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## **Energy transition and the relationship between Russia and Europe**

Energy transition is not just the transformation of global energy system from using fossil fuels as the main source of energy to alternative fuels – renewables, hydrogen etc. In fact, it is the transformation of the global economy, including almost all its sectors. The main reason for the transition is considered to be the solution of the global climate change problem, which is caused, as the vast majority of the world scientists believe, primarily by the emission of greenhouse gases from the use of fossil fuels.

Currently, the energy transition is gaining momentum. Global investment in the transition, shaping the future development of the global economy, doubled in 2020 compared to 2010 and amounted to \$500 billion.<sup>1</sup> Over 170 countries have renewables targets.<sup>2</sup> The total number of targets, mandates and policy incentives in place globally to directly support hydrogen was already around 50 by mid-2019.<sup>3</sup> In the last years many countries pledged to reach net-zero emissions by mid-century or soon after, accounting for about 70% of global emissions of CO<sub>2</sub>.<sup>4</sup> The EU, the US, Japan and the Republic of Korea aim to achieve carbon neutrality by 2050, China by 2060. This is facilitated by the fact that renewables have already become cost-effective sources of electricity.

Still, there are many uncertainties associated with achieving carbon neutrality - financial, technological, social, etc. As example, according to Stanford University estimates, the costs of the global transition to 100% renewable energy by 2050 are about \$73 trillion,<sup>5</sup> not much less the size of modern global economy. While the bulk of new energy technologies exist today, there is considerable uncertainty about the effectiveness of their use to address global warming, and which technologies will be the most sought-after market. That is why some market observers expect that transition to slow, asserting that the share of fossil fuels in the total energy mix is as high as a decade ago. Recovery packages provide six times more investment to fossil fuels than to renewable energy despite all the promises made during the Covid-19 crisis.<sup>6</sup> Nevertheless, most experts

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<sup>1</sup> [http://www3.weforum.org/docs/WEF\\_Fostering\\_Effective\\_Energy\\_Transition\\_2021.pdf](http://www3.weforum.org/docs/WEF_Fostering_Effective_Energy_Transition_2021.pdf)

<sup>2</sup> [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/March/IRENA\\_World\\_Energy\\_Transitions\\_Outlook\\_2021.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/March/IRENA_World_Energy_Transitions_Outlook_2021.pdf)

<sup>3</sup> [https://iea.blob.core.windows.net/assets/9e3a3493-b9a6-4b7d-b499-7ca48e357561/The\\_Future\\_of\\_Hydrogen.pdf](https://iea.blob.core.windows.net/assets/9e3a3493-b9a6-4b7d-b499-7ca48e357561/The_Future_of_Hydrogen.pdf)

<sup>4</sup> [https://iea.blob.core.windows.net/assets/20959e2e-7ab8-4f2a-b1c6-4e63387f03a1/NetZeroby2050-ARoadmapfortheGlobalEnergySector\\_CORR.pdf](https://iea.blob.core.windows.net/assets/20959e2e-7ab8-4f2a-b1c6-4e63387f03a1/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf)

<sup>5</sup> <https://e360.yale.edu/digest/the-global-price-tag-for-100-percent-renewable-energy-73-trillion>

<sup>6</sup> [https://www.ren21.net/wp-content/uploads/2019/05/GSR2021\\_Full\\_Report.pdf](https://www.ren21.net/wp-content/uploads/2019/05/GSR2021_Full_Report.pdf)

believe that the process is accelerating and the developing and implementing new breakthrough technologies in a number of areas, including hydrogen energy, carbon capture and storage, etc., is just around the corner.

Energy transition may have a controversial effect on relationship between Russia and Europe. At present, the EU's climate policy causes rather a significant degree of distrust in Russia, in particular, due to the different views on the reasons for its implementation, different approaches to solving the problem of global warming, different views on promising technologies, different levels of development. So, from Russia's point of view, the main reason for the European Green Deal is the increase in energy security and reduction of dependence on energy imports from Russia. The EU imports 87% of the oil consumed and 74% of natural gas and Russia accounted for over 43% in natural gas imports from non-EU countries in 2020, lower than in 2019, when it reached nearly 45%<sup>7</sup> (the share of the next major supplier - Norway was almost half of it, about 20%). The degree of dependence is higher, as long-term contracts are in place and there is no flexibility in pipeline supply routes. Dependence on oil imports from Russia is lower, but much higher than the second largest supplier - the United States (about 9%). The expected restructuring of energy markets and the decline in imports of carbon-intensive products in the next decade will drastically reduce coal imports, and after 2030 - oil and gas imports. The expected reduction in coal imports by 2030 will be 71-77%, oil by 23-25%, natural gas by 13-19% compared to 2015. After 2030, it is planned to almost eliminate the use of coal and more significantly reduce the imports of oil and gas into the EU - by 78-79% and 58-67% respectively.<sup>8</sup>

Another important reason for the European climate policy, according to Russia, is the acquiring competitive positions by European countries and companies in the transforming global economy due to the development of new industries, argued primarily by the solution to the global climate problem. The EU environmental sector is already one of the leading in the world.

The planned introduction of the Border Carbon Tax (BCT) by the EU will undoubtedly have a negative impact on bilateral relations and will cause an escalation of mistrust between the parties. However, European officials acknowledge that so far there have been no significant carbon leakage, but it can be in the future. Exporters of other countries, especially Russia, will be put in non-competitive conditions. The BCT is regarded by Russia as an additional source of income for the European budget in the face of the crisis caused by the pandemic, as well as to offset the significant costs associated with the new course. There is also the "unfair" aspect of the BCT since the EU uses the

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<sup>7</sup> <https://www.statista.com/statistics/1021735/share-russian-gas-imports-eu/>

<sup>8</sup> Leonard, M., J. Pisani-Ferry, J. Shapiro, S. Tagliapietra and G. Wolff (2021) 'The geopolitics of the European Green Deal', Policy Contribution 04/2021, Bruegel. URL: <https://www.bruegel.org/wp-content/uploads/2021/02/PC-04-GrenDeal-2021-1.pdf>

advantage of a higher level of economic, primarily technological, development, i.e., through historically greater accumulated use of resources and GHG emissions. In 1751-2017, cumulative EU-28 CO<sub>2</sub> emissions were estimated at 22% of global emissions, which puts the EU in second place after the US (25%), while Russia accounted for 6%.

The deal will have an impact not only on the EU economy, but also on the economy and foreign trade of its trade partners. The main consequence of the European climate policy for Russia is the loss of markets for energy and carbon-intensive products. The greatest impact will be the gradual loss of oil and gas markets because of lower demand and prices. Oil revenues play a major role in the Russian budget, their share is from one third to half, while 45% of Russia's fossil fuel exports are exported to the EU. Russia may lose a significant share of the EU market in favor of European producers or foreign competitors with less carbon footprint in mining, such as Saudi Arabia. This will eventually lead to a further weakening of economic ties between the parties and the further reorientation of Russian ties towards Asia, especially China, where Russia is one of the largest suppliers of oil and natural gas.

The BCT will also reduce demand from the EU for Russian finished products, primarily for several types of steel with carbon-intensive production technologies. The losses of Russian exporters from the introduction of the tax are estimated by BCG at \$3-5 billion per year, KPMG estimates are slightly higher.

At the same time, the energy transition may have a positive impact on the relations between Russia and the EU, representing significant opportunities for the development of mutual ties, which seems to be a much more constructive direction of cooperation, especially given the extremely low level of it now.

For the EU, this is an opportunity to jointly solve the problem of energy supply, reduce the multiple costs of energy transition. At present, such ambitious goals of achieving zero greenhouse gas emissions are unlikely to be realized by domestic resources alone, considering the high cost of implementing the Green Deal. The estimated additional annual investment to meet the 2030 targets in the EU is about €260 billion. While the new course provides unprecedented funds for its implementation, it is not sufficient to achieve its objectives. At the first stage the energy transition will ultimately have a negative impact on the competitive advantages of all European producers, especially industries, where a significant part of the cost is the imported raw material component with a high carbon footprint. Switching to new energy sources will require higher carbon prices, which could mean higher consumer prices and lower living standards in the EU. There is also the possibility of the retaliation measures by trade partners in case of the BCT, although the European Commission intends to ensure its compatibility with the WTO rules. In 2012, the planned introduction of the BCT to foreign companies in the air transport was opposed by the US, China, India, Japan, Russia, and the EU gave up the idea. Plus, there are new

risks to the European energy security, with a significant expansion of imports of metals and minerals for solar panels, wind turbines, lithium-ion batteries, fuel cells and electric vehicles required for the large-scale decarbonization; currently there are no substitutes for this raw material. Besides, it is impossible to combat climate change in the absence of measures in other countries.

For Russia, the implementation of energy-related measures may stimulate the technological restructuring of the economy and export diversification, first of all the transformation of energy sector towards the development of RES, the cost of which is constantly declining, and above all new forms of energy, such as hydrogen, which can at least partially replace fossil fuels and be supplied to foreign markets. By 2030, significant reductions will require a rapid abandonment of coal, which will increase the demand for natural gas, which is seen as a "transitional" fuel to a low-carbon economy, increasing its exports in the short to medium term. Cooperation with the EU in the harmonization of climate regulation will make it possible to avoid the BCT to Russia's products.

Climate finance provided by the Green Deal and part of the post-covid recovery plan provides about 10% of the funds for the "internationalization" of the Deal, i.e., aid to counterparties in the form of grants, loans and guarantees in the transition to "sustainable" energy and restructuring of the economy and exports. There is a theoretical possibility of directing part of the investment to the implementation of joint green projects.

In this regard, it is necessary to intensify constructive cooperation between Russia and the EU, primarily in the sphere of energy and other "conjugated" industries. First, it concerns scientific and technical as well as investment cooperation, as the restructuring of the economy involves its transition to a new technological level, and Russia needs to develop new areas in the face of reduced oil and gas revenues. The cooperation may be of benefit to the EU, considering Russia's competitive advantage for the EU over other countries - geographical proximity to Europe, the presence of large gas reserves, developed infrastructure. The portfolio of technologies needed to decarbonize the world energy system mostly exists today, but innovative solutions are considered as well. The combination of existing technologies for a net-zero energy system already largely exist today, but additional scientific assessments are needed on which technologies for joint projects are most efficient and environmentally acceptable, considering the entire value chain.<sup>9</sup>

One of the important areas of cooperation can be investment, first investments in hydrogen energy, the global market of which by 2027 is determined at \$2.28 trillion. According to the IRENA, hydrogen will account for 12% of global energy consumption

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<sup>9</sup> IRENA (2021), World Energy Transitions Outlook: 1.5°C Pathway, International Renewable Energy Agency, Abu Dhabi. URL: <https://www.irena.org/publications/2021/March/World-Energy-Transitions-Outlook>

by 2050.<sup>10</sup> Hydrogen energy is considered an important component of achieving EU carbon neutrality, the share of hydrogen in the European energy balance could reach 14% by 2050. The impetus for the development of hydrogen energy in the EU is the Hydrogen Strategy, approved by the EU Commission in 2020 as part of the Green Deal. In Russia, the current Hydrogen Energy Development Strategy, which involves cooperation with other states, including the EU. In 2021, it is planned to develop measures to stimulate exporters and buyers of hydrogen.<sup>11</sup>

The schemes for the supply of "blue" and "turquoise" hydrogen produced from natural gas may be promising, especially as calculations show, they appear to be the most cost-effective and have a less cumulative negative impact on the environment considering the entire value chain. There is also potential for the green hydrogen projects. Russian and European companies, incl. Gazprom, Rosatom and Novatek, are interested in hydrogen cooperation. Rosnano and Enel Russia plan to jointly produce "green" hydrogen based on the Enel Russia wind farm under construction in the Murmansk region and export it to the EU for about \$55 million. Novatek also plans to develop the production of "blue" and "green" hydrogen in conjunction with the German company Uniper.<sup>12</sup> Small joint pilot projects may begin to be implemented to clarify their benefits and costs to both parties. Business partnerships can be promising.

It is important to look for joint projects meeting the interests of both sides. Cooperation is also promising in the areas of energy efficiency and reduction of methane leakage, renewable energy storage, which could solve the production problems renewable energy technologies face, the introduction of quota trading systems, electricity supply, adaptation to climate change, biodiversity conservation, waste management, sustainable agriculture and forestry, electric vehicle production, etc. There are no formal sanctions restrictions for the climate sphere.

Interaction cannot be limited to climate issues (although energy restructuring is likely to be the main area) but should include complex measures of transition to a green economy. All this will create elements of trust between the parties.

Thus, if there is political will, the parties can enhance the possible positive impact of energy transition on the relations between Russia and the EU, taking advantage of the opportunities to restructure the global economy and gain political and economic benefits from this process by strengthening competitive positions in the world because of the new markets.

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<sup>10</sup> IRENA (2021), World Energy Transitions Outlook: 1.5°C Pathway, International Renewable Energy Agency, Abu Dhabi. URL: <https://www.irena.org/publications/2021/March/World-Energy-Transitions-Outlook>

<sup>11</sup> Gazprom and Rosatom will start producing "clean" hydrogen in 2024 / RBC. July 22, 2020. URL: <https://www.rbc.ru/business/22/07/2020/5f1565589a794712b40faedf>

<sup>12</sup> Why Russia doesn't have green energy / Plus1 Forbes. 07.04.2020. URL: <https://plus-one.forbes.ru/pochemu-rossii-ne-svetit-zelenaya-energetika>

Cooperation in the environmental sphere can be mutually beneficial and become one of the main areas for discussion and implementation by the parties. To realize this potential, a dialogue is needed that takes an open and measured approach to assessing the areas of interaction and convergence of positions. As a first step, it is possible to develop a roadmap detailing each stage of cooperation and commitments of the parties, identifying market segments for the development of projects.