

INVOLVING RUSSIAN BUSINESS IN KYOTO

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In this chapter, the importance of Russian (and foreign) business participation in the success of the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change (the Kyoto Protocol) is discussed. The Russian regulations and remaining issues and questions are reviewed, also in context of the new global climate change regime which is to be negotiated later this year. Furthermore, possible ways in which to control greenhouse gas (GHG) emissions in Russia are considered, including the introduction of technical performance standards and GHG emissions permits. Finally, the ways in which Russian businesses are participating in the climate change mitigation process are explored in more detail.

Introduction

The Kyoto Protocol entered into force on 16 February 2005. The Protocol establishes limits on GHG emissions for the period from 2008 through 2012, and provides flexible economic mechanisms for the minimization of compliance costs. Altogether, over 180 countries are now party to the Kyoto Protocol, including 23 developed countries and 12 countries with economies in transition listed in Annex B to the Kyoto Protocol who have accepted quantitative commitments on GHG emissions limitation and reduction. In 2006, Belarus submitted an official application to join Annex B of the Kyoto Protocol with a commitment to reduce GHG emission by 8% below 1990 level. Kazakhstan is said to do the same soon.

The success of the Kyoto Protocol, and the ability of the Parties to meet its goals to limit and reduce GHG emissions will crucially depend upon the involvement of and the position taken by the business community and, in particular, the largest company-emitters of GHGs. Business participation in the 'Kyoto' process is twofold. On the one hand, companies are expected to limit and reduce their own emissions. On the other hand, they are encouraged to participate in the flexibility mechanisms of the Kyoto Protocol: in emissions trading (ET) and, as investors, in joint implementation (JI) and Clean Development Mechanism (CDM) projects.

Kyoto – implementation models

EU and USA

EU countries have made considerable progress towards the implementation of the Kyoto Protocol. The first (pilot) phase of the European emission trading scheme (EU ETS) entered into force on 1st January 2005. The second phase started on 1st January 2008, and the third phase, which is to be launched on 1st January 2013, is now being designed. Within the framework of EU ETS, the main company-emitters in the different sectors of the EU economy received quotas (overall permits) relating to their GHG emissions, in the form of tradable emission allowances (EUAs). These emitters are now allowed to sell and buy EUAs on the EU ETS market. They may also invest in emission reduction projects (either JI or CDM) in other countries, and count emission reductions achieved in such projects towards their obligations. In 2007, the turnover on EU ETS market achieved 3,100 MtCO_{2e} and EUR 67 billion.

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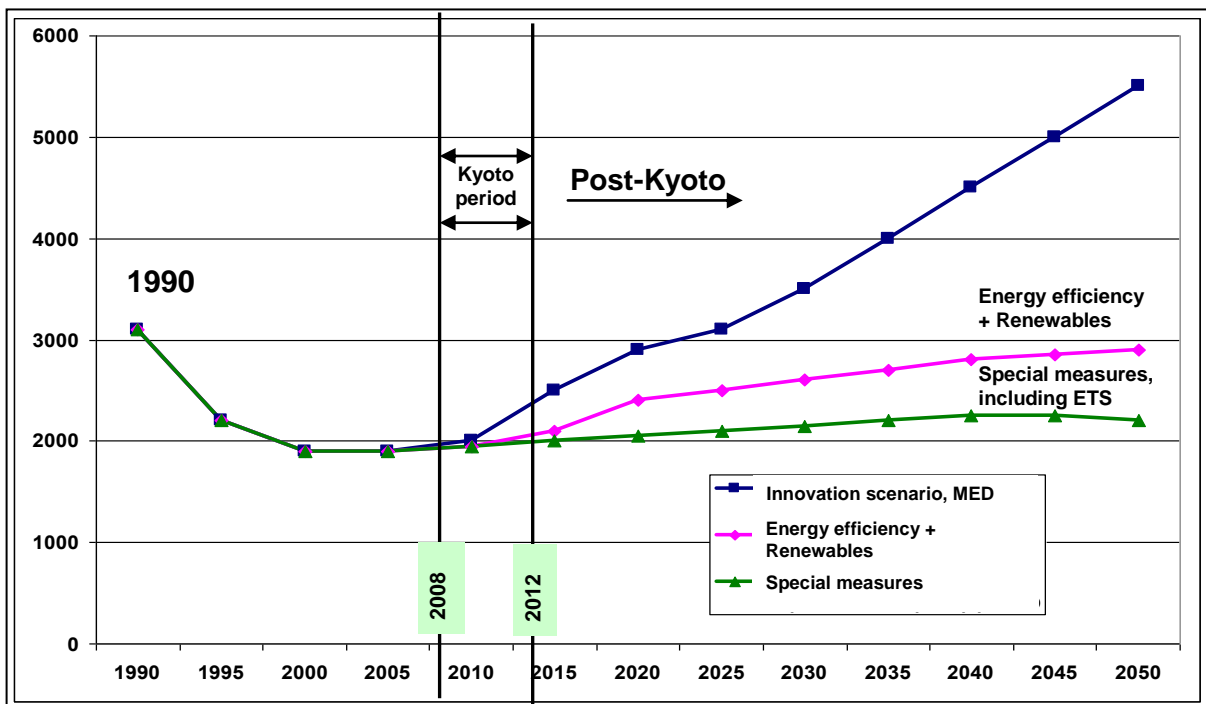
Similar schemes are being implemented even in countries, which have not yet ratified the Kyoto Protocol. For example, in the USA, 10 Northeastern and Mid-Atlantic states (Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, Vermont, Massachusetts, Rhode Island and Maryland) launched the so called Regional Greenhouse Gases Initiative (RGGI) and the first ‘climate stock exchange’ was opened in Chicago in 2003. RGGI sets a cap on emissions of carbon dioxide (CO₂) from power plants, and allows sources to trade emissions allowances. The programme will begin by capping emissions at current levels in 2009, and then reducing emissions by 10% by 2019. Now, with newly elected President Obama in office, the USA is seriously considering a nationwide cap-and-trade scheme as an instrument to control and reduce major GHG emissions in order to achieve its climate change mitigation targets set forth in the UNFCCC.

Russia

Unfortunately, Russia lags far behind in the implementation process relating to the Kyoto Protocol. One of the reasons why no special policy and measures are envisaged is that, according to all existing projections, Russia will most certainly not exceed its GHG emission limit (or Assigned Amount) established under Annex B of the Kyoto Protocol. Indeed, having an annual GHG emission quota of 3,323 MtCO₂e, Russia today actually emits about 2,200 MtCO₂e per year.

Based on this data, most analysts agree that Russian cumulative GHG emissions over 2008-2012 would not exceed 10,500-11,000 MtCO₂e, while the Russian ‘emission budget’ under the Kyoto Protocol for this period is 16,617 MtCO₂e. Thus, Russia will automatically fulfill its obligations, resulting in an emission surplus of at least 5,600-6,100 MtCO₂e (see Fig. 1). The addition of maximum allowed carbon removals by sinks due to the improvement of land-use and forestry practices increases this surplus up to 6,200-6,700 MtCO₂e.

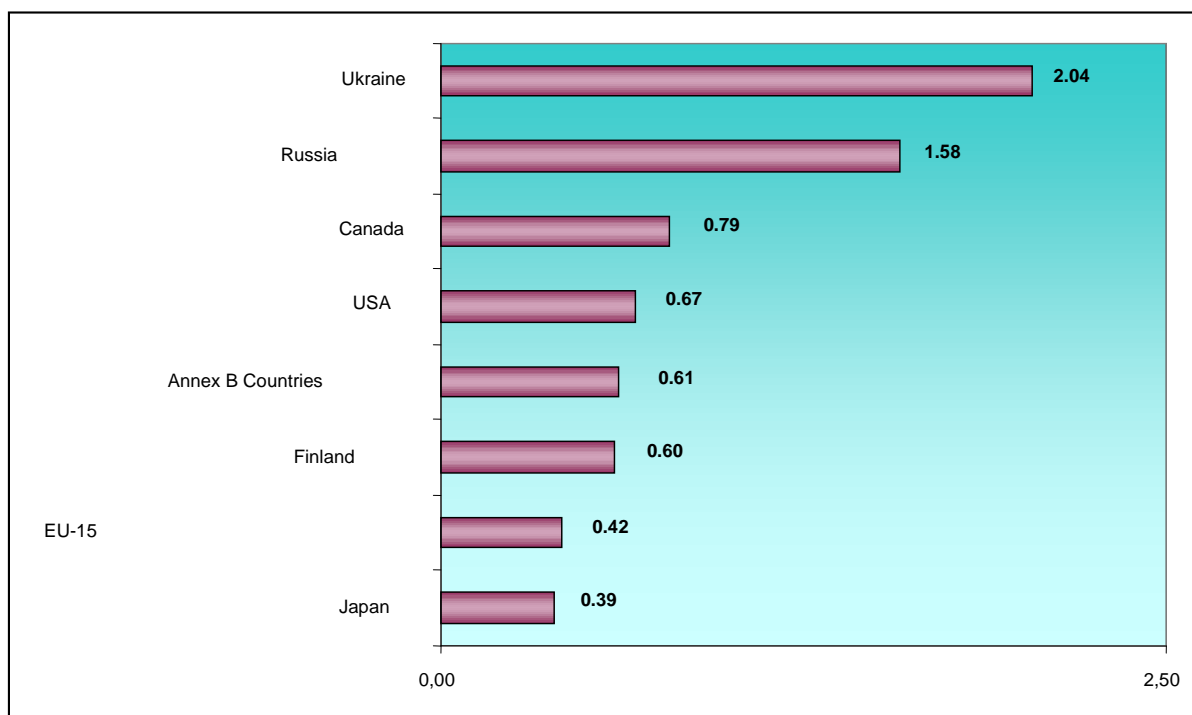
Fig. 1. GHG emissions in Russia under various scenarios



Source: Agency for energy balances forecasting, 2009

At the same time, CO₂ emissions per 1 dollar of GDP (when calculating GDP using the purchase parity power method) in Russia are 3.8 times as much as in European countries, 2.4 times as much as in USA, and 2 times as much as in Canada (see Fig. 2). In a carbon-constrained world, this may lead to material economic losses for Russia which needs to meet strong market requirements and standards in terms of carbon intensity and GHG emissions management.

Fig. 2. Unit GHG emissions (emissions per 1 dollar of PPP GDP, kg CO₂e)



Source: UNFCCC Secretariat, 2004, World Bank, 2002.² Data for Russia refers to 1999, data for other countries relates to 2002

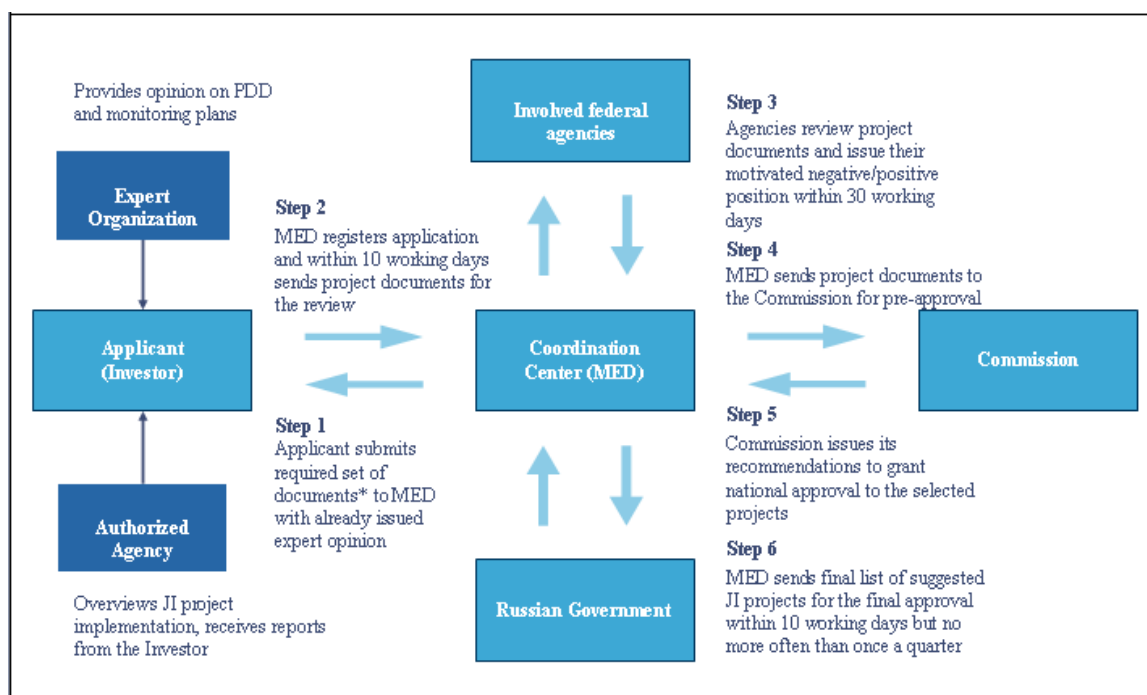
This problem can be resolved through the modernization of the Russian economy and by way of attracting further investments. This may be achieved, *inter alia*, within the framework of the Kyoto Protocol, by using the existing quota surplus and potential of GHG emission reductions under JI in accordance with Article 6 of the Kyoto Protocol.

JI in Russia

On 28 May 2007, the Russian Government (GoR) adopted JI regulations and the procedures for JI projects approval (Decree No. 332). According to the prescribed procedure (see Fig. 3 below), applications for JI projects approval must be submitted to a commission (the JI Commission) at the Russian Ministry of Economic Development (MED) which registers JI projects and then sends each JI project ‘specifications package’ to the relevant ministries for review. The final decision to approve a JI project is made by the JI Commission, which consists of representatives of the ‘interested’ ministries which decision has to be confirmed/approved by GoR. Whereas, emission reduction units (ERUs) are to be issued in the Russian Carbon Registry annually on the basis of the monitoring reports that have to be submitted by JI project applicants on or before 15 February each year.

² These numbers were calculated by the author and his colleagues, based on the UNFCCC data regarding GHG emissions and the World Bank data regarding PPP GDP.

Fig. 3. JI projects approval procedure in Russia



Source: JI Status in Russia, presentation by O. Pluzhnikov, 2008

The collection of JI project applications started on 10 March 2008. So far, 40 applications have been submitted for approval to the JI Commission with a total projected volume of GHG emission reductions exceeding 100 MtCO_{2e} over 2008-2012.³ The biggest projects submitted for approval by Russian companies are: coal mine methane utilization in the Kuzbass region (17.9 MtCO_{2e}, by SUEK); associated petroleum gas utilization at the Komsomolskoye oil field (6.65 MtCO_{2e}, by Rosneft); HFC-23 and FS₆ co-destruction (5.25 MtCO_{2e}, by KCKK Polymer Plant); and resource and energy savings at steel production (3.2 MtCO_{2e}, by UralSteel). However, at the time of writing (November 2009) no JI projects were approved yet.

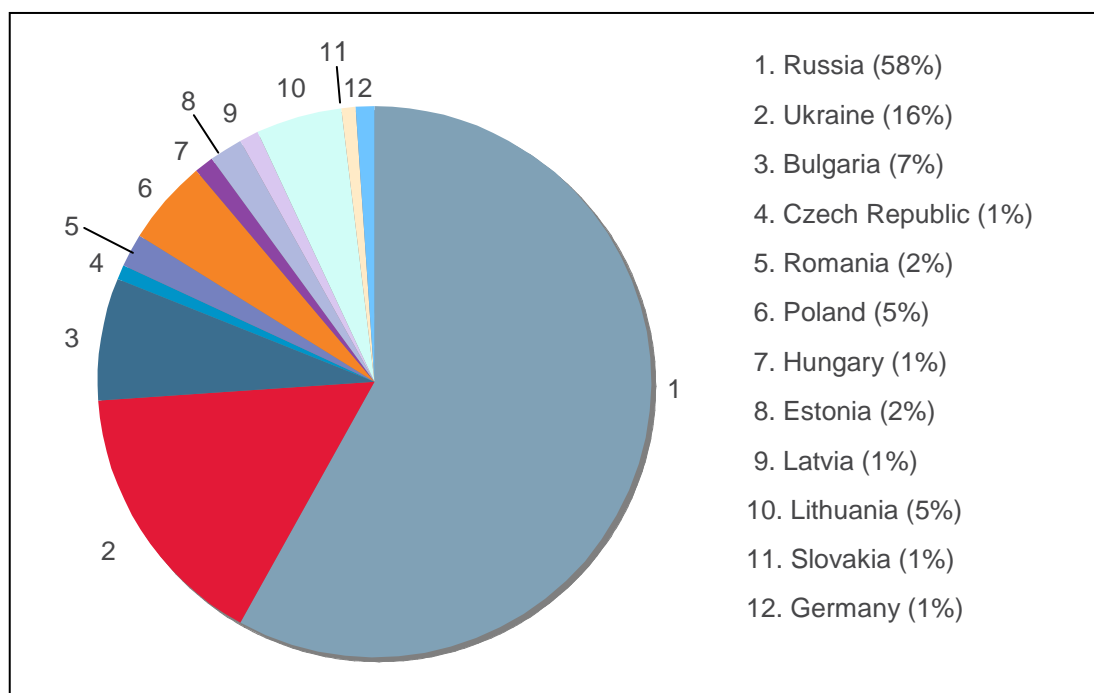
On 28 October 2009, the GoR re-approached JI regulation once again and adopted the new regulation (Resolution No.843) which replaced the previous one. Under the new JI regulation the key role was given to Sberbank. The procedure includes selection of JI projects through a bidding (contest) to be conducted by Sberbank by applying certain criteria and procedure which are still to be elaborated and approved by MED.

If one considers all the JI projects ever proposed under Track 1 or Track 2 by Annex B countries, Russia undoubtedly plays a key role in holding potentially as much as 58% of the market in terms of anticipated GHG emission reductions (see Fig. 4).

Thus, in order to become the real market leader in JI, the JI Commission should start approving JI projects without delay. In addition, the Russian JI procedures should be improved to avoid uncertainties and meet international standards.

³ As of May 2009.

Fig. 4. Russia's JI market share



Source: FCCC Secretariat, 2009⁴

In view of the post-2012 negotiations for a new international climate change regime (at COP 15) later this year, Russia should take advantage of its leading role in the world JI market in order to advocate and promote the JI mechanism in the new international treaty and to further improve it. In doing so, it should be recalled that, unlike with respect to CDM, JI is designed for countries with capped GHG emissions. Since more and more countries are expected to commit to GHG limitation and reductions in the future, the role of JI will gradually increase, and, thus, the competition in the JI market will become more pronounced, too.

In order to secure and strengthen its position in the JI market, Russia should, firstly, undertake to improve its domestic JI regulations. In particular, I would recommend the following steps to do so:

- 1) No caps on GHG emission reductions. Only emissions should be capped;
- 2) No 'efficiency criteria' should be incorporated in JI projects approvals, except for such criteria that serves to prevent the use of old-fashioned technologies and equipment;
- 3) To provide for the issuance of ERUs into project owners' accounts with the Russian national registry;
- 4) To take into consideration the Chinese experience of applying taxes to carbon proceeds and to follow this Chinese model.

The biggest and the most important issue, of course, is Russia's commitment to GHG emissions limitation and reduction after 2012. If no commitments are taken, Russia will lose its market advantages and the opportunity for Russian businesses will dissipate.

⁴ This graph was created by the author, based on the JI projects data provided on the UNFCCC website <http://ji.unfccc.int/JI_Projects/DeterAndVerif/Verification/PDD/index.html>.

Capping Russia's GHG emissions post 2012

At COP 14 in Poznan (December 2008), despite taking a rather cautious and uncertain position, the Russian delegation expressed with regard to GHG emissions limitation after 2012, that Russia can and should take quantitative GHG emissions commitments.

In this respect, let us make some simple calculations. Assuming that Russia will double its GDP from 2012 through to 2020,⁵ under the 'business as usual' (BaU) scenario this could lead to doubling of GHG emissions by 2020.⁶

However, the GoR has just introduced a long-term programme aimed at reducing the energy intensity of the Russian economy by 40% by 2020 and at developing carbon free renewable energy from less than 1% up to 4.5% of Russia's total energy generation and use. The doubling of GDP, while at the same time reducing its energy intensity by 40%, would mean that Russia's emissions would grow by $2 \times 0.6 = 1.2$, i.e., by only 20% from 2012 levels.⁷ As renewables-based energy is carbon free, if Russia increases the proportion of energy derived from renewables to up to 4.5%, this would mean further reductions of Russian GHG emissions. With this in mind, Russia's GHG emissions would grow by only $2 \times 0.6 \times (1 - 0.045) = 1.146$, i.e., by only 14.6%.

Currently, Russian GHG emissions are at about 65% of their 1990 level. In 2009, they will be even less due to the global economic crisis and drop in production. Thus, let us assume that by 2012, Russia's GHG emissions will rise to 70% of their 1990 level (though I doubt this could happen). If one multiplies 70% by 1.146 growth rate, we arrive at only 80.2% of 1990 level to be achieved in the year 2020. This means that, on average, Russian GHG emissions in 2013-2020 would be less than 80% of 1990 levels.

In addition, Russia has a 'safety cushion' of between 5,600 and 6,700 MtCO_{2e}, which is the remaining Russian Assigned Amount that can potentially be transferred (from the Kyoto Protocol) over into 2013-2020 commitment period. Let us say this 'cushion' would be at least 5,600 MtCO_{2e}. Dividing this by 8 (the number of years between 2013 and 2020) we obtain an additional 700 MtCO_{2e} for each year, which is another 21% of the 1990 GHG emissions levels.

Thus, if the GoR is really serious about its announced energy efficiency and renewables targets towards 2020, then Russia can relatively easily keep its GHG emissions at least 20% below 1990 levels. With the remaining part of the Assigned Amount recognized and transferred from the Kyoto Protocol 2008-2012 period into the new 2013-2020 period, Russia could even commit to keeping GHG emissions 40% below its 1990 levels. Whether Russia will do so, still remains to be seen.

⁵ Which is equivalent to an average of 10.4% economic growth per year over such time period.

⁶ Of course this is not quite so. Emissions are dependent upon many things that are not constant over time, including the structure of an economy, energy generation and use, etc. But for the simplicity of calculation let us assume that under the BaU scenario, emissions will grow in line with GDP.

⁷ It should be noted that there are, of course, GHG emissions not related to energy. But the share of such emissions is relatively small, i.e., less than 25%. Besides, we can assume, again for the sake of simplicity, that non-energy-related emissions will follow the dynamics.

How to best control GHG emissions?

So far, GHG emissions are not regulated or controlled in Russia at all. However, in order to stabilize GHG emissions in Russia and to decrease them (as the task towards 2050 requires), some special measures can be recommended as set out below, including the putting in place of technical performance standards and of an emissions permit (and trading) system.

Direct and indirect control

For purposes of effective GHG emissions regulation, GHG emission sources should be divided into two groups:

- (i) the first group should include small and unorganized sources, such as transport and individual communal boilers; and
- (ii) the second group should consist of sources, which are controlled by companies and other enterprises.

GHG emissions of the first group should be regulated *indirectly*, through a system of technological performance standards applicable to individual technological units and pieces of equipment. These are considered to regulate fugitive emissions, fuel and energy consumption etc on the basis of best available technologies – and, thus, indirectly limiting GHG emissions.

The emissions sources of the second group, aside from such technical performance standards, should be *directly* capped (limited) under a kind of Russian emissions trading scheme (RF ETS) similar to the EU ETS.

Creating RF ETS

The RF ETS could be structured in such a manner that absolute emission caps (i.e., quotas or permits as they are called in the EU ETS) are determined for each company participant and that each emission permit is then linked to a certain amount of tradable carbon units (in case of EU ETS these are called allowances or EUAs), whereby each carbon unit is accorded 1 tCO₂e nominal value. Under such a regime, carbon units can be bought, sold and/or banked (i.e., saved for use in future periods).

In context of setting up a Russian cap-and-trade regime, emissions allowances should be balanced against actual GHG emissions and ought to be cancelled out every year, after the submission of a participant's GHG emissions report. Such a report should be independently verified, and companies which submitted underestimated emission data should be fined. Such companies should cancel out additional permits, to balance their actual emissions against their emission allowances, and so comply with GHG regulation.

Within such a regime, aside from obtaining emissions permits, as mentioned above, companies could obtain additional emissions rights by way of their acquired carbon units (AAUs, RMUs, ERUs and CERs) issued in other countries. Thereby, when a company's annual emissions balance is calculated, these units are converted into local RF emission allowances and, then, immediately be cancelled out.

If a company exceeds its permitted emissions (i.e., if actual emissions exceed the number of emission allowances held by a company in its account with the carbon registry), it should be penalized. The violating company should then be obliged to provide ‘double’ compensation for this violation in the future commitment period, as follows: during the next commitment period, the number of emission permits issued in favour of the violating company will be automatically reduced by the exceeded emissions amount in the previous period, multiplied by two.

Therefore, the initial distribution of emission allowances/permits plays a central role in such the proposed RF ETS. The permit distribution schemes used in EU member countries (e.g., in Slovakia) can be used as an example, as follows:

1. The calculation of baseline emissions. Baseline emissions are calculated as average GHG emissions during several years, instead of just relating to 1990 or any other year;
2. The baseline level is further corrected taking into account expected growth of output of the enterprise. Thus, GHG emission limits are calculated separately for each year of the budget period.
3. The allowed emissions during each year are summed-up, on the basis that this sum equals the emission quota which is established for the entire budget period.

This scheme could be complemented by two further conditions, namely:

4. Emissions limits should be corrected in the context of sectoral ‘scale factor’. This factor would reflect the relative differences which exist among unit emissions reductions in each sector of the economy, arising from economies-of-scale and as a result of investments, and
5. If actual output is slower than was projected, then the emissions quota for the next period should be corrected by way of subtracting the surplus which the enterprise acquired in the current period by overestimating its economic growth.

These two latter conditions should facilitate investments in Russia and the implementation of best available technologies, as a necessary prerequisite for economic expansion. An alternative solution for a company would always be the purchase of additional emissions permits or carbon units issued by other countries.

The RF ETS should be open to foreign companies, as this would stimulate market demand and create tangible incentives for Russian emitters. Foreign companies should be allowed to trade, and legally purchased emission permits should be freely convertible into exported carbon units (i.e., AAU and RMUs).

Other mechanisms

Aside from technical norm-setting and quotation, the GoR could provide fiscal and tariff incentives for GHG emissions reductions, the improvement of land use and forestry practices, and for investments in the framework of the flexibility mechanisms of the Kyoto Protocol.

The below table summarises possible methods for state regulation of GHG emissions in Russia.

Table 1. Methods of state regulation of GHG emissions⁸

Policies and measures	Objects of regulation and emission sources
Cap-and-trade (combination of emission permits and emission trading)	Large and medium emission sources, groups of small emission sources, which are controlled by enterprises and companies.
Technological norm-setting (performance standards)	Single units and installations, such as means of transportation (automobiles, water transport, trains, aircraft, pipelines, agricultural machinery, construction and other machines, energy-consuming and energy-generating installations).
Tariffs and taxes	Aimed at saving fuels and energy by small businesses and in the communal sector.
Land-use and forestry policies	Protection and enhancement of natural carbon sinks and reservoirs. Prevention of illegal logging, introduction of timber labeling, improvement of technological norms in land use and forestry, reform of land laws and forestry legislation, early detection and extinguishing of forest fires, afforestation, reforestation, revegetation.
Investment policy	Supporting investments in the communal sector for its technological modernization, investments in reduction of fuel consumption and losses during production and distribution of energy, investments in household waste management, recovery of associated gas and coalmine methane, investments in improved land use and forestry practices.

Russian business taking the lead

Russian businesses are now starting to embrace the Kyoto Protocol and climate change mitigation issues. Russian companies invest in energy saving, energy efficiency, utilization of recyclable and renewable sources of energy and secondary biofuels. This results not only in the more than 100 JI projects set out on the UNFCCC website (which is an absolute world record!), but also in the more fundamental fact that GHG emissions in Russia are growing much slower than its GDP.

Tackling climate and GHG emissions at corporate level

The most advanced Russian companies now voluntarily count and report their annual GHG emissions using the recognized international standards. Some of them have proclaimed climate strategies and introduced GHG management systems as a part of their overall environmental policy and environmental management plan (EMP).

The first to mention is RAO UES. This company no longer exists now (as a result of a major power sector reform undertaken recently in Russia), but before it was reorganised, as much as 77 regional energy companies embraced by RAO UES elaborated and submitted their GHG inventory reports, as well as their integral company's inventory report, which covered all sources of emissions, independently verified by the international auditors. RAO UES was also a Russian pioneer in implementing an overall GHG monitoring system and in submitting first JI projects.

⁸ Table compiled by the author in 2005.

The RAO UES example was followed by Lukoil, one of the biggest Russian oil producers. Not only has it produced a GHG emissions inventory covering 1990-2006, but it has also adopted a corporate strategy and an action plan aimed at meeting climate change mitigation requirements. In addition, corporate standards on GHG management and JI projects elaboration and submission have been introduced.

Norilsk Nickel is another good example. It produced a GHG emissions inventory for 1990-2005 relating to its polar affiliate and independently verified such emissions. This inventory was then used to estimate future GHG emissions (up to the year 2015). Now the company can calculate its GHG emissions by itself by using software specially elaborated to cover the company's specific emission sources.

Gazprom is also measuring its GHG emissions. All sources of its emissions have been identified, described and included in an overall inventory module which can be used for monitoring purposes, as well.

In 2008, Rusal was about to undertake an overall GHG inventory study that was supposed to cover all its companies and affiliates around the globe. Unfortunately, due to the economic crisis, this titanic work had to be postponed. In any event, this company also participates in some climate change mitigation activity. For example, Rusal is currently working on two huge JI projects dealing with perfluorocarbons (PFCs) reduction at its Krasnoyarsk and Bratsk facilities in Russia.

A lot more Russian companies from different sectors are engaged in JI projects activity now, including Rosneft (oil and gas sector), SUEK (coal mines), Euraz (steel mills), Eurocement (construction materials), Ilim Group, Archangelsk PPM, Volga, Svetogorsk PPM, Segezha PPM (all – pulp and paper), Sawmill 25 (timber industry), TGK-4, TGK-6 (all – power sector) and many others.

It appears very much so as if the economic crisis has stimulated a whole new way of thinking among Russian managers and businessmen. Instead of using new resources and industrial assets in Russia and beyond its borders, Russian companies are now switching to more efficient uses of resources which they already have at their disposal. Thus, creating, *inter alia*, many GHG emission reductions, which are potentially convertible into cash and other economic benefits.

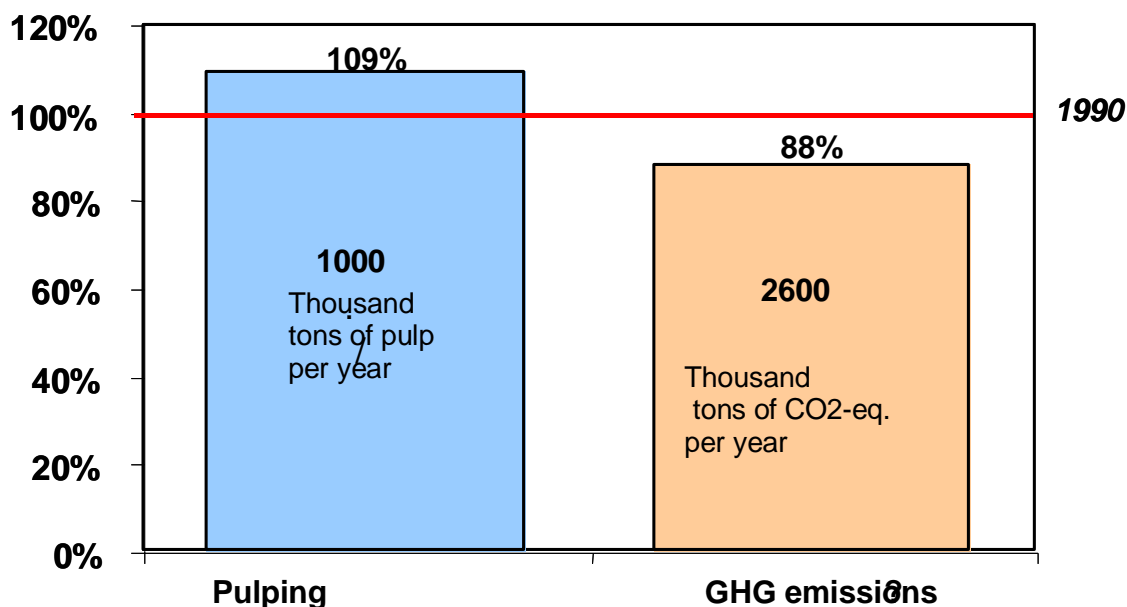
More than that, it also looks very much as if Russian business is taking the lead in climate change related activity in Russia and that they are leading the way. For example, a Climate Change Working Group was established at the Russian Union of Industrialists and Entrepreneurs (RSPP) in 2008 with the aim to elaborate a reasonable strategy on how to deal with and benefit from climate change mitigation.

Archangelsk Pulp and Paper Mill

The most encouraging example in this regard is demonstrated by Archangelsk Pulp and Paper Mill (APPM). APPM started controlling its GHG emissions back in 2002 when the mill ran its first comprehensive inventory of GHG emissions covering the period from 1990. Since then, APPM publishes its GHG emission data annually using the model and software developed by the Environmental Investment Center.

In 2003, APPM became the first and, so far, the only Russian company which has committed to quantitative emission targets. The company pledged to keep its annual GHG emissions under 2.6 MtCO₂e until 2012. This is 12% lower than its emissions in 1990. At the same time, pulping was expected to increase to 1 million tonnes per year, which is 8.5% more than in 1990 (see Fig. 5). This decision was announced by the General Director of the mill, Mr. Vladimir Beloglazov at COP 9 in Milan (Italy) on 10 December 2003.

Fig. 5. Voluntary GHG Emission target of Archangelsk Pulp and Paper Mill towards 2012 (in per cent. of 1990 level)



Source: JSC Archangelsk pulp and paper mill

To achieve this goal, APPM developed its climate strategy towards 2012, which includes the implementation of energy-saving technologies at the main production lines, increase of efficiency of energy generation at APPM's own power stations, the prevention of heat and power losses, and the further increase of biofuels use. Due to this strategy, specific GHG emissions per ton of pulp have decreased by 45% against the 1994 year level; from almost 4.5 tCO₂e to 2.5 tCO₂e (see Fig. 6). Thus, production at APPM has grown almost twofold against 1994 level, while GHG emissions remain practically the same.

In 2007-2008, APPM received its first 'carbon money', EUR 1.5 million, for early (pre-Kyoto) GHG emission reductions under the waste biomass utilization project which has been implemented at the mill since 2000.⁹

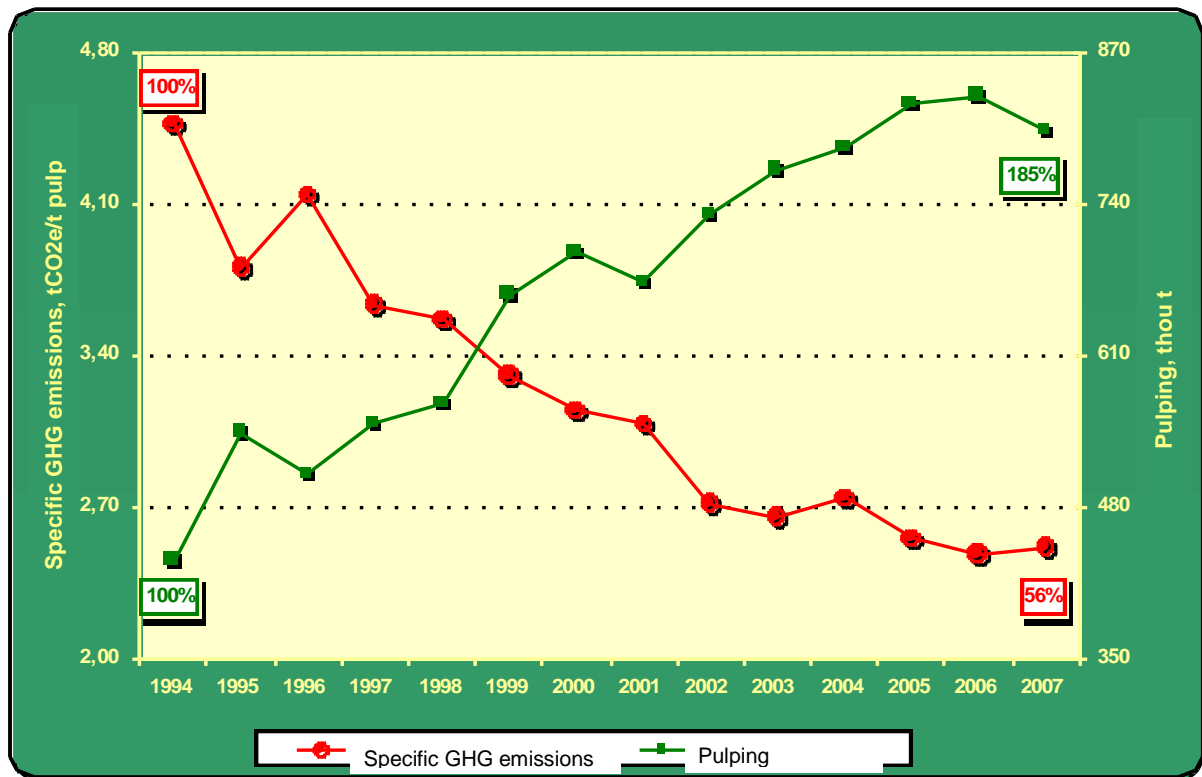
From the moment the project was first put into operations in late 2000 until 31 December 2007, it generated some 807 thousand tCO₂e of GHG emission reductions, which were sold in the market under the *Voluntary Carbon Standard*.¹⁰ Now the mill is looking forward to receiving additional money for its GHG emission reductions under the JI project during the Kyoto period (2008-2012) while at the same time working on another potential JI project that

⁹ Note: JI Commission approval is only needed for JI projects that generate ERUs during 2008-2012. With respect to the APPM situation, a PDD was prepared and validated against JI criteria, and then "early reductions" generated before 2008 were verified against voluntary carbon standards and sold for non-Kyoto (non-compliance) purposes to a company, which was seeking to be carbon neutral.

¹⁰ See <<http://www.v-c-s.org>>.

could double its emission reductions and, thus, increase the mill's total benefits both in terms of energy savings and in terms of carbon credits to be further supplied to the market in return for cash.

Fig. 6. Specific GHG Emissions at JSC Archangelsk Pulp and Paper Mill



Source: JSC Archangelsk pulp and paper mill

Final remarks

Examples of APPM and other Russian pioneer companies demonstrate now that implementation of the GHG limitation and reduction measures at the corporate level does not prevent business development and production growth. On the contrary, they help improve operations, strengthen company's competitiveness and sustainability. They also provide excellent opportunities for companies to earn money by selling carbon credits (GHG emission reductions) in the international carbon market and, thus, to profit from additional economic benefits which are especially valuable in the crisis times we now live in.