FRIEDRICH EBERT STIFTUNG

STUDY

Russia's Greenhouse Gas Target 2020

Projections, Trends, and Risks

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- In September 2013, Russia adopted a domestic greenhouse gas (GHG) emissions target that limits emissions to 75 per cent of the 1990 level by 2020. The structure and trends of the past and future national GHG emissions are analysed based on the recent lower growth assumption of the national economy. This makes the target achievable given that: technological emission reduction opportunities are used effectively; non-economic risks that can drive GHG emissions to exceed business-as-usual scenarios are eliminated; and the use of carbon instruments is accelerated.

- Understanding the costs of climate change to the national economy could make expenditure on mitigation acceptable and thus facilitate establishing an ambitious post-2020 goal. The lack of information on these costs is the basic reason for Russia's quiescence on climate mitigation. Any future international climate agreement will fail to change this without awareness of the risks of climate change for the Russian Federation.

- As a result, Russia is unlikely to proceed beyond the »economically viable« development path almost equivalent to its business-as-usual trajectory, which rejects the additional costs associated with emission reductions. This is more or less equivalent to the adopted domestic target, depending to some extent on which of the existing policies proves to be viable in practice.

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1. Introduction

There were several important developments in global and Russian climate politics in 2013. Firstly, the debates related to the Kyoto Protocol have ceased to be relevant to Russia. Although the details of the second commitment period are still being discussed in the framework of the United Nations Framework Convention on Climate Change (UNFCCC), climate issues per se are no longer associated with the Kyoto Protocol.

Secondly, in September Russia finally approved the long-discussed official domestic greenhouse gas (GHG) emissions target that reflects the evolution of emissions and economic development perspectives. This is an improvement in comparison to the loose Kyoto commitment. Thirdly, the first volume of t*he Fifth Assessment Report* by the Intergovernmental Panel on Climate Change (IPCC) was made public and met with more positive reaction in Russia than the previous reports. Unlike in the past, sceptical views were not expressed: officials emphasized the long-term character of the problem and their solution, which involves all large emitters in emissions reduction efforts (Bedritsky 2013).

Fourthly, by the end of the year, it had become obvious how difficult it is for the international community to develop a new global climate agreement under the United Nations (UN). There is very little time left before its scheduled approval in Paris at the end of 2015; given the lack of progress, the direct involvement of global leaders seems necessary.

The first aspect, Russia's climate policy and role under the international regime, was analysed by the present authors in May 2013 (Kokorin and Korppoo 2013). The main conclusion was that, without the efforts and dedication of a small group of committed climate experts and stakeholders, Russia's climate policy would boil down to a simple »green« image-building exercise targeted towards other governments – much talk, very little walk. A recent success for this interest group was Presidential Decree No. 752,[1] which sets a target for domestic emissions.

In this paper, we examine the target, its stringency, and the policy process around it. We place the actions currently under discussion in the context of international climate cooperation, and conclude with the prospects for a new international climate regime to boost Russian mitigation actions, as well as Russia's role in pushing for cooperation in global climate action.

2. Russia's Domestic GHG Emissions Target for 2020

Setting Russia's domestic target took nearly one-and-a-half years. Most of the debate that delayed the decision centred on the need to account for managed forests – a large net absorber of carbon dioxide. Paragraph A of the Decree – »greenhouse gas emissions to be cut by 2020 to the level not more than 75 per cent of such emissions in 1990« – sets a serious target, as long as forest sinks are not taken into account. However, including them in the compliance calculation would ease the target to the extent that the goal set would make little sense.[2] This was obvious to the key players: Deputy Prime Minister Arkadiy Dvorkovich; Presidential Advisor and UN Envoy on Climate Issues Alexander Bedritsky; Deputy Minister of Economy Sergey Belyakov; and many others, including climate experts. Nevertheless, they were unable to convince national leaders to exclude the possibility of tapping into forest sinks for compliance by including it in the Decree text.[3]

In the end, a compromise acceptable to all stakeholders was found. The Decree was supplemented with Paragraph B: »within six months approve an action plan to ensure the accomplishment of the set reduction of the GHG emission, which should incorporate the development of GHG emission reduction targets per sector of the economy«. This directly facilitates setting sector quantitative targets and thus practical action, without directly excluding the forests – exactly what Russian cli-

1. Presidential Decree of the Russian Federation No. 752 »On Greenhouse Gas Emission Reduction«. Moscow, 30 September 2013.

2. For details, see Kokorin and Korppoo.

3. According to recent scientific analyses, net CO_2-sinks by Russia's managed forests (the term used by the UNFCCC) will dramatically decrease. If forest management continues its wide commercial cutting of primary forest, this net sink will reach zero by 2040. By following the best Scandinavian practice, Russian forestry management could maintain a net sink effect, but regardless, the level would decline to some 25–30 per cent of the current sink. This means that the question of including or excluding managed forests is important only until about 2030, and potential Russian strategic goals for 2050 are practically independent of net-sink in managed forests. For details, see Zamolodchikov et al.

mate enthusiasts and the Decree initiators were aiming at. Practical domestic climate-mitigation measures are far more important than surpassing a numerical target in order to project a more »green« image in international climate arenas.

At the UNFCCC conference in Warsaw in November 2013, the Russian delegation stressed that, although the goal is ambitious, it should be achieved by domestic measures. No reference was made to potentially accounting for »Kyoto units« – i.e., Russia's surplus of emitting allowances, which ceased to exist when the first commitment period of the Kyoto Protocol ended.[4] Furthermore, statements by Russian officials made it clear that the target does not account for managed forests, as they were discussed separately.[5] Neither the meetings at the Russian Ministry of Economy in January 2014,[6] nor the analysis by the Ecological Committee of the Russian Union for Industrialists and Entrepreneurs – an association of Russia's large industries[7] – proposed including forest sinks in the compliance calculation.

Big business considers the goal very difficult to achieve. The Ministry agrees, but insists that the goal is achievable if proper domestic measures are taken in the near future, noting that delay would entail strict carbon taxation during 2018–2020.[8] Is this concern well founded? Is the new goal »window dressing«,[9] or is it genuinely difficult to achieve?

4. »Kyoto units« or Assigned Amount Units, are unused Russian quota for GHG emissions under the Kyoto Protocol 2008–2012 – i.e., the difference between real GHG emissions and Russian commitments in this period.

5. Alexander Bedritsky (special envoy of the Russian President on climate and sustainable development), statement at the press conference of the Russian Delegation, 21 Nov. 2013, Warsaw. He underscored that »along with this 75 per cent goal«, substantial attention is to be given to managed forests.

6. Round Tables on Problems of GHG Regulation. Ministry of Economy. 21 and 29 January 2014.

7. M. Yulkin (Russian Union of Industrialists and Entrepreneurs). Round Table on Problems of GHG Regulation, Ministry of Economy. 21 January 2014.

8. O. Pluzhnikov (Ministry of Economy). Round Table on Problems of GHG Regulation, Ministry of Economy. 21 January 2014.

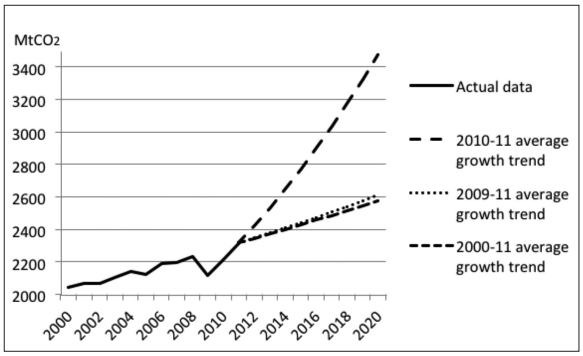
9. For details, see Kokorin and Korppoo.

3. Structure and Trends of Russia's Current Emissions

3.1 Simple Emissions Trend Extrapolations Give an Unrealistic Picture

There are many ways of looking at future emissions trends. With scenarios based solely on Russia's GHG emissions trend from 2009 to 2011,[10] the goal looks unattainable, because that period gives the impression that emissions are growing fast and are likely to exceed the target by 2020. Overall, GHG emissions equalled 63.2 per cent of the 1990 level in 2009,[11] 66.1 per cent in 2010, and 69.2 per cent in 2011. However, because 2009 was when the global economic recession began, growth in 2010 basically returned to the 2008 level of 66.7 per cent, when the recession began to ease. The 2011 growth could be seen as catching up with the longer-term trend of emissions growth, since the 2009–2011 total annual emissions growth (1.3 per cent per annum) only slightly exceeds the 2000–2008 trend (1.1 per cent per annum). As shown in Graph 1, extrapolating these trends leads to emissions of about 78 per cent and 76.5 per cent of the 1990 levels by 2020. This assumes that the pre-economic-crisis emissions trends will continue after a brief recovery from the economic recession. However, in the extrapolation based on the recovery period, 2010–2011, the emissions trend alone indicates emissions already reaching 75 per cent in 2013, and an astounding 104 per cent of the 1990 level in 2020.

Graph 1. Emissions Trend Extrapolations without Further Assumptions on Development Paths



Source: Authors

10. National Inventory Report of the Russian Federation to the UNFCCC, Common Reporting Format, www.unfccc.int.

11. All of the data here exclude managed forests. With managed forests included, 2011 emissions equalled 1.69 billion tons CO_2 emission, or 49.25 per cent of the 1990 level.

However, the skyrocketing extrapolation shown in Graph 1 is not a realistic scenario. An extrapolation is a very simple exercise that fails to take into account any actual or projected developments in the economy, and is thus invalid for use as the sole method. Nonetheless, it can shed light on why Russian industry expects the adopted target to be difficult to achieve without accounting for the forest sinks: if we expect the 2010–2011 trend to continue, emissions would indeed overshoot the target. This perspective was also recognized by Russian officials and business representatives during the debate on the target, and was sufficiently disturbing to block the exclusion of forest sinks from the Decree text.

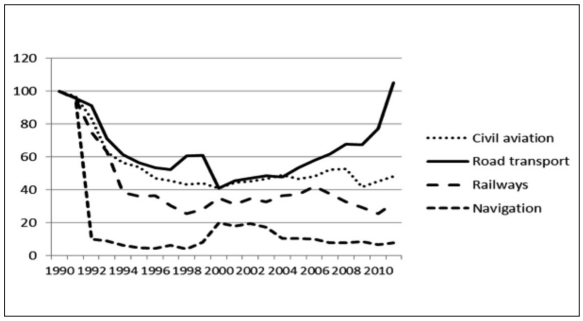
3.2 Emissions Growth: Transport and Gas Leaks

Detailed analysis reveals the structure of the growth in GHG emissions and allows assessment of the impacts expected from sectoral developments and measures, thereby enabling a facts-based estimate of future emissions trends. First, attention should be paid to the structure: from which sector does the growth originate? In Russia, CO_2 emissions from the transport sector are responsible for three-fourths of the growth in GHG emissions, followed by the CH_4 emissions from the oil and gas sector, accounting for about one-fourth of the increase. Other major emission sources have remained basically stable, including the largest one – CO_2 emissions from electricity and heat generation.

The growth trends are evident from the sector data. Comparison of the data on the transport sub-sectors shows the growing significance of private cars in comparison to public transport (Graph 2). Trends for road transport include the increasing size of the light vehicle fleet and its growing annual mileage, which accounts for most of the reported emissions growth in the transport sector.[12] Russia's current phase of economic development has allowed many families to purchase their first car, especially in relatively poor regions that are now following earlier urban trends. With poor public transport services in towns and rural areas, cars become the most convenient option, even when petrol prices are high for many lower-income consumers. This dynamic is unlikely to change before 2020. Drastic increases in the price of petrol might slow down emissions growth, but are not feasible for social and political reasons.

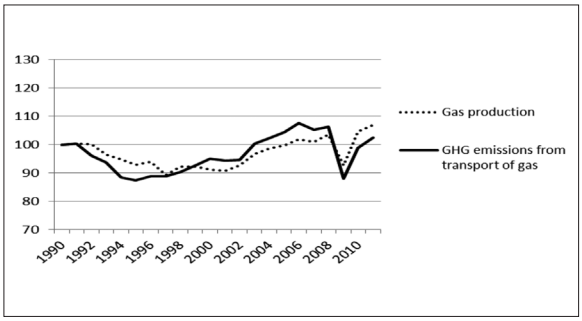
The increase in CH_4 emissions from the oil and gas sector relates chiefly to losses in Russia's huge gas transport network. Gazprom is well aware that the network requires improvements.[13] Even though some measures may be expected before 2020, the process is likely to be gradual, so significant emission reductions do not seem realistic in the short term. Graph 3 shows how leakages from trunk gas pipelines closely follow the volume of gas production; this indicates that leakage has remained basically the same per unit of gas produced since 1990.

Graph 2. Emissions from the Transport Sector 1990–2011



Source: Data from *National Inventory Report of the Russian Federation to the UNFCCC*, www.unfccc.int

Graph 3. Linkage between Gas Production and Emissions from Gas Transport

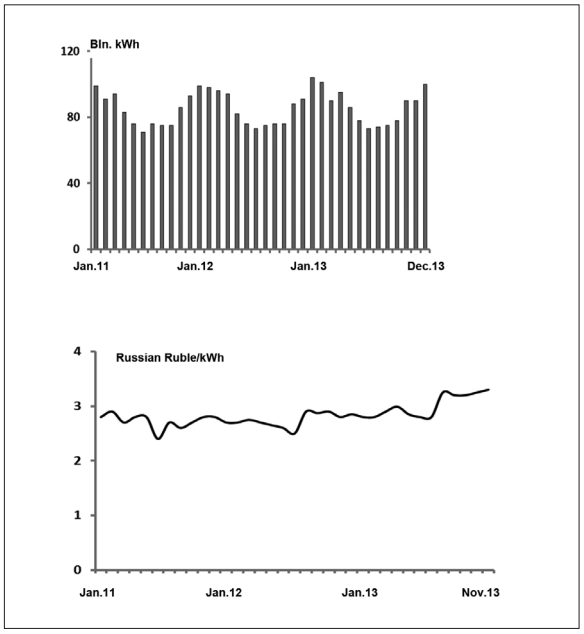


Source: Data on emissions in gas transport from *National Inventory Report of the Russian Federation to the UNFCCC*, www.unfccc.int category 1.B.2.B.3. Data on gas production from IEA energy statistics of non-OECD countries www.iea.org

12. M. Yulkin (Russian Union of Industrialists and Entrepreneurs). Sectoral Structure and Dynamic of GHG Emissions in the Russian Federation in 2011. Round Table on Problems of GHG Regulation. Ministry of Economy. 21 January 2014.

13. Gazprom operates all trunk pipelines and most distribution lines through subsidiaries. The greatest leakage occurs in the distribution lines.

Graph 4. Consumption (left) and Prices of Electricity for End-users (right) in Russia, 2011–2013



Exchange rate Russian rouble/USD in 2011–2013 fluctuated between 27.5 and 33 roubles/USD.

Source: Analytical Centre under the Government of the Russian Federation.

Beyond the annual effects of weather conditions (space heating, hydro-energy generation) and the short-term economic effects that cause CO_2 emissions to fluctuate from year to year, emissions trends in several significant areas – including the electricity and heat generation, housing, municipal, industrial, and construction sectors – are likely to remain flat for the period 2013 to 2020. The stability of emissions from the electricity and heating sector can be seen from the 2013 consumption data. In 2013, electricity consumption was slightly lower than in 2012 (Analytical Centre under the Government of the Russian Federation 2014). Given the end-use price increases, this trend may be a long-term one. Graph 4 shows the example of the electricity sector 2011–2013.

4. Projections of Future Emissions Trends

Adopted in 2013, the *Long-term Forecast for the Socioeconomic Development of the Russian Federation by 2030* presented three economic scenarios: innovative, conservative, and exaggerated, with annual GDP growth of, respectively, 3.2 per cent, 4.1 per cent, and a whopping 5.4 per cent for 2013–2030 (Ministry of Economic Development 2013: 337). In November 2013, however, the new Minister of Economy, Alexey Ulyikaev, stated that by 2030 the country is expected to follow the conservative scenario, and that with a less ambitious projection of GDP growth by 2.5 per cent.[14] Previously, the innovative scenario had been deemed more likely. In January 2014, the Annual Gaidar Economic Forum[15] also demonstrated a far more conservative approach to economic development for the coming decades.

The 2013 prognosis is that GHG emissions will reach 75 per cent of the 1990 level by 2020, thereafter declining to 70 per cent in 2030 as a result of energy-efficiency measures, increased labour productivity, and renewable energy policies. This is especially the case if policies and measures are backed up by domestic carbon regulation measures aimed at supporting new technologies (Kokorin, Gritsevich, and Gordeev 2013). To date, eight research groups have presented relatively new scenarios, which are considered below and summarized in Table 1.

1. The **Energy Research Institute of the Russian Academy of Science (ERI RAS)**, which normally develops the official energy scenarios for ministries, presented new calculations showing »peak, stabilization, and decline« of CO_2 emissions from fuel combustion. ERI RAS expects emissions to stabilize only in the 2030s, at 85–88 per cent of the 1990 levels; the estimate for 2020 emissions is 81–83 per cent.[16] However, the ERI RAS analysis does not consider all potential low-carbon measures or assume a price for carbon. The institute will explore these options in 2014; this is likely to indicate stabilization sooner and with a lower level of emissions. However, a carbon price above 20 USD/t CO_2 has been seen as too heavy a burden for the energy sector, given the modernization investments required. Current investments in the sector account for 6 per cent of GDP. This is abnormally high compared to the global average of 1.5 per cent; over the next decades, the share in Russia is expected to be reduced to 4 per cent of GDP.

14. On 7 November 2013 the Minister of Economy announced a new path with the conservative scenario. http://www.forbes.ru/news/246985-mer-ukhudshilo-prognoz-sotsialno-ekonomicheskogo-razvitiya-rossii-do-2030-goda.

15. The Gaidar Forum is a series of annual international scientific conferences in the field of economics in Russia. Established in 2010, the Forum has become the country's central political and economic event focused on sustainable development.

16. ERI RAS, Alexey Makarov, Scenarios of Russian Energy Strategy, Gaidar Economic Forum, Moscow, 16 January 2014.

2. The various options and burdens for the Russian energy sector have also been discussed by the **Ministry of Energy**, which has presented draft corrections to the »State Programme on Energy Efficiency and Energy Development« (for the period by 2035).[17] This new version does not include direct prognoses on CO_2, but draws up a trajectory of 40 per cent reduction in energy intensity/GDP 2007 to 2020 – 13.5 per cent to be achieved by technological measures,[18] and 26.5 per cent by economic structural transformations. The updated Programme expects CO_2 growth by 2035 to the level of 120 per cent of 2010 (i.e., 79.3 per cent of 1990). Interpolation for 2020 gives the level about 75 per cent of 1990.

3. The **Institute of Economic Forecasting (ECFOR)** of the Russian Academy of Sciences presented two scenarios for CO_2 emissions from fuel combustion. One of them forecasts 75 per cent of the 1990 level in 2020; the second scenario predicts earlier stabilization of emissions, and then decline to 68 per cent of the 1990 level by 2020.[19]

4. The **Moscow Center of Energy Efficiency (CENEf)**, a leading advisor to the Ministries of Economy and Energy, has conducted a project separating scenarios by types of measures.[20] Possible measures listed are subdivided into *Current Policy, New Policy,* and *Resolute Policy* scenarios.

4.1 Current Policy assumes routine continuation of ongoing activities: broad measures for energy efficiency and modest renewable energy measures, utilization of coal-bed methane, and cutting associated gas flaring below 5 per cent as planned in the »State Programme on Energy Efficiency and Energy Development«. Such a policy is expected to lead to 70 per cent of the 1990 level by 2020, under a conservative scenario of 2 per cent GDP growth, and to 75 per cent in the innovative scenario of more rapid, approximately 3 per cent, GDP growth.[21] However, for 2020 to the 2030s, the Current Policy scenario shows CO_2 emissions stabilizing at the level of 80 per cent under the assumption of higher GDP growth of approximately 3 per cent.

4.2 New Policy assumes implementation of measures announced by the government as desirable, above all enhanced energy efficiency: wide use of energy audit and energy service companies, certification, subsidies; sufficient growth of labour productivity in all sectors; measures for fuel economy in road transport, etc. This scenario forecasts emissions reaching 70–74 per cent of the 1990 level by 2020 and thereafter stabilizing at this level.

4.3 Resolute Policy entails the introduction of progressive policies: wide support for renewable energy, biofuels, and nuclear energy; sufficient carbon price; and the use of carbon capture and storage (CCS) technology if the carbon price exceeds 58 USD/t CO_2. These measures could reduce CO_2 emissions to 60–65 per cent of the 1990 level by 2020, and further to 50 per cent by 2050.

5. The scenarios from the **Institute of Economic Policy (IEP)** were produced in cooperation with the Russian Presidential Academy of the National Economy and Public Administration (RANEPA).[22] They apply the TIMES model adjusted to Russia's economic sectors and accommodate up-to-date assumptions of their future development. Unlike other scenarios, the IEP scenarios cover not only CO_2 (74 per cent of total GHG emissions), but also CH_4 emissions from energy and industry (17 per cent of GHG emissions).[23] This means that instead of about three-fourths of all national GHG emissions, IEP scenarios cover over 90 per cent.

17. Ministry of Energy. Alexey Kulapin. Presentation of the New Version of the State Programme on Energy Efficiency and Energy Development (for the period by 2036). Analytical Centre of the Russian Government, Moscow, 27 January 2014.

18. The document also mentions cost of 400 roubles for reduction by per tonne of CO_2 as a benchmark for potential additional measures, while without clarifications and details.

19. ECFOR RAS, Yuri Sinyak, Technological Factors in Long-Term Forecasting of the Russian Fuel-Energy Complex, Gaidar Economic Forum, Moscow, 16 January 2014.

20. CENEf, Igor Bashmakov, Scenarios of Russian Socioeconomic Development by Low-Carbon Trajectories, Gaidar Economic Forum, Moscow, 16 January 2014.

21. The uprated, or »enforcement«, scenario of 4–6 per cent GDP growth was considered very unlikely, so those results are not discussed.

22. IEP-RANEPA, O. Lugovoy, V. Potashnikov and D. Gordeev, Prognostic Scenarios of Greenhouse Gas Emissions in Russia. Gaidar Economic Forum, Moscow, 16 January 2014.

23. Remaining emissions, about 9 per cent, consist of CH_4 in agriculture and waste (approximately 4 per cent), N2O and other GHGs (approximately 5 per cent). National Inventory Report of the Russian Federation to the UNFCCC, Common Reporting Format, http://www.unfccc.int.

5.1 The IEP's BAU scenario consists of the CENEf Current Policy scenario, with the significant addition of the CENEf's New Policies (it is between 4.1 and 4.2 above) – i.e., without any measures specifically targeted at reducing GHG emissions. In the BAU scenario, we see emission stabilization by 2020: minor growth until 2015 and stabilization at the level of 72–75 per cent, while this level continues in the next decades without decrease.

5.2 The TAX scenario introduces a carbon tax from 2015, with gradual growth in the price from 15 to 50 USD/t CO_2 by 2050. TAX provides almost the same trajectory by 2020, but principal deviation from BAU in the next decades: by 2050, a decrease in GHG emissions to 60–65 per cent of the 1990 level.

5.3 The IEP scenarios CAP50 and CAP75 demonstrate the potential feasibility of limiting GHG emissions to 50 per cent and an ambitious 25 per cent of the 1990 level after 2030; both include enhanced biofuel use and CCS.

6. The post-crisis development of the Russian economy – from recovery to very modest GDP growth (with oil/gas prices stable and rather high) – came as a surprise to Russian and foreign economists alike. For instance, in the *World Energy Outlook 2013* from the **International Energy Agency (IEA)**, expectations of Russian economic development remain optimistic. This means there is a discrepancy between the updated Russian scenarios outlined above and the IEA scenarios. The IEA has analysed almost the same low-carbon measures and sub-divisions between current policy and new policy as CENEf and IEP-RANEPA, but forecasts more significant economic growth. IEA's *World Energy Outlook 2013* outlines three CO_2 emissions scenarios for Russia.

6.1 Current Policy predicts the achievement of 80 per cent of the 1990 level by 2020 and 90 per cent by 2030. This demonstrates the risk of large and permanent CO_2 growth following weak and slow implementation of energy-efficiency and energy-saving measures.

6.2 New Policy forecasts 78 per cent of the 1990 level by 2020, with permanent growth to the level of 82.5 per cent by 2035. *World Energy Outlook 2014* is expected to take into account the corrected estimates of Russia's slower GDP growth.

6.3 Only the IEA »450 ppm« scenario shows stabilization of CO_2 emissions in the 2010s, at 73.5 per cent of the 1990 level in 2020, and rapid decarbonization to 58 per cent of the 1990 level by 2030, and 52 per cent by 2035. This scenario and the IEP scenarios, CAP50 and CAP75, demonstrate the potential feasibility of Russia's contribution to achieving the global goal of stabilizing CO_2 concentrations at the level of 450 ppm. It has some similarities with CENEf's Resolute Policy scenario.

7. The **Russian Energy Institute (ENIN)**[24] has also arrived at estimates similar to 6.1 above. ENIN analysed CO_2 emissions from large units of electricity generation only (about a quarter of all GHG sources), following the »Scheme of Development of the United Energy System in 2013–2019« based on the outdated assumptions of 2012–2013. Their forecast was 81.2 per cent of the 1990 level in 2019.

8. An estimate presented by **BP** in January 2014 indicates that CO_2 emissions from the energy sector will reach approximately 80 per cent of the 1990 level by 2035, with 73–75 per cent forecast for 2020.[25]

24. Large power units of electricity generation emitted in 2012 557 millions of tons of CO_2 ($MtCO_2$) or about one-fourth of all GHG emissions. In 1990, this source was 788 $MtCO_2$ (without block-units belonging to industry – 706 $MtCO_2$). Source: M. Saparov (ENIN), Risks to Exceed National Goal on CO_2 Limitation in RF Energy: Analysis of Current State Programmes. Round Table on Problems of GHG Regulation.Ministry of Economy. 29 January 2014.

25. BP-2035, C. Ruhl, »Prognosis of World Energy by 2035«, IMEMO, Moscow, 17 January 2014.www.bp.com/energyoutlook.

Table 1. Projections of Russian GHG Emissions by 2020

Institute / Scenario	Coverage	Forecast for 2020 % of 1990	Comments
Scenarios based on most recent economic expectations (January 2014)			
IEP-RENEPA/BAU	CO_2 and CH_4 in energy and industry, circa 91% of total emissions	72–75%	Stabilization on constant level of 2020 in the next decades
ECFOR	CO_2 from fuel combustion – i.e., about 74% of all GHG emission (2011)	68–75%	Stabilization in 2010s
CENEf/Current Policy		70–75%	Continuation of GHG growth during 2020–2030s
CENEf/New Policy		70–74%	Stabilization on constant level of 2020 in the next decades
Ministry of Energy		~75%	Draft corrections to the State Programme on Energy Efficiency and Energy Development based on 40% reduction of the energy intensity of GDP during 2007–2020. Growth to level of 79.3% of 1990 by 2035.[26]
Scenarios based on earlier economic expectations			
ERI RAS	CO_2 from fuel combustion – i.e., about 74% of all GHG emission (2011)	81–83%	Level of 85-88% by 2035 (stabilization). Modelling additional low-carbon options is planned in 2014.
IEA WEO 2013/ Current Policy		80%	Level of 90% reached by 2030
IEA WEO 2013/ New Policy		78%	Level of 82.5% reached by 2035
BP-2035		73–75%	Level of 80% reached by 2035
ENIN	CO_2 from large energy units	81%	Level for 2019. Estimates are based on Scheme of Development of the United Energy System in 2013–2019. Estimates cover about ¼ of all GHG emissions (2011).
Scenarios of ambitious GHG emission reduction			
CENEf/ Resolute Policy	CO_2 from fuel combustion – i.e. ~ 74% of all GHG emission	60–65%	Level of 50% reached by 2050
IEA WEO2013/ »450 ppm«		73.5%	Level of 58% reached by 2030 and 52% by 2035
IEP-RENEPA/TAX	CO_2 and CH_4 from energy and industry – i.e., ~91% of all GHG (2011)	72–75%	Gradual growth of carbon price from 15 to 50 USD/t CO_2 in 2015–2050. Level of 60–65% reached by 2050.
IEP-RENEPA/CAP50 IEP-RENEPA/CAP75			Demonstration of potential feasibility to limit GHG emissions to levels of 50 and 25% of 1990 by 2050. After 2030, both include enhanced use of biofuel and CCS.

Source: See text and footnotes for each institute/scenario.

26. Ministry of Energy. Presentation in Analytical Center of the Russian Government. 17 February 2014. The target is limitation of the GHG level to 120 per cent of the 2010 level (Emissions in 2010 were 2217 $MtCO_2e$ or 66.1 per cent of 3,352 $MtCO_2e$ of the 1990 level, all excluding LULUCF); 120 per cent of 2010 is 2,660 $MtCO_2e$, equivalent to 79.3 per cent of the 1990 level. Data source: www.unfccc.int).

Table 1 summarizes all of the scenarios by dividing them into three categories: those that take into account the latest assumptions of slower GDP growth, those based on previous higher GDP estimates, and finally, scenarios that assume measures focused especially on reductions in carbon emissions, including the introduction of a carbon price. The main conclusion is that the slower GDP growth assumption leads to a slower growth in GHG emissions, thereby making the 75 per cent target easier to achieve. However, focused carbon emission reduction measures, such as a price for carbon, can enable target achievement without problems.

5. Risks and Difficulties in Achieving the 2020 GHG Target

Russian experts clearly agree that the »75 per cent goal«, as presented at the Round Table organized by the Ministry of Economy, is feasible.[27] On the other hand, the general conclusion of the participants at the Gaidar Economic Forum in January 2014, as well as at another Round Tables at the Ministry of Economy later in the same month, took a similar, albeit somewhat more cautious approach: »[The] 75 per cent goal is achievable, but difficult, as measures to promote nationally beneficial low-carbon technologies are required«.[28] The risk of non-compliance was considered to be high, for the following reasons:

5.1 Technological Emission Reduction Opportunities.

It is acknowledged that improvements are required in implementing energy-efficiency and energy-saving measures to keep CO_2 emissions from electricity and heat generation, and the housing and municipal, industrial and construction sectors at the 2013–2014 level. Some measures have been established – for example, energy audits, energy service companies, certification, subsidies, sufficient growth of labour productivity – in the State Programme on Energy Efficiency and Energy Development, but implementation remains weak and slow. Moreover, there is a problem of the several hundred large power generation units constructed between the 1960s and 1980s, which are now obsolete and require modernization. This can be achieved only through major long-term investments, combined with decommissioning of some generation capacity, which may become unnecessary in the future due to lower demand.[29]

Fuel-consumption growth in the transport sector could be cut to 30–50 per cent by 2020. According to the IEP-RANEPA scenario, fuel consumption could even be stabilized by 2020, if planned fuel standards are enforced.[30] The only way to deal with the problem of private-car fuel consumption, which is growing at a faster rate than the automobile fleet,[31] is by incentivizing the use of public transport and dis-incentivizing fuel consumption per private car, by giving priority to the development of public transport, keeping tickets affordable, ensuring that public transport has priority during peak hours, etc. Countrywide implementation would increase the impact of such measures in comparison to focusing on large cities only. An additional solution could be a massive nationwide conversion to natural gas as a fuel for all vehicles. Gazprom is actively lobbying for such a solution as an »alternative« to subsidizing renewable energy sources,[32] while the government sees such a shift as representing an opportunity for private businesses. In some cities, public transport buses are gradually being converted to gas, although the high costs and geometric size of the necessary gas equipment, as well as the necessity of using petrol in low temperatures, remain limiting factors for the majority of all vehicle owners.

Ensuring at least minimum absolute reduction of CH_4 emissions from the gas/oil sector could contribute to GHG emission reductions. However, to achieve such reductions, the main source – leakages in the gas transportation system – should be reduced by at least 10–20 per

27. I. Bashmakov (CENEf) Prognosis of Greenhouse Gas Emissions in the Russian Federation in Long-Term Perspective Sectoral Structure and Dynamic of GHG Emissions in the Russian Federation in 2011. Round Table on Problems of GHG Regulation. Ministry of Economy. 21 January 2014.

28. S. Belyakov (Vice Minister of Economy), Alexander Bedritsky (President's Envoy on climate Issues) Round Table on Problems of GHG Regulation. Ministry of Economy. 29 January 2014.

29. M. Saparov (ENIN). Risks to Exceed National Goal on CO_2 Limitation in RF Energy: Analysis of the Current State Programmes. Round Table on Problems of GHG Regulation. Ministry of Economy. 29 January 2014.

30. By 2020, new petrol cars in average use <6.5 l/100km, diesel - <5.0 l/100km. Ministry of Energy. New Version of the State Programme on Energy Efficiency and Energy Development (for the period by 2035). Analytical Centre of the Russian Government, Moscow, 27 Jan. 2014.

31. M. Yulkin (Russian Union of Industrialists and Entrepreneurs). Sectoral Structure and Dynamic of GHG Emissions in the Russian Federation in 2011. Round Table on Problems of GHG Regulation. Ministry of Economy. 21 January 2014.

32. A. Ishkov (Gazprom). Round Table on Problems of GHG Regulation. Ministry of Economy. 29 January 2014.

cent in specific values (per Mm3 of gas). This will require special attention by Gazprom when upgrading and developing its gas transport network, in addition to entailing significant additional investments. It is also important to continue implementing the approved policy measures for oil associated gas utilization. Even though emissions of associated gas are lower (by GHG effect) than the methane leaks from the gas transport network, this is nevertheless a significant GHG source. According to IEP-RANEPA (the only scenario to include CH_4), overall CH_4 emissions are expected to continue growing, while the growth can be mitigated.

Development of biofuel production, timber bioenergy (TBE) in particular, could also make a contribution. Since 2013, wind, solar, and small-hydro capacities in Russia have been supported through a compensation scheme when they sell electricity to the power grid, whereas TBE is seen as an option for private business only. However, some scenarios – like IEP-RANEPA and ERI RAS – indicate that from 2030 to 2050, biofuels alone could make a highly significant contribution to the national fuel mix. Vice Prime Minister Arkadiy Dvorkovich has launched an investigation into options, but progress has been very slow. An additional benefit could be a more effective use of secondary forests, allowing the forestry sector to generate equivalent revenues without clear-cutting primary forests.

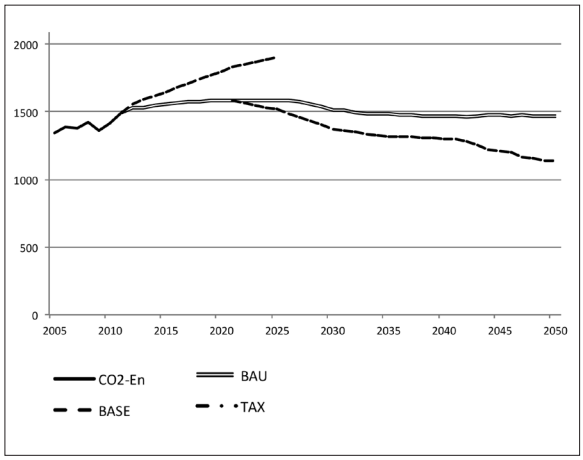
To summarize, problems with policy implementation, as well as the choice and planning of policies, are holding back practical realization of the potential for emission reductions.

5.2 Risk of GHG Emissions Exceeding BAU Scenarios

One of the main topics for discussion is the problem of non-economic risks and barriers. The private sector voiced their fears of losing business as a result of the abuse of power by the local authorities, capital flight from Russia, and the impossibility of business planning for a ten- to 15-year time horizon, while the three- to five-year repayment period makes new technologies appear cost-ineffective. Russia intends to alleviate such non-economic risks through international private-government partnerships, under which the government will guarantee stable conditions for business, and business will take a more ambitious approach to investing in new technologies.[33] The need to remove such non-economic risks has been highlighted by the top political level several times, but improvement is progressing very slowly.

These non-economic risks and barriers can lead to a high growth in GHG emissions. The risk of »abnormal« CO_2 and CH_4 growth was clearly demonstrated by the IEP-RANEPA hypothetical BASE scenario, which assumed that Current Policy, including energy-efficiency measures, had been brought to a standstill by 2010 and only old technologies are used in the coming years (Graph 5 for CO_2 from fuel combustion). Growth of CO_2 and CH_4 emissions in energy and industry sectors is significant – 83 per cent of 1990 level by 2020 and 95 per cent by 2030.[34] In practice, such a trajectory cannot be sustained for that many years, since economic growth depends on new technologies. However, this clearly illustrates how the failure to start energy-efficiency and energy-saving measures in 2011[35] led to significant growth in emissions.

Graph 5. Russian CO2 Emissions from Fuel Combustion
CO_2-En: CO_2 from fuel combustion 2005–2011



BAU: economically optimal implementation of new technologies without special CO_2 targets (3 per cent GDP/y)
BASE: hypothetical scenario with the same development but only by old technologies
TAX: BAU with additional growing carbon tax of 15–50 USD/t CO_2 in 2020–2050, with target of 50 per cent level of 1990

Source: Kokorin, Gritsevich, and Gordeev.

5.3 Slow Progress in the Use of

33. A. Kvasov (Russian G8 Sherpa), Statement at Gaidar Economic Forum. Moscow, 15 January 2014.

34. IEP-RANEPA, Oleg Lugovoy, Vladimir Potashnikov, Dmitry Gordeev. Prognostic scenarios of greenhouse gas emissions in Russia. Gaidar Economic Forum, Moscow, 16 Jan. 2014.

35. The measures were gradually started during the 2012–2013 period.

Carbon Instruments

This problem was widely discussed at the two special Round Tables held in the Ministry of Economy in January 2014, which highlighted the experiences of other countries and the delays in Russia. No doubts were expressed concerning the necessity of introducing carbon market instruments if Russia wants to incentivize cuts in GHG emissions significantly and effectively. However, this does not mean that the government and businesses are enthusiastic about mechanisms for reducing carbon emissions, because they are seen as an additional burden for business. Thus, the schedule and options for instruments remain a big question. The need to look into the matter is no longer questioned; however, serious efforts and political will are required in order to move the issue beyond the discussion level.

6. Preparing Implementation of the 75 Per Cent Target

According to Presidential Decree No. 752, an action plan to establish measures on economic sectors to achieve the 75 per cent goal was presented to the government in February 2014. The Ministry of Economy is leading the drafting of the action plan, which has three parts:

- The first part is to establish a system for monitoring, reporting, and verification (MRV), which deepens the current national inventory reporting from the country level to enterprises. It foresees a general concept to be adopted by the Government in autumn 2014, methodology and legal issues for MRV on enterprise level by mid-2015, with full operationalization in mid-2016. There is also option for voluntary GHG inventory by Russian regions.

- The second part deals with GHG estimates and prognoses by 2020 and 2030, and the introduction of emission reduction indicators (absolute and/or intensity indicators) for sectors of the national economy by the end of 2015.

- The third part concerns measures for carbon regulation. As the action plan remains a framework document, it does not identify types of regulation: long-term scenarios and a concept for carbon-regulation are planned to be completed in 2015. Some items of the plan initiate development of pilot projects and/or a pilot system in a Russian region. There is an option of using state subsidies for energy-efficiency improvements by applying the existing institutional infrastructure that was established to administer Joint Implementation during the first commitment period of the Kyoto Protocol. Under this domestic version, the government is expected to be the buyer of carbon units, while Sberbank continues as the operator of the system. Updates of federal programmes are required to direct funds to finance such projects, mainly on the public sector (public buildings and activities of public organizations).

In discussions, this draft was recognized by officials and big business as a balanced compromise. However, it is still possible that Decree No. 752 will be implemented through setting targets by sectors of the economy alone, instead of introducing supportive carbon regulation measures, which big business generally considers a burden. As it stands, Russian enterprises and companies have no commitment to report their GHG emissions. Most of them are keen to avoid »more useless paperwork«, although some already provide such reporting more or less voluntarily, due to international requirements (airlines flying to the EU, companies listed on the London Stock Exchange, etc.). While relevant methodology is formally absent, one kind of a reporting system was used and tested in Russia by about a hundred UNFCCC Joint Implementation projects.

Various views have been expressed on the priorities and aims of the action plan. The President's Envoy Alexander Bedritsky considers the focus on *pilot regions* to be essential, since »Russia cannot be shifted if we do not begin from regions«.[36] Furthermore, he feels that quality of action should override the quantity of reductions, arguing that 75 per cent should not be achieved at any cost, but by technologies beneficial to the regions. Finally, he has urged major companies, such as Gazprom, to take the lead, since they have the experience and capacity for such measures. At the same Round Table, Deputy Minister of Economy Sergei Belyakov called for the focus to be put on »incentives« instead of »limitations«, and stressed that »early actions will allow avoiding sharp decisions in the end of 2010s«, which could be non-beneficial for the business.[37]
Why such strong resistance, then? Why is it out of the

36. A. Bedritsky, Round Table on Problems of GHG Regulation. Ministry of Economy, 29 Jan. 2014.

37. S. Belyakov, Round Table on Problems of GHG Regulation. Ministry of Economy, 29 Jan. 2014.

question to introduce a carbon tax, payments, or penalties? Why are only reporting and developing economic incentives in the absence of the actual emission reduction commitments being discussed? The basic answer to these questions relates to the understanding of the climate problem in Russia.

7. Understanding the Costs of Climate Change Would Make Mitigation Costs Acceptable

When climate mitigation policies are discussed, officials and the business community tend to ask why. If the justification is couched in terms of optimizing the adoption of new technologies, improving the effectiveness of energy efficiency subsidies, etc., the argument is met with understanding. However, further questions arise: *Why through CO_2 policy tools? Why not through regulations based on other indicators?* In this case, CO_2 emissions are seen as a method of measuring the results, not the primary goal.

When introducing climate mitigation policies is justified as measures to fight climate change, the opponents want to know: how much will climate change cost, and by when? The fact that no firm answer can be given is considered a justifiable reason for not pursuing the issue further.

Global estimates of the damage caused by climate change are thus far inadequate to enable assessment of the economic loss incurred by large, individual countries like Russia. That said, the damage to small island states and most vulnerable countries is known to be disastrous. And yet, as demonstrated by the slow progress at the UNFCCC negotiations, appeals by the weak and vulnerable states make little difference to the leading economies, which are much less at risk or where the dangers are less obvious (Kokorin, Gritsevich & Gordeev 2013).

All the same, climate change is gradually being taken more seriously in Russia. Take for instance reactions to the IPCC *Fifth Assessment Report.* Unlike the previous reports, it was received with due seriousness, and traditional climate sceptics were far less vocal. In the media, sceptical views are found to have decreased to approximately 30 per cent of the total; the same applies to official statements and for public opinion.[38] The need for assessments of loss and adaptation costs has also been realized and repeatedly pointed out by the Russian President. However, until the economists and climate experts can provide comparisons of the loss estimates against the costs of emission reductions, the figures will go unnoticed. »Climate security« will be discussed, but without allocating any substantial funds or taking serious action. One example is the situation in the Arctic. Due to climate change, the Russian Arctic has become increasingly accessible to foreign ships. According to discussions, this constitutes a new military threat as well as a threat to economic security; yet, none of this is officially recognized as being related to GHG emission reductions. Instead, the reinforcement of Arctic troops is offered as a solution.

There is urgent need for an assessment of losses for the world's leading economies, including Russia. Such assessments should present the results in monetary terms and be broken down by decade, further supported by »loss maps« and detailed assessments of the adaptation costs. Even though such evaluations are under way by the IPCC and in more detailed domestic studies, they are unlikely to be available in the short term (Kattsov and Porfirev 2011). And that in turn means that Russia's climate policy cannot be expected to deviate substantially from the business-as-usual development path, which ignores the costs of climate change.

8. Discussion: Russia, Climate, and the New Global Agreement

The 2013 UNFCCC climate conference in Warsaw showed only very slow movement towards consensus. However, successful or not, **any future international climate agreement will not remove the basic reason for Russia's quiescence on climate mitigation.** In the absence of more detailed data, the losses caused by climate change to the Russian economy will remain unaccounted for when decisions are taken as to what costs of climate mitigation can be justified. **As a result, Russia will not proceed beyond the »economically viable« development path very close to a business-as-usual trajectory,** which rejects additional costs associated with emission reductions. As shown above, this is basically equivalent to the domestic target adopted in September 2013, depending to some extent on which existing policies prove viable in practice.
Russia has stated that »climate is not forgotten«, but

38. Results of sociological poll of the population of the Russian Federation on climate change problems, July 2013. Administration of the Russian President http://state.kremlin.ru/administration/19203.

it is not on the national list of long-term development problems. Measures to reduce losses from natural and human-induced disasters, including extreme weather events, remain a priority.[39] However, civil society organizations insist that losses and risks must be addressed in more proactive strategic framework, and that close cooperation during emergency and extreme weather events should be supplemented by a joint assessment of all leading countries' own risks and losses related to climate change for the next decades.[40]

That said, Russia's statements at world summits are likely to be determined by the general geopolitical situation at the time. This may determine the strength of Russia's support to the climatic positions of China, EU, USA, or other economies. Russia does not expect the largest economies to accept commitments far beyond their BAU emission levels under the new global agreement.

The approach of the new agreement will revolve around its financial flows and legal status. In the absence of penalties or fines, or any obligation to convert national-level commitments to domestic burden-sharing,[41] Russia is likely to accept any type of a new agreement – a protocol or a voluntary agreement with the UNFCCC decisions extending over ten or 20 years – with or without reduction targets or financial goals.

However, some globally secondary aspects may be important solely for Russia:

- *Promotion of Sustainable Forest Management in Russia:* Russia would prefer extending the international mechanisms that promote sustainable (inexhaustible and environmentally-friendly) forest use to all countries, rather than applying them to developing countries alone.

- *Establishing a Domestic GHG Emissions Regulation System at the Subnational Level (regions, companies, enterprises):* This does not mean obligatory carbon tax or any other domestic carbon payments; rather, it is seen as a sovereign choice for each country. However, it is possible to include requirements related to reporting standards, enterprises participating in international flexible mechanisms, etc. International commitments and mechanisms could make it easier to reverse the negative attitude of the Russian business community to the introduction of a carbon reporting and regulation system.

Finally, even with these issues resolved in the new agreement, Russia's GHG emissions will not decline automatically. Domestic efforts will be required, which, as shown by recent experience, are currently promoted by only a limited number of stakeholders. A great deal will depend on their unity, solidarity, and coordination.[42]

9. Conclusion

Russia's climate policy and measures, as well as the national GHG target for 2020, are determined by economic interests – which include the desire to implement new technologies, to promote energy efficient economy, and to improve labour productivity – rather than GHG emission reductions as a primary goal. The new national target of limiting GHG emissions to »75 per cent of 1990 by 2020« is a logical continuation of these policies. This target requires technological improvements and elimination of non-economic risks and barriers. The main technological opportunities can be found in the areas of energy efficiency, public transport, fuel economy, gas transportation, and renewable energy, including timber biomass. Elimination of non-economic risks could lead to an expansion of the horizon of business planning by decades, and profitability of investments in renewable energy as well as many other low-carbon technologies. However, this policy package could only deliver a stabilization of emissions at about 70 per cent of the 1990 level during the next decades.

Significantly lower levels of GHG emissions by 2050 – for example, 25–50 per cent of 1990 – are achievable, but require carbon regulation and the introduction of a sufficiently high price for carbon. Currently, the Russian government is on track towards such a carbon regulation option, but progress is expected to be quite slow. This is because businesses and officials remain unconvinced of the necessity to reduce GHG emissions to mitigate climate change, which would prevent the potential losses

39. A. Kvasov (Russian G8 Sherpa), Statement at Gaidar Economic Forum. Moscow, 15 January 2014.

40. Civil 8 Preparatory Meeting. Administration of the Russian President. Moscow, 21 January 2014.

41. For an analysis of reasons, see for example Kokorin.

42. For details, see Kokorin and Korppoo.

due to negative consequences of climate changes in the Russian territory in the years to come.

Because the lack of information on the costs of climate change is the basic reason for Russia's quiescence on climate mitigation, any future climate agreement will fail to engage Russia meaningfully in its absence. Russia will probably support the post-2020 agreement, as it is unlikely to require mitigation measures beyond the business-as-usual trend. However, if Russia and other large emitters were to make their expected losses as a result of climate change more concrete, this could lead to the adoption of ambitious long-term GHG goals regardless of their costs.

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