

## **Last chance for Kyoto**

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**The most ambitious international effort to avert global environmental disaster is in danger of collapse. The cause, as Paul Webster reports, is the bizarre antics of Russia's economy**

A WAVE of disbelief swept the world in March 2002 when the US rejected the Kyoto protocol. Here was an international effort to curb greenhouse gases and bring global warming under control, yet the biggest polluter of all would not play ball. European nations and other countries supporting the treaty were dismayed: how could the treaty survive? Then they realised they had a secret weapon - Russia.

For the protocol to come into force, it must be ratified by countries responsible for at least 55 per cent of the greenhouse emissions from industrialised nations in 1990. Adding Russia's contribution to those signed up would just tip the balance. Dismay turned to smugness.

Until last year, that is, when the first rumbles began to emerge that Russia might also turn its back on Kyoto. Despite encouragement and protests from the treaty's supporters, those rumbles have grown. Then, three weeks ago at the World Climate Conference in Moscow, President Vladimir Putin stated openly that Russia is still studying the potential impact of the treaty. "The decision will be taken at the end of that work and in conformity with Russia's national interests," he announced.

What lies behind Putin's indecision is the extraordinary growth of Russia's economy over the past four years, fuelled by cheap energy and a massive surge in oil and gas production. That expansion has sent emissions of greenhouse gases through the roof, and so long as growth continues so will the emissions. What Russia has still to decide is whether signing Kyoto will stifle its expansion. The treaty's advocates are on tenterhooks.

It's a predicament few could have envisaged back in 1997, when 171 nations signed the protocol. Its aim was to restore releases of gases such as carbon dioxide and methane to their 1990 levels. Nations with emissions below that level would be handed "carbon credits" which they could sell on to nations that had not cut back enough. Today, more than 70 nations, including Japan, Canada and European countries, have ratified Kyoto, representing 44 per cent of the emissions that count towards the total needed to activate the treaty. Russia's 17 per cent would lift the world over the threshold. If Russia decides not to take part, the treaty in its existing form will die.

In spring 2002, Putin had promised to press the Russian parliament to ratify Kyoto. But since then, his pledge has been contradicted by a string of statements from official sources. Most recently in March, the Ministry of Economic Development concluded that ratification was not in Russia's interest. In June, Putin's top economic adviser, Andrei Illarionov, told reporters that Kyoto offers Russia only "illusory" benefits, and would force Russia to undertake expensive restructuring. "The US decided that these expenses were excessive," Illarionov said. "I am not convinced that Russia can afford expenses that the world's richest country couldn't afford."

The events that have led Russia to its present state of indecision began with the choice of 1990 as the yardstick for Kyoto's targets. That year was the last in which the old Soviet economy operated at full throttle. It was followed by economic and industrial collapse, which slashed Russia's greenhouse gas emissions. According to official Russian estimates, between 1991 and 1999 its emissions dropped by 39 per cent. Though this caused a national humanitarian crisis, from an environmental perspective it was a blessing.

Under the protocol, if Russia's emissions had stayed low, the country would have qualified for a huge number of marketable carbon credits which would have delivered a windfall when carbon trading started around 2008. According to Richard Baron, a carbon trading specialist with the OECD in Paris, Russia would have had a near-monopoly on credits, which could have allowed it to dictate the price. The country stood to profit to the tune of \$8 billion a year, reckons Marina Martynova of Russia's electricity monopoly Unified Energy Systems. That gave the country a massive incentive to join Kyoto.

But in 1999, everything changed. That year Russia's economy began to boom. By 2001 it was growing at 10 per cent a year. In 2002 it grew 6 per cent and it is expected to grow 7 per cent this year. The Kremlin expects the economy to almost double before 2010 and triple before 2020. This rapid growth is driving up greenhouse gas releases, but the big question is by how much?

In a study published this year, atmospheric physicist Alexander Nakhutin, chief greenhouse gas analyst for Roshydromet, the Russian Hydrological and Metrological Service, charted a 12.9 per cent rise in Russian greenhouse emissions between 1999 and 2001. "Russian emissions in that two-year period rose almost as rapidly as economic growth did," says Nakhutin, who based his research on official figures which he admits may be underestimates. He calculates that Russia's emissions reached 61 per cent of their 1990 levels in 1999, and 70 per cent in 2001. "These results surprised me," Nakhutin says, "and they also caused broad worry within the government."

Data for 2002 and 2003 are not yet in, but if greenhouse gas emissions continue to grow at the same rate, by 2008 Russian carbon emissions will be 6 per cent greater than they were in 1990. If that comes to pass, instead of raking in a carbon windfall, Russia will be faced with having to cut its emissions. It will have to pay to join the Kyoto club.

What really complicates matters is the lack of dependable information on the nation's emissions. International experts judged Russia's first report to the UN commission on climate change, submitted in 1997, as "highly unreliable" in crucial aspects. The verdict on the second report, in 2000, was no better: it was full of holes and contained "low quality" data. According to Alexei Kokorin of the World Wide Fund for Nature in Moscow, a third report, delivered last year, "doesn't conform to international norms".

Perhaps the largest hole in the latest report is crucial data on emissions from the oil and gas industry. Nakhutin, who signed the latest report, blames its weakness on government data which is "often entirely unreliable". This is a serious problem, says Bill Chandler, an expert on Russian carbon emissions at the US Department of Energy's Pacific Northwest Laboratory. "Without accurate data the system crashes," he warns.

Until the true state of Russian emissions becomes clear, the Kyoto planners are guaranteed sleepless nights. They had singled out Russia as the main banker for their carbon marketplace. "Can it work without Russia? That's the key question," says Stéphane Willems, a specialist in Russia's greenhouse gas inventory with the International Energy Agency in Paris. Baron thinks that if Russia's emissions are not well below 1990 levels in 2007, the all-important carbon market will at the very least suffer "a radical change in expectations".

While Russia waits for reliable emissions statistics, the possibility that the country's huge carbon windfall could go up in smoke has not been lost on its government. Something dramatic needs to be done. In an assessment of Kyoto published last year, the Kremlin announced that "improvement in energy efficiency is the most important task of social and economic development of Russia". The official line is that if the country wants to hold on to its carbon windfall, energy consumption per unit of GDP will have to be reduced by 36 per cent over five years. In May this year, Russia's prime minister, Mikhail Kasyanov, raised that figure to 50 per cent.

Officially at least, this mammoth task is feasible. According to an ambitious national energy strategy approved in 2000, a 48 per cent reduction in energy consumption is possible through existing conservation practices. The thinking behind this statement comes from within a massive Soviet-era office block that houses the Russian Ministry of Energy, just across Red Square from the Kremlin. It is here that Russian and foreign energy company executives negotiate the export quotas that give ministry officials their tremendous power. Oleg Plujnikov, the ministry's straight-talking deputy head of ecology, says that energy efficiency is now "mandatory" for Russia. He argues that Russia can have its carbon windfall as well as foreign revenue from its booming oil and gas industries. That's not to say that Russia can have its cake and eat it, jokes Plujnikov: better to say "Russia will have two cakes."

To keep its energy efficiency strategy on track will mean spending more on it, peaking at \$2.9 billion in

2010. That works out at 10 per cent of all investment in the energy sector. Plujnikov concedes that official forecasts are treated with suspicion - a legacy of the infamous Soviet five-year plans - but insists that the energy efficiency projections are reliable. The way he sees it, Russia's energy supplies are finite and will quickly grow costly as they start to dwindle. Reducing energy wastage is the only way to maintain profit margins. "In the end, the market economy will deliver energy efficiency for us," he says.

Such pronouncements provoke derision from Russia's leading independent energy efficiency analyst. "There really is a lot of hot air out there," says Igor Bashmatov. He works on the other side of Moscow from the Ministry of Energy in a decaying building surrounded by Brezhnev-era apartment towers that offer feeble protection from the freezing winters. With funding from the US Environmental Protection Agency, Bashmatov's Center for Energy Efficiency (CENEf) has thoroughly assessed the government's actual spending on energy efficiency and found it disastrously below official pledges.

According to the CENEf, for the period 2002 to 2005 the Russian government is allocating only 14 per cent of the funds it promised to energy efficiency. Worse, says Bashmatov, only 4 per cent of that money is spent directly on efficiency: the rest goes on industrial subsidies aimed at expanding oil and gas production. He stresses how difficult it is to find good figures for what's happening with energy efficiency. Even after CENEf's intense efforts to investigate the government's real spending, he can't be sure of the real figures. "The best indicator of commitment is allocation of funds," he says, "but we have never really seen anything more than verbal support." In his view, the government's call for even a 36 per cent increase in energy efficiency is simply not realistic in the next decade.

It would be hard to overestimate the scale of the task ahead. The government owns most of the housing in Russia, much of which is ageing, uninsulated, Soviet-era buildings. Some 40 per cent of Russia's fuel goes on heating these buildings, and energy wastage is stupendous. Yet, according to CENEf, spending on energy efficiency in this sector amounts to a meagre 2.5 US cents per person per year.

Energy in Russia is heavily subsidised and, for most people, extremely cheap. Car drivers in Moscow pay just 30 cents a litre for petrol, and residential and industrial electricity rarely costs more than 1.6 cents per kilowatt-hour, notes Chandler. Even basic schemes for cutting consumption have not found favour with Russian politicians, who consider cheap energy to be crucial to economic growth and political stability. For example, only about a third of apartment buildings and almost no individual apartments have electricity meters. Russia's real attitude to the issue may have been revealed by its recent decision to delay joining the World Trade Organization, which would have put a stop to domestic fuel subsidies.

Industry in Russia does not seem to be much better at saving energy. In the petroleum sector, the big problem is the ageing infrastructure. According to Nina Poussenkova, a carbon emissions analyst with the Moscow-based Institute of World Economy and International Relations, an arm of the Russian Academy of Sciences, 25 per cent of Russian pipelines are more than 30 years old, and another 5 per cent are 20-plus years old. "Production infrastructure in the oil and gas sector has seriously deteriorated during the 1990s," she says. The ageing equipment leads to some 75 to 80 pipeline ruptures a year, says Poussenkova, "contributing to fugitive emissions that are rather difficult to account for". Figures for the quantities of greenhouse gases released in these accidents are regarded as commercially confidential and so are never made public.

The Kremlin acknowledges that measures to cut wastage and pollution are essential here, estimating the cost at up to \$150 billion. Yet it has pledged only \$400 million to fund efficiency measures before 2005, says the CENEf. Individual companies are no better. Despite profits that have hit stratospheric levels in recent years, Poussenkova says Russian oil companies are investing only minimal amounts in energy efficiency, just slivers of the massive subsidies from Moscow and Washington aimed at expanding production.

Gasprom, a government-controlled monopoly which dominates the natural gas sector, says it emitted 232 million tonnes of carbon dioxide in 2002 - about a 10th of the national total. According to a study

by the Global Change programme at the Massachusetts Institute of Technology, production increases are expected to boost the industry's methane emissions to 34 per cent above 1990 levels by 2010. Again, methane emissions from gas fields and pipeline leaks are not quantified. "There is wide uncertainty throughout their entire system for natural gas," says Chandler. Like oil companies, Gasprom is chasing profits by pursuing new gas fields rather than by increasing efficiency.

By comparison with the oil and gas sectors, electricity generation is relatively efficient in terms of its emissions, says Ludmilla Khoudogarova of the Russian Academy of Sciences' Energy Research Institute in Moscow. Carbon emissions from power stations, which stand today at about a quarter of Russia's releases, will increase as the economy grows. But their impact could be offset as plants switch from coal to natural gas. Yet even here there is a cloud on the horizon. President Putin has promised Russia's army of coal miners that he will expand the use of coal to generate power. The national energy strategy calls for a doubling of coal consumption until coal-fired plants produce half the nation's electricity.

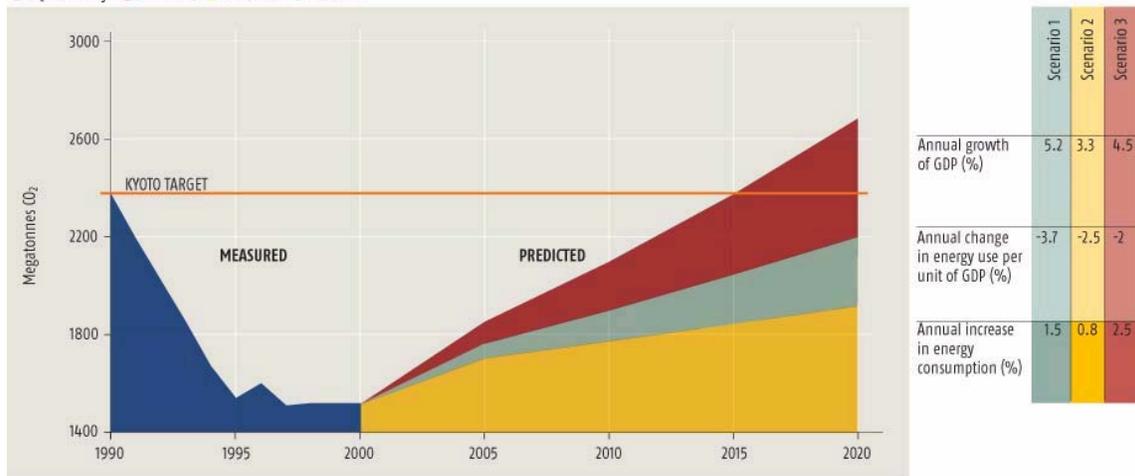
With this kind of strategy on the cards, a booming economy, and little evidence of serious measures to cut energy consumption and wastage, it's small wonder that Kyoto's supporters are growing increasingly nervous. "The situation is urgent," says Chandler. According to Plujnikov at the energy ministry, Russia's brinkmanship over Kyoto is all part of a strategy designed to milk as much from the treaty negotiations as possible. And talking tough has paid off in the past. Under Kyoto, some emissions can be cancelled out by carbon absorbers, such as forests, and in 2001 Russian negotiators managed to double the accepted estimates for the amount of carbon that Russian forests absorb.

Until definitive figures and forecasts emerge for Russia's greenhouse gas emissions, the world can only wait to see which way the country will swing. Once collated, the figures will have to be audited by Kyoto administrators which, judging by past experience, is likely to be a heated affair. Yet Plujnikov is sanguine about the process. "First we'll give them Russian vodka," he says. "Then we'll give them the Russian numbers."

#### GREENHOUSE GAS PROJECTIONS

Russia's emissions look certain to soar. The question is by how much?

● CO<sub>2</sub> inventory ● Scenario 3 ● Scenario 2 ● Scenario 1



#### Paul Webster

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