponding solutions. Although energy-saving targets can be set at the federal level, their practical implementation is possible only at the regional level, in municipalities and cities. However, a well-coordinated multi-level system (federal–regional–municipal levels) has not yet been properly developed. Moreover, only 2 percent of regional legislative proposals are taken into consideration on the federal level.

A significant example of inefficiency of the top-down approaches is the mandatory energy audit in state-funded organizations, such as schools and hospitals. All energy audits should have been undertaken by December 31, 2012. As a result, state-funded organizations had to prepare an energy passport, which included the information relevant to energy consumption. But since most organizations had no experience in completing an energy passport, they just copied the information from each other. Consequently, among 38,000 submitted energy passports, only 2,000 were considered by the Ministry for Energy to have been well-done – that is 5 percent. Another good example is the prohibition of sales of 100-Watt bulbs. The regulation came into force, but people then started buying 95- and even 99-Watt bulbs.

In Russia, according to the law on energy efficiency, only state-funded organizations have to prepare energy passports and not residential buildings. The cost of an energy passport in Russia is much higher than in Germany and depends a lot on the cost of energy audits (which can cost 1,000 Euros for a simple house and up to 10,000 Euros

for an industrial building). Moreover, since 2013, organizations without energy passports may theoretically be fined 8,000 Euros. So, the further success of energy audits will depend on how these measures are applied.

Qualification of energy auditors

The problem of energy audits and passports is linked directly to the qualification of energy auditors. The lack of qualified specialists is one of the major barriers to increasing energy efficiency in Russia. In the Russian market, there are about one million objects (companies and state-funded organizations) to be checked for energy efficiency. At the same time, before the approval of the energy-efficiency law (FZ-261), there were only 300 organizations dealing with energy audits, among which only 100 were active. Since the law on energy efficiency was approved, about 20,000 energy auditor diplomas have been issued. In order to obtain a diploma, one needs simply to pass a 72-hour course, which is offered by a number of companies. As a consequence, many energy auditors have a low qualification. To solve the situation of an excessive number of energy auditors, it was decided to unite them in professional organizations that are able to provide qualitative energy audit services. However, such measures have not been successful because the number of such organizations continues to grow. For example, by the end of 2012, there were 120 such organizations, but every month about 5–10 new ones are added.

The increase in the number of energy auditors has led to a situation whereby the auditors do not make a qualitative audit but just seek to earn a lot of money. For example, an energy audit in an average Moscow hospital initially cost 25,000 Euros. Now some energy auditors are ready to accept 1,500 Euros. Thus, control over the quality of provided services should be established, and in some cases it might be necessary to revoke licenses.

Lack of long-term financial capital

Lack of long-term financial capital is considered to be the main obstacle to the implementation of energy-efficiency projects in Russia. Taking into consideration factors such as high additional costs, there are two options for project implementation in Russia. First, one can minimize all possible project costs. In this case, the payback period will be six years, but the final profits will be low – around 4,000–5,000 Euros/month – and may lose value because of inflation. The second option is to get higher profits at the end, but in this case the payback period will increase to 10–15 years.

For example, in 2010–2011, a project on street-lighting modernization was planned in the Novgorod region. After an initial energy audit, the payback period was estimated to be 1.6–1.8 years. The project was quite simple – replacing mercury lamps with sodium lamps. However, during the preparation of an energy service contract, it became apparent that after the implementation of energy-efficiency measures, the object needed to meet certain technical requirements. It was necessary to repair and align high-voltage pillars. Taking into consideration these additional costs, the price of the project tripled, and the pay-off period increased to 10 years. Since the municipality did not want to bear these additional costs, the project was not realized. Thus, clear technical standards need to be set up by the government.

This situation is mostly due to stringent bank policies that offer short-term credit lines with high interest rates. Thus, banks are ready to finance the projects up to 5–6 years with interest rates of 13–17 percent in rubles. Under these circumstances, the government should create the necessary conditions to increase the availability of investment resources for businesses using financial instruments such as tax exemptions, accelerated depreciation, target bonds and grants for R&D. The law on energy efficiency contains a number of measures, but they are not sufficient. A possible solution could be equal co-financ-

ing of the project by municipal authorities. In this case companies could take fewer credits, the payback period would be shorter and the modernized system would be able to work at least five years without additional investments.

Electricity prices increase

Prices for electricity and heating play a crucial role for the projects on energy efficiency, as they largely determine the payback period and final profits. Since 2008, Russia has seen a rise in electricity prices that has mostly been determined by the rise in gas prices and by large investment programs on the part of distribution grid companies. According to the Ministry for Economic Development, in the mid-term (3–5 years), both trends will remain. Thus, in the 2013–2015 period, tariff growth will be 10–14 percent per year. Consequently, prices for electricity in Russia will approach current EU prices. On average in 2010, 1 kWh cost 5.25 Euro cents in Russia and 9.18 Euro cents in the EU, a price differential of almost 1.8 times. If current growth trend continues, by the end of 2013, prices for electricity will already be 7.6 Euro cents and the price differential gap between Russia and the EU will be only 1.2–1.3 times.

A rise in electricity prices will essentially reduce the competitiveness of the Russian industry, especially energy-intensive industries (metallurgy, extraction industries). The revenues from the exports by these industries are the main source for the gold and exchange currency reserves and for the federal budget of Russia. Thus, the level of prices and tariffs for electricity not only influences the profitability of certain industries but also has a great impact on the overall budget of the country and social programs.

Rising prices will force large and medium-sized Russian companies to reduce expenses and, above all, to implement the programs to increase energy efficiency. For example, compared to electricity cost in China, the profitability of the Russian

metallurgical industry was reduced by 2 to 2.5 times between 2008 and 2011 because of electricity price increases in Russia. In order to remain competitive, the companies started to think about energy efficiency. In this context, German-Russian cooperation has a lot of potential to develop, as Germany may offer solutions and know-how in this sector. The German Energy Agency and Russian-German Energy Agency have implemented a number of similar projects at large-scale enterprises such as copper-smelting plants, foundry production sites, etc.

The need to improve energy efficiency in companies will also increase the demand for European technologies and equipment in the Russian market, since the equipment produced by Siemens, ABB and Schneider Electric is more reliable and energy-efficient than that of Russian producers. Thus, in 2011 major federal companies dealing with electricity generation and transmission (such as Federal Grid Company, Russian Grids and RusHydro) bought 70 percent of their electricity equipment from European and Chinese companies, whereas only 30 percent of equipment was produced in Russia.

Along with the electricity price increases, Russia will see an increase in electricity consumption due to climatic changes in Russia (abnormally low temperatures in winter and high temperatures in summer) and regional economic development. At the same time, electrical grid facilities are characterized by a high degree of depreciation (about 60–70 percent), which increases the risk of accidents. At the same time, an increase in energy consumption and the decommissioning of depreciated equipment will require putting into operation higher volumes of generating-capacity in the mid-term. Thus, the lack of generating-capacities and geographical changes in electricity consumption in Russia open new opportunities for cooperation between the EU and Russia. Potential projects such as the construction of power and heating plants, transformer substations and decen-

tralized generation should be based on the principles of project financing and public-private partnerships, which decrease the risks for foreign investors and help to overcome administrative obstacles. In this respect, projects led by China and the Czech Republic are illustrative. Also, Raiffeisen Bank has had successful experiences working with regional authorities in Russia. To be sure that all agreements are fulfilled, Raiffeisen Bank insists on written guarantees from municipal authorities.

The investment program by Finnish Fortum offers a good example how one may use the potential of an increase in electricity consumption in Russia. In 2008, the former Territorial Generating Company in the Ural Federal District (“TGC-10”) was sold to Finnish investors at a very high price – 767 dollars per kilowatt of installed capacity. Despite high expenses, by 2015 Fortum is expecting to be making more than 500 million Euros in operating profits, mainly due to the construction of new facilities in the Ural region, where there is a high demand for electricity due to the development of gas and oil extraction industries, which do not produce electricity on site. Besides, from an investment point of view, the cost of 1 kilowatt of new construction is cheaper than the modernization of 1 kilowatt at the old power stations. Thus, it results in higher profits, an increase in energy efficiency and fewer administrative barriers.

Another important trend, perceived differently by experts, is the introduction of fixed price quotas on electricity consumption for the population starting in 2014. This means that citizens may buy only a fixed amount of kilowatt hours per month at the standard price. The price for electricity beyond the quota will be much higher. The introduction of fixed price quotas is expected to be the first step to eliminate cross-subsidization and to increase transparency of grid tariffs. However, a number of Russian and German experts perceive fixed price quotas through the prism of Gazprom interests. Russian distri-

bution grids are characterized by high transmission losses, and this requires higher gas volumes. On the contrary, the modernization of grids narrows the internal market for Gazprom. In this context, the introduction of fixed price quotas on electricity consumption means that all the losses will be covered by households through increases costs for utility services, and in particular higher tariffs for electricity.

An increasing role of decentralized generation

At the international level, the development of decentralized generation replacing centralized generation is a major trend. Development of decentralized generation in Russia could increase energy efficiency, reduce CO₂ emissions and reduce the burning of gas in flares. However, it has a number of distinctive features. The main reason for the development of decentralized generation in Russia is high transmission fees, which largely determine increases in electricity prices. The share of the grid component in the final price for electricity for large enterprises is 41 percent; in some regions, for example in the Tyumen region, it is 54 percent. In contrast, transmission fees in the United States, on average, are 22 percent of the final price, and 28 percent in the EU. Investment refundability constitutes two-thirds of transmission fees of the Russian Federal Grid Company – in three to five years, this index will increase up to 80 percent because of planned investments (19.5 billion Euros) into grid reliability from 2013 to 2017. In the short- to mid-term, the price of electricity will continue to grow as investments into grid stability are recouped through price increases. Consequently, in the mid-term, autonomous generation in Russia will become cheaper than grid-connected generation. The development of decentralized generation by large companies will decrease profits of interregional distribution grid companies and exacerbate the problem of cross-subsidization. It ex-

plains why distribution grid companies are opposing decentralized generation in Russia.

The newly adopted “Strategy for the development of power grid complex in Russia” (April 2013) explicitly acknowledges the problem of excessive investment programs by decentralized grid companies and the resulting high transmission fees. It is stated that “if all planned investments into grids will be displayed in RAB tariff regulation, already in 2015 the electricity prices for industry will be higher than in Europe. The cost of electricity for final consumers is approaching the cost of autonomous generation and creates a risk of consumers’ separation from centralized generation and collapse of the unified system.” Despite this, however, the government, in the same document, sets the share of transmission fees in the final price for electricity at the level of 40 percent – this will not stimulate the grids to operate more efficiently and the price is still higher than in the EU.

The growth of decentralized generation in Russia has to play an important role in the modernization of energy systems. Besides, it opens new opportunities for EU-Russia collaboration in three areas. First, the potential for the exchange of experiences in the regulation of grid companies and network operators can be realized. Second, the development of standards and equipment requirements for decentralized generation can be realized. In particular, the Russia-EU dialogue can draw upon the experience of CIGRE (working group SC C6 Distribution Systems and Dispersed Generation). Third, the exporting of small, medium and large-scale generation technologies from the EU countries to Russia can be increased. According to the Russian Customs Service, in the last three years, imports of gas turbines (5–50 MW) from the EU countries to Russia increased threefold, and import of diesel generator sets fivefold. Thus, the total capacity of the imported equipment to Russia has reached 1.2 GW. The main producers and exporters of decentralized generation equipment are China,

Germany, France, Switzerland, Great Britain, Hungary, the Czech Republic, and Austria.

In the context of decentralized generation development, the EU-Russia Energy Roadmap until 2050 underlines that both Russia and the EU are interested in “projects that could lead to the export of electricity produced from renewable resources from Russia to the EU.” For example, according to the preliminary analysis by the International Finance Corporation, construction of the wind park on the Kola Peninsula will be more advantageous and cost-effective than the Desertec project. In comparison to underwater network infrastructure, land transmission lines required for EU-Russia electricity transportation are characterized by lower costs. This area is scarcely populated and there is the potential to also use hydro energy. Electricity supplies would be distributed out via Finland, Estonia and Latvia. The detailed report is to be presented by the International Finance Corporation in May and June of 2013.

Thus, the EU could benefit from developing the Russian market by exporting renewable energy technologies and related services, for example, engineering expertise. It is also correctly emphasized in the EU-Russia Energy Roadmap until 2050 that the “growth of renewables in the EU energy mix will require back-up capacity, for example by gas-fired power generation.” Thus, collaboration on “renewables” and “gas”-fired power generation may become a strong basis for bilateral cooperation.

Particular attention should be paid by the EU to the new package of measures proposed by the Russian government that are aimed at supporting renewable energy in Russia. The document will be adopted in the following months. Apart from financial instruments, such as the compensation of costs related to grid connection and fixed additional payments, the package plans to boost the development of renewable energy by localizing the production of equipment for renewables. Currently, only a few lead-

ing manufacturers of wind power equipment have a market-entry strategy and an agreement on cooperation with regional authorities. Thus, the adoption of measures to support renewable energy will create new opportunities for economic cooperation between the EU and Russia.

However, the development of decentralized generation in Russia is complicated by a number of obstacles, such as customs duties on imported equipment (8–15 percent of equipment cost); excessively high requirements for certification and licensing of decentralized generation facilities by regulatory authorities; and the lack of a uniform standard for the connection of decentralized generation facilities to electric grids.

Conclusions

Russian policy on energy-efficiency has been moving slower than the EU had expected. The process is being slowed by the lack of coherent policies on the federal and regional levels as well as by an insufficient and ill-informed legal basis. The quality and timeliness of the necessary amendments will play a large role in the success or failure of policy on energy-efficiency in the following years.

Bilateral projects between Russia and EU countries mostly face problems such as an incomplete legal basis, administrative and technological issues, and difficulties in negotiations with municipal and regional authorities. However, due to public-private partnerships or project-financing mechanisms, it is possible to avoid or to diminish the impact of such problems. In this respect, namely Raiffeisen Bank has had successful experiences in working with regional authorities in Russia.

The projects financed by the international (International Finance Corporation, European Bank for Reconstruction and Development, Nordic Environment Finance Corporation) and European institutions (KfW) make a considerable and practical contribution toward increasing

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energy efficiency in Russia, mostly because they offer “cheaper money” with longer payoff periods; in addition, they are starting to offer special credit lines for households. Russian banks, on the contrary, underline that households may use consumer credits for energy-saving purposes.

However, informational work on existing programs for companies and households should be carried out more actively by international and European organizations. For example, very few companies know about the programs supported by the German Federal Environment Ministry, such as ecological consultations, climate initiatives and an initiative on the export of renewable technologies and equipment.

Rising prices for electricity also increase the attractiveness and profitability of projects for foreign investors. At the same time, the increase in prices will force Russian companies and the general population to think about energy efficiency. Consequently, European solutions and know-how will be in great demand. In addition, the lack of generating capacities in Russia and increasing electricity consumption create excellent opportunities for investments in construction of combined heating/cooling plants and transformer substations.

In terms of decentralized generation development, the Russian market presents excellent opportunities for the export of European technologies and solutions in the mid-term. At present, Russian banks and companies are interested in European experiences and know-how regarding decentralized generation, as well as cooperation with engineering companies and producers of related equipment. Collaboration on the construction and use of decentralized generation in distant areas should also be considered. Moreover, the development of decentralized generation in Russia would contribute to increases in energy efficiency as well as reductions in CO₂ emissions and gas flaring.

Finally, Germany, France, Denmark, Finland, Italy and Norway are currently running projects on energy efficiency,

electricity and renewable energy in Russia. However, Germany is the most successful player, has a mature understanding of Russian trends and realities, and may be the one that can manage to develop appropriate solutions and approaches to existing problems.