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Decarbonization Discourse in Russia

A stocktaking paper

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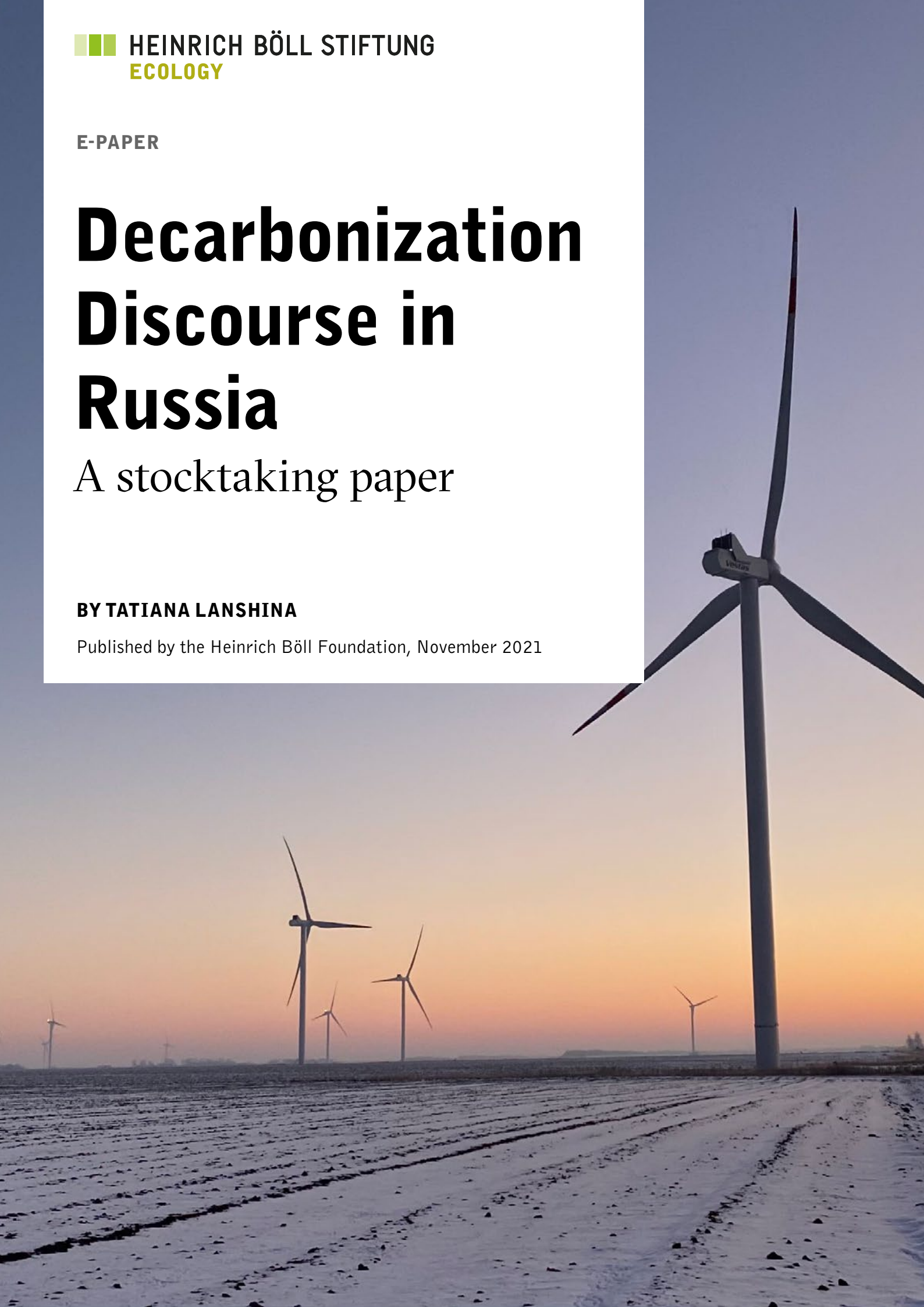

Decarbonization Discourse in Russia

By Tatiana Lanshina

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Executive summary

Until 2021, Russia had not taken decarbonization and energy transition seriously, though it had considered them an emerging global trend and risk for the national economy. Renewable energy was viewed as unreliable and uncompetitive, which was true decades ago but not in 2010s, and especially not in 2020s. In 2021, after numerous pledges of the largest economies to become carbon neutral by mid century, and after it became clear that the EU carbon adjustment mechanism will inevitably affect many Russian industries, Russia started to increase its ambitions and change its decarbonization discourse. In October 2021, even a national carbon neutrality goal by 2060 was announced.

However, deep decarbonization of the Russian economy through the introduction of renewable energy sources remains doubtful. Russia will develop climate targets and adopt low-carbon strategic documents in the coming years, but these plans will rely on traditional technologies such as nuclear power and large hydroelectric power plants, as well as the absorptive capacity of forests. Natural gas will be promoted as a clean fossil fuel. Companies will strive to extract and export as much fossil fuel as possible before the demand fades. Some companies might split their business into low-carbon «clean» activities for European and North American markets, on the one side, and «dirty» for markets that do not demand ambitious environmental and social standards, on the other. Russian companies will be pressed by their foreign investors and clients to switch to renewable energy. However renewable energy is not expected to become significantly more attractive to the government in the near future. To decrease its losses from the Carbon Border Adjustment Mechanism (CBAM) and to keep the payments of its exporters within the country, Russia might introduce a national system of carbon taxation. Revenues from the carbon tax might be invested in the Russian renewable energy and other green sectors.

Most Russian regions are thus far not active in the decarbonization discourse. A few, though, are pioneers in renewable energy, such as the Ulyanovsk oblast, or in setting carbon neutrality goals, such as the Sakhalin oblast. Russia is beginning to address the issue of the economic diversification of coal mining regions, take the Kuzbass and Komi Republic for example, but thus far the proposed transformation paths are not sustainable and do not imply a reduction in coal production. Most experts and analysts from research institutions are quite skeptical about decarbonization and energy transition. They devote an insufficient number of papers and articles to these problems, although these topics have recently begun to attract more attention in Russian universities and think tanks. Civil society has faced increased pressure from the state in Russia, which deprives it of the opportunity to assist the government in decarbonization and energy transition. However, despite all difficulties, Russian civil society is trying to contribute to Russia's decarbonization and to conduct an open dialogue with the state.

Certain decarbonization issues, like coal, nuclear phase-out, green hydrogen, and just energy transition, have thus far received very little attention in Russia. They can be considered as promising areas for further development of Russian decarbonization and the energy-transition discourse.

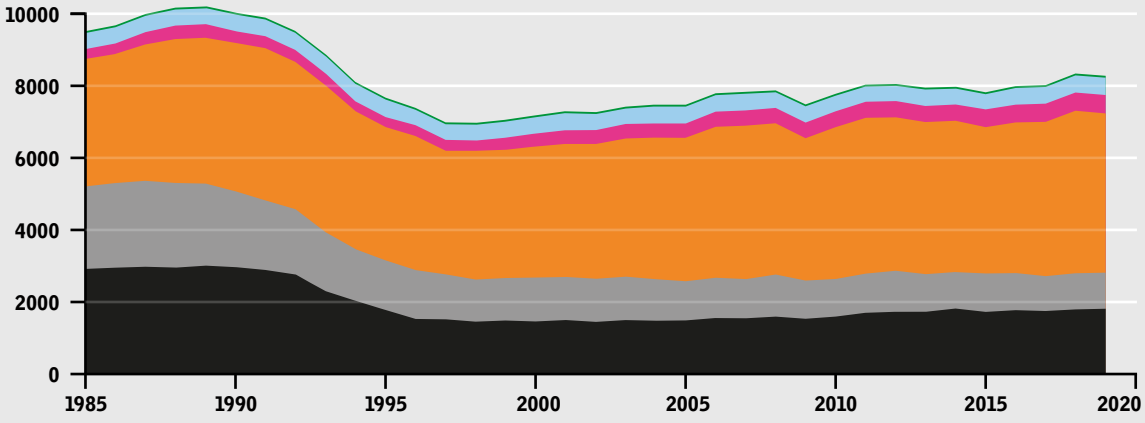
Ambivalent ambition

Most major economies have pledged to become carbon neutral by the middle of the century: Germany (2045), UK (2050), EU (2050), US (2050), Japan (2050), and China (2060). Russia, however, regarded decarbonization as a threat to its economic model. It has hesitated to set a carbon neutrality goal before it became known in October 2021 that it might announce a net-zero emissions target by 2060 at the COP26 summit in Glasgow[1] – which indeed happened. This target is now in the recently prepared new draft of the Russian low-carbon strategy 2050. The intensive scenario envisions the reduction of greenhouse gas emissions by 79% by 2050 and by 100% by 2060, for the first time associating the low-carbon transformation of the Russian economy with economic growth.[2] Thus at the moment, the Russian decarbonization discourse is uncertain, which means that it can unfold further in different ways. But considering that major Russian economic partners are set to undergo a dramatic low-carbon transformation, it is clear that Russia will have to react and make some changes too.

Russia ratified the Paris Agreement in 2019 and submitted its 2030 Nationally Determined Contributions (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2020.[3] However, Russia has not yet implemented a national strategy to reduce CO2 emissions, and its first NDC in fact allows it to increase emissions from the current slightly over 50% of the 1990 level to 70% of the 1990 level by 2030. In the NDC, this increase is presented as a decline – the document envisions «the reduction of CO2 emissions by 2030 to 70% of the 1990 level taking into account the maximum possible absorbing capacity of forests and other ecosystems and subject to stable and balanced socio-economic development of the Russian Federation.» The low level of decarbonization ambitions and their duality are not surprising given the structure of the Russian economy and its path dependence. Russia possesses rich fossil fuel resources and is one of the largest natural gas (#1), oil (#2 after Saudi Arabia) and coal (#3 after Indonesia and Australia) exporter with oil and natural gas sector providing for 15% of GDP[4] and 30% of the federal budget revenues[5] in 2020.

Russian primary energy consumption in TWh by source

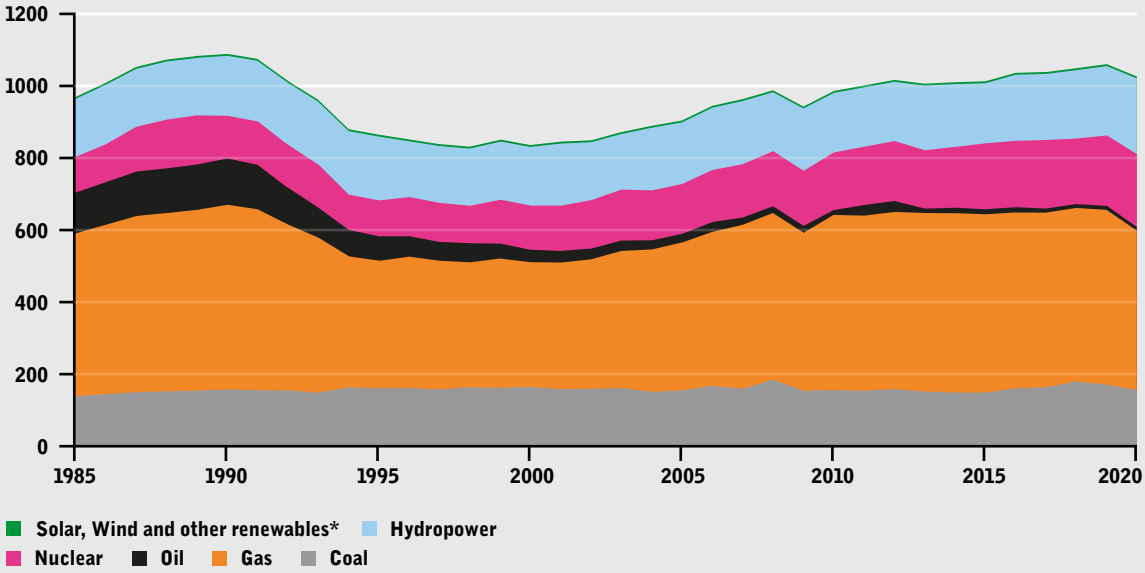
Primary energy consumption is measured in terawatt-hours (TWh). Here an inefficiency factor (the substitution method) has been applied for fossil fuels, meaning the shares by each energy source give a better approximation of final energy consumption.



*Other renewables includes biomass and waste, geothermal, wave and tidal.

Source: Our World in Data

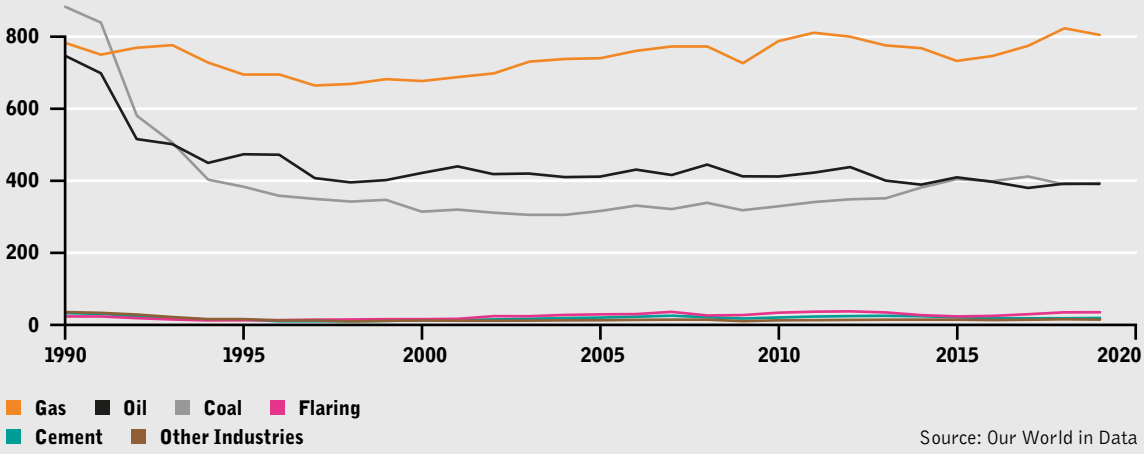
Russian electricity production in TWh by source



*Other renewables includes biomass and waste, geothermal, wave and tidal.

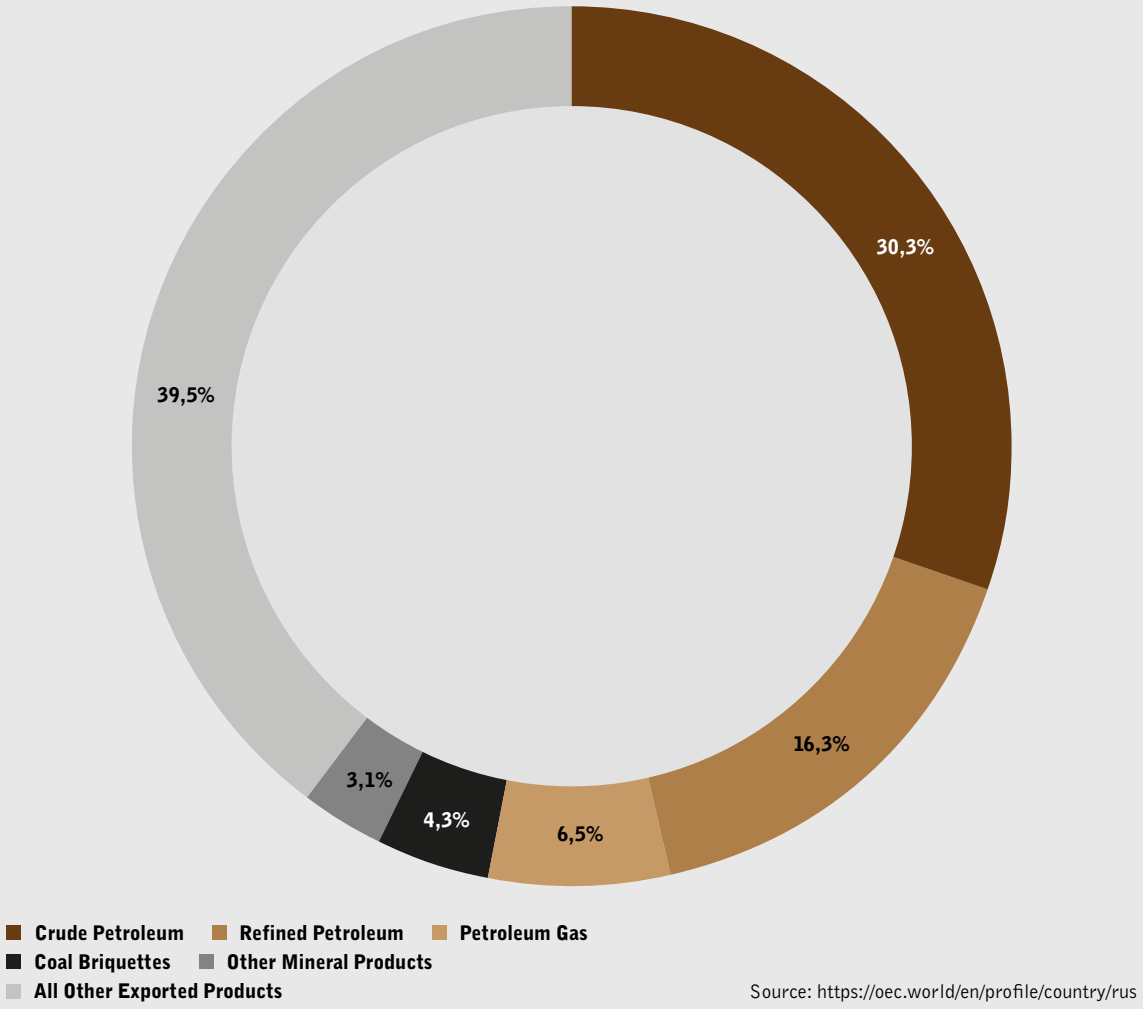
Source: Our World in Data

Russian CO_2 emissions in million tons by fuel



Source: Our World in Data

Russian total exports 2019 by product groups



Source: https://oec.world/en/profile/country/rus

Nuclear energy is considered green

In Russia, it is customary to emphasize the environmental advantages of energy sources that are traditional for Russia, such as nuclear energy, large hydroelectric power plants, and natural gas, which together account for most of the electric power generation in the country. According to the Russian minister of economic development, Maksim Reshetnikov, «we need to agree at the international level on basic principles: if we are really for low-carbon development, then nuclear energy should be recognized as green, and there is no room for discussion.»[6] According to Pavel Snikkars, Deputy Minister of Energy of the Russian Federation, «one of the important areas of work is the international recognition of the environmental friendliness of nuclear power plants and large hydroelectric power plants.»[7] According to Andrey Maximov, director of the Electricity Development Department of the Ministry of Energy, «in 2020, completely carbon-free power generation sources generated 40.8% of the Russian electric power, including hydroelectric power plants (20.2%), nuclear power plants (20.6%), and renewable energy sources not counting hydropower plants (0.32%).»[8] Most hydropower and nuclear power plants were built in the Soviet era. And thus far Russia has made only a minor effort to build new renewable power capacities, except for large hydropower plants.

The official position on energy sector decarbonization is that Russia's energy sector is already clean and there is no urgent need to make it even cleaner. In June 2021, at the St. Petersburg International Economic Forum (SPIEF'21), the Minister of Energy of the Russian Federation Nikolay Shulginov said: «We believe that the energy balance of Russia is one of the best. Both the reduction of CO2 volumes and the movement towards climate neutrality are envisaged. The energy balance in terms of electricity production provides for about 20% of nuclear power, about 20% of hydropower, about 40 to 42% of power generated from natural gas and 0.3 to 0.5% of solar PV and wind power.»[9] According to the estimate of VTB Capital cited in a recent Skolkovo research, in 2019 CO2 emissions of the Russian electric power sector averaged at 422 g CO2e/kWh. In the EU, the value of this indicator was 255 g CO2e/kWh and it is expected to decrease to 75 g CO2e/kWh by 2030.[10]

Renewable energy sources other than large hydroelectric power plants are usually viewed with distrust. Just two years ago, at the II Global Manufacturing and Industrialisation Summit in Yekaterinburg, Russian President Vladimir Putin said: «Will people be comfortable living on a planet lined with a palisade of wind turbines and covered with several layers of solar panels? (...) Everyone knows that wind generation is good, but do they really remember birds in this case? How many birds are killed by wind turbines? They [wind turbines] shake so badly that worms come out of the ground.» The president also called the nuclear phase-out in favor of alternative sources of energy an attempt to «put on skins and move into caves.»[11]

Change is coming, slowly

However, the official rhetoric concerning renewable energy and decarbonization is starting to change. On 21 April 2021, during his state-of-the-nation speech Putin said that «over the next 30 years, accumulated net greenhouse gas emissions in Russia must be lower than in the EU.»[12] In August 2021, Putin linked the scale of fires and floods in Russia to climate change and noted that in the past 44 years, the average annual air temperature in Russia has grown 2.8 times faster than globally.[13] According to Vladimir Putin's Russian energy week speech of 13th October 2021, «In practice, Russia will seek carbon neutrality for its economy. And we set a specific benchmark here - no later than 2060»[14]. In June 2021, the Russian Deputy Prime Minister Alexander Novak said that by 2040 Russia should increase the share of renewable energy tenfold: from currently 1% to 10% (not counting large hydropower plants), substituting for coal generation that will decrease from the current 15% to 7%.[15] In September 2021, the Russian Deputy Prime Minister Alexander Novak promised that by 2035 Russia will increase the share of low-carbon energy sources to 90%. but apparently including natural gas, and the share of carbon-free energy sources (nuclear power and renewable energy including large hydropower plants) – to 45%.[16] In September 2021, Russian Prime Minister Mikhail Mishustin said: «The global economy is focused on a gradual transition to low-carbon energy. And this is already a new reality. We need to prepare for a phased reduction in the use of traditional fuels – oil, gas, coal. Improve energy efficiency. Develop alternative energy. Build appropriate infrastructure.»[17]

The existence of energy transition processes elsewhere in the world has been recognized in Russia for many years, but until 2021 this was considered an issue of the distant future. In 2021, political circles in Russia realized that energy transition is already happening, and in the near future its speed will be much faster than previously expected. For example, in August 2020 the Russian Minister of Economic Development Maksim Reshetnikov said that by 2030, the EU envisages a reduction in coal consumption by more than 70% from the 2015 level, and the European market accounts for 21% of coal production in Russia and 41% of Russian exports. According to Reshetnikov, the loss of the western coal market is a serious challenge for Kuzbass region.[18] Much of this awareness was due to the development of the European Green Deal and the prospect of introducing a cross-border carbon tax in the EU.

In August 2021, it became known that the Russian government is setting up working groups to study the risks and opportunities for the Russian economy in connection with the global energy transition. The general coordination of these working groups will be carried out by the First Deputy Chairman of the Government, Andrei Belousov.[19] In addition, the government is developing approaches to adapting economic sectors to the global energy transition. In the summer of 2021, closed meetings of deputy prime ministers to discuss the preliminary results of an analysis of risks and

opportunities for Russia.[20] In August 2021, at a meeting of the Eurasian Intergovernmental Council, Russia's ministry of economic development initiated the creation of a high-level working group to converge the approaches of Eurasian Economic Union, an economic union of post-Soviet states located in Eastern Europe, Western Asia, and Central Asia, member states within the framework of the climate agenda.[21]

What's in it for Russia?

Russia is interested in cooperation with other countries in the field of energy transition technologies. In particular, Russia expressed its interest in cooperation with Germany on hydrogen energy.[22] There are also plans to collaborate with France to export Russian hydrogen produced using nuclear power to Europe.[23]

The first specific feature of the Russian climate policy is that Russia will seek to use its Soviet low-carbon heritage, namely nuclear power plants and large hydroelectric power plants, as well as its rich forest resources. For example, Maxim Reshetnikov identifies the following principles for CO2 reduction. First, it is necessary to maintain technological neutrality: if an energy technology that does not emit CO2 is a low-carbon technology, then nuclear and hydropower plants should also be regarded as low-carbon. Second, carbon neutrality should be achieved not only through emissions reduction, but also through emissions absorption: through efficient forest management, absorbing capacity of other ecosystems, CO2 capture and injection into the ground. At the same time, the Russian LNG development strategy 2035, adopted in March 2021, fits well into the green agenda, as well as plans for the development of hydrogen technologies.[24] Andrey Belousov said that apart from accelerating the technological modernization of sectors of the Russian economy and encouraging companies to reduce emissions, the Russian government will also work to achieve international recognition of measures based on the technological and natural advantages of Russia, including the absorptive capacity of forests.[25]

The second specific feature of the Russian involvement is that it will try to use its hydrocarbon resources to the maximum before the global demand fades. In particular, Russian Deputy Prime Minister Alexander Novak believes that in the next two decades Russia will need to think about a faster monetization of its hydrocarbon reserves given the energy transition.[26]

At the regional level, carbon neutrality has already piqued interest, too. Sakhalin Oblast is the first region in the country that has set the goal to achieve carbon neutrality in 2025. The region will create an inventory of greenhouse gas emissions and removals, introduce quotas for emissions of the largest emitters, and a system of trading in greenhouse gas emission quotas. In August 2021, it became known that the Kaliningrad region could set a goal of achieving carbon neutrality by 2030. The Nizhny Novgorod region has also announced its readiness to start the experiment.[27][28] In September 2021, at the Eastern Economic Forum, Putin suggested considering expanding the Sakhalin experiment on regulating greenhouse gas emissions to other regions.[29]

One of the first Russian regions that showed interest in renewable energy was the Ulyanovsk region. When Russia adopted its system of state support for renewable energy in 2013, the government and companies of this region recognized opportunities for developing

their own industrial base and creating new jobs in the wind energy sector. This supports the construction of renewable energy power plants, as well as auctions for new capacities (first stage of the program, to 2024) and then capacity payments (second stage, 2025—2035). The system is financed through the capacity payments of large power consumers that buy electricity and capacity on the wholesale market (i.e. not from the budget). In 2018, RUSNANO and Vestas started the production of Vestas blades for wind turbines in Ulyanovsk with a capacity of 250 to 300 blades per year. This gave a start to regional industrial cooperation: Danish manufacturer Hempel supplies paint manufactured at its factory in Ulyanovsk for blades manufactured by Vestas Manufacturing Rus. Also, Vestas has plans to source more materials from local suppliers in Ulyanovsk. The first Russian modern, utility-scale wind farm was built in Ulyanovsk in 2018 (35 MW), followed by another wind power plant in 2019 (55 MW).[30] The farms generate about 8% of electric power consumed in Ulyanovsk region. The region also plans to generate solar PV electric power and construct biogas power plants to meet 30% of its electric power demand using local renewable energy sources by 2025 (earlier it was planned to achieve this goal by 2030). Ulyanovsk region is the first Russian region preparing a regional strategy for renewable energy and sustainable development. The document will be published in 2022.[31]

No end to coal in sight

Russia has started to develop plans for economic diversification of coal mining regions, though at the moment they are largely unsustainable. In 2020, the programme «Clean Coal – Green Kuzbass» with 43 million euros of federal funding was approved by the Russian government.[32] Unfortunately, the programme allows for an increase in coal production[33] and is mainly focused on improving the efficiency of coal mining and processing, as well as reducing the negative environmental effect of coal mining in the region. In July 2021, plans for economic diversification for Kuzbass and Komi Republic were published by the Russian Ministry of Economic Development.[34] Both plans envision the development of metal ores mining, other minerals mining, wood processing, agriculture, construction, etc. They allow new mining operations apart from coal mining and do not affect the plans to increase coal mining stated in the Energy Strategy 2035, and in the program of the coal industry development in Russia for the period up to 2035. These plans also do not provide for the rehabilitation of territories damaged by coal mining and do not take into account sustainability principles, such as sustainable sourcing of wood.

As for the business side of the decarbonization discourse in Russia, the greatest concern for Russian companies is the CBAM. This can change the structure of Russian exports to the EU by creating incentives for the production and export of low-carbon products and reducing exports of many carbon-intensive goods from Russia to the EU. The mechanism itself and the methodology for calculating the border carbon levy are still developing. A lot has to be done to establish carbon-emission accounting schemes as a precondition for access to markets. This will require action from Russian manufacturers to ensure their individual competitiveness.[35] In this case, Russian companies will be motivated to introduce the latest technologies and digital solutions to control emissions. The proposed CBAM has a potential deduction for exporters who have paid a similar carbon price in their home country, which might be a stimulus to introduce a national system of carbon taxation in Russia.

If Russia develops and implements a national mechanism for regulating carbon-intensive industries, in which manufacturers pay carbon price similar to CBAM payments, CBAM will be reduced by this price, and Russia will be able to keep payments of its exporters within the country and invest them in green technologies. In September 2021, it became known that Russia had begun to develop its national carbon tax, analogous to the EU carbon tax. The development of the national mechanism will take one to one and a half years.[36]

Goods currently affected by the mechanism include cement, electricity, fertilizers, iron, steel, and aluminum.[37] For Russia, all of these industries are relevant, except for cement (its production volumes in Russia are significant, but the volume of exports to the EU is small). The decision to include petrochemicals and oil products in CBAM has not yet been made; it will play an important role for Russia, since the volume of exports of these products to the EU is large. According to

Boston Consulting Group estimates, the size of the border levy for Russia could range from $1.8 to $3.4 billion in 2026 and to $3.5 to $6.4 billion in 2030, if petrochemicals and oil products are not included in CBAM. If these sectors are included, the size of the levy for Russia could reach $5.5 to $11.7 billion in 2030.[38]

Russian government and corporations tend to perceive CBAM as a protectionist measure to support European businesses.[39] However, CBAM is not the only factor that makes Russian companies pay more attention to environment and climate. In the wake of the general global intensification of the sustainable development agenda, foreign investors and clients of Russian companies are increasingly demanding sustainable sourcing of raw materials and electricity. Russian companies will thus strive to maximize their profits by selling the largest possible volumes of carbon intensive products in the short run (as long as possible), and by dividing assets into carbon-intensive and low-carbon ones to sell their products in different markets in the longer run. The Russian aluminum producer UC Rusal and the Russian steel producer Evraz are already thinking about dividing assets into «clean» companies oriented at the EU and the U.S. and «dirty» companies concentrated on markets that have no ESG requirements.[40] The overall outcome of this strategy would be a rise in greenhouse gas emissions.

No pressure to decarbonize

There is a lack of domestic pressure in Russia to decarbonize: from Russian corporations, the academic sector, and civil society. University-based experts in Russia have thus far studied the decarbonization and energy transition issues insufficiently, though this cluster of topics does attract ever more academic attention. A number of laboratories in such Russian institutions and think tanks as the Higher School of Economics, RANEPA, SKOLKOVO, and others are studying aspects of decarbonization. Individual researchers at other universities are publishing a growing number of papers and articles devoted to this issue.

Thus far, views of academic professionals on the decarbonization of Russia have been rather conservative and skeptical. Several recent papers[41] conclude that an economically reasonable decarbonization strategy of the power sector should rely on nuclear plants and substitute outdated steam turbines with combined cycle gas turbines. This is the opposite of the European strategy that favors renewable energy. However, the authors do not provide the sources of costs for the Russian power plants and do not mention decommissioning and nuclear waste management costs, which are extremely high for nuclear power plants. Many authors consider natural gas as a low-carbon solution,[42] or a strategic fuel of the fourth energy transition,[43] though it is well known that its greenhouse gas emissions are at least half that of coal.[44]

Thus far, to the knowledge of the author, not one Russian academic author has researched the possibility of a 100% renewable energy sector in Russia. But this has been investigated by foreign authors, such as Jacobson et al. (2017).[45] They have developed 100% RES scenarios by 2050 for 139 countries of the world, including Russia. The low expectations of the Russian authors is influenced by the official agenda. For example, the optimistic scenario in one recent study[46] predicts that by 2030 the wind energy sector in Russia can reach capacity of up to 10 GW. According to pessimistic scenarios of the same study, capacities can reach just up to 3.6 to 6.4 GW depending on the GDP decrease due to the COVID-19 crisis. In fact, the optimistic scenario predicts less than 5% of wind energy in the total capacity of the Russian power system and only about 2.5% in power generation.

However, some scholars acknowledge that though Russia is essentially refusing to accept global decarbonization, at a certain point it «will have to develop a long-term vision for both its domestic energy market development and its export strategy in order to adapt to the profound transformation of the global energy system.»[47] Energy transition is also starting to attract attention in the educational sector. In 2021, the Moscow School of Management SKOLKOVO developed an educational program entitled «Energy Transition 4.0: Low-Carbon Development.»[48] This is a leadership program for strategy, investment, and risk assessment experts.

Civil society is locked out

Russian civil society has been under pressure for a long time, and recently there's been a surge in repression. From 2013 to the present (October 2021), 254 individuals or legal entities received the status of foreign agent in Russia.[49] The list of foreign agents includes non-profit organizations, the media, and journalists (individuals), among them many environmental organizations from Kaliningrad to Sakhalin, from Rostov to Murmansk.[50] The state responded to the rise of civil and political activism in Russia with bans, tightening of legislation, and politically motivated criminal cases.[51] Foreign NGOs are not welcome in Russia.

This situation significantly weakens the Russian NGO sector, making it smaller and less influential. It creates obstacles for non-profit organizations to participate in discussions about Russia's energy transition and deprives civil society of the opportunity to assist the government. At the same time, despite such difficult conditions, Russian civil society is not only aware of the goals of sustainable development and the energy transition process, but is also actively working on their implementation and trying to conduct an open dialogue with the state.[52]

In general, the position of civil society on the decarbonization discourse can be formulated as follows. Russia needs to dramatically accelerate the development of renewable energy sources, gradually phasing out fossil fuels, primarily coal, pursuing a just energy transition in which no one is neglected, including coal miners and other communities relying on the extraction of fossil fuels. Nuclear energy is not an environmentally friendly solution. Other erroneous solutions, such as carbon capture, use, and storage (CCUS) technologies and hydrogen produced from fossil fuels or using nuclear energy, must also be ruled out since their development distracts investments from low-carbon or carbon-free sectors without sufficient benefits. The forest sector needs a comprehensive assessment, fire protection, and rehabilitation. Moreover, it should not be used as the main tool for reducing greenhouse gas emissions. Not all renewable energy technologies are equally environmentally friendly. For example, large hydropower plants with dams have too many negative consequences. Energy crops might compete with food crops for agricultural lands. Wood bioenergy use might lead to deforestation. These aspects should be regarded while planning and implementing energy transition policies.

In sum, Russian decarbonization discourse has significantly changed in 2021 and is currently at a crossroads. This change was due to the prospect of the CBAM and the fact that almost all major economies have pledged to become carbon neutral by the middle of the century, which will limit Russian opportunities to extract revenues from fossil fuels in the long run. Until 2021, renewable energy was considered unreliable and economically unpromising, and climate change did not arouse significant interest in Russia either at the corporate or at the state level. Just a year ago,

it was impossible to imagine that Russia could set a date for the transition to carbon neutrality. But now it is clear that such a date can be considered as set: 2060.

Still, ambitious targets and deep decarbonization with a focus on renewable energy is very unlikely in Russia in the coming years. A more likely scenario is that Russia will achieve its carbon neutrality goal using large hydropower plants and nuclear energy, promoting natural gas as a low-carbon fossil fuel, and using the absorptive capacities of its forests. Companies with high levels of CO2 emissions might divide their assets into «dirty» companies working for markets without strong ESG policies and «clean» companies focused at EU and U.S. markets, which can result even in greater emissions. Renewable energy might attract more attention, especially regarding its growing competitiveness globally and in Russia, but mostly from the corporate sector that is pressed by foreign investors and clients to go renewable. As for fossil fuels, the overall strategy for the coming years will be to seek to extract and export as much natural gas, oil, and coal as possible before the demand begins to decline.

Some aspects of decarbonization remain practically untouched in the Russian discourse: for example, the abandonment of coal, either in terms of mining or combustion, as well as nuclear phaseout and ambitious goals for renewable energy. Other aspects, such as green hydrogen, have received very little attention. Hydrogen is perceived rather positively in both official and academic circles, but so far the emphasis has been mainly on hydrogen obtained from fossil fuels or using nuclear energy. The just transition of regions and monotowns that rely on natural gas, oil, and coal extraction is another fairly unaddressed topic.

These topics are all crucial to the decarbonization of the Russian economy and thus must find their way into the discourse as soon as possible.

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