GLOBAL CLIMATE POLICY TRENDS AND CHALLENGES FOR RUSSIA

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Abstract

Regulators would do well to develop a climate strategy with more ambitious climate targets and a comprehensive strategy to reduce GHG emissions in the oil and gas sector (including a strategy to reduce methane emissions). It may include a variety of regulatory mechanisms - standards, targets, requirements for monitoring, reporting and pricing of GHG emissions, rules for certification and verification of projects to reduce emissions, etc. It is also important to approve public funding for R&D and pilot projects to reduce GHG emissions, especially in areas of deep decarbonization. It is necessary to further analyze the competitive advantages of Russia in the field of decarbonization, and then promote them both domestically and on the world market. Corporations should include decarbonization in their overall business strategy and investment plans, rather than limiting it to health, safety, environment and investor relations departments. To implement an effective decarbonization strategy for any company, it is necessary to review the strategy and corporate governance as a whole.

Keywords: decarbonization**,** climate strategy**,** GHG emissions, world market, climate targets, carbon dioxide

I. Introduction

The current goals and commitments of countries, primarily the largest emitters of greenhouse gases (GHGs), characterize the insufficient “ambitiousness” of climate policy in the world. According to preliminary WMO data, 2020 will be one of the three warmest years on record, and according to the Climate Action Tracker2, the efforts announced by the countries of the world as of November 2020 will not allow achieving climate goals, and global warming by the end of XXI century can reach about 3 °C [1]. Russia is one of the world's largest GHG emitters (about 5% of total GHG emissions), which leads to increased attention in the international arena to its climate goals and policies. According to the national inventory data [3], Russia has significantly reduced GHG emissions in the long term: in 2018, GHG emissions in Russia amounted to 2.2 billion tons of CO2-eq. (excluding land use, land use change and forestry (LULUCF)), which is 30.3% less than their value in 1990 (3.2 billion tons of CO2-eq) [1-2]. If LULUCF is taken into account, the decline will be even more pronounced - by 47.6% in 2018 compared to 1990. However, in recent years, the country's GHG emissions have been rising, and Russia's target, for example, in the Climate Action Tracker, is described as "critically insufficient" - corresponding to a warming of more than 4 ° C (assuming that all countries would make similar efforts). This poses a challenge to Russia's image as a climate-responsible country. The current accounting of GHG emissions and removals in the world does not fully reflect the objective picture, which is especially typical for developing countries and for individual GHGs, which creates a challenge for the need to improve the quality

of data for international comparisons - in the context of the formation of climate positions as a factor in the competitiveness of producers from different countries. There is a growing number of countries, regions and companies around the world supporting climate change away from fossil fuels. There is a refusal of coal generation in the electric power industry as the most carbon-intensive direction of electricity production. There are initiatives to move away from the use of internal combustion engines in transport and from the exploration and production of hydrocarbons. Such initiatives pose the challenge of reducing demand for traditional energy resources already in the medium term relative to previous expectations. Plans to abandon the consumption of fossil fuels in different countries of the world for Russia, as for the largest exporter of traditional energy resources, lead to a narrowing of their sales markets. The effect of plans to phase out fossil fuel production is less obvious, and such plans are more of a symbolic nature. According to the International Energy Agency, the projected volumes of world oil consumption in 2040 in a hypothetical sustainable development scenario that assumes the achievement of climate goals are 32% lower than in the business-as-usual scenario, gas - 36% lower and coal - 61% lower [4]. The International Civil Aviation Organization and the International Maritime Organization are making efforts to minimize the adverse climate impacts of international traffic. For aviation, the introduction of a charge from 2027 for exceeding CO2 emissions from the baseline (2019) is already planned, and when discussing maritime transport, proposals arise, for example, to improve the operational energy efficiency of existing ships and to reduce emissions of methane and volatile organic compounds. This means the challenge of strengthening the requirements for Russian carriers in international markets.

Russia takes part in the formation of international climate policy, being a party to the UN Framework Convention on Climate Change, its Kyoto Protocol, the Paris Agreement and international treaties for the protection of the ozone layer. At the national level, strategic documents in the field of combating and adapting to climate change have been adopted and are being developed, measures are being taken to reduce GHG emissions, and a goal has been set to reduce them by 2030. Russian climate policy focuses on measures to adapt to climate change, unleashing the potential of energy efficiency (a draft of a new comprehensive plan for improving energy efficiency has been prepared), protecting and restoring forests, as well as implementing environmental and environmental initiatives. Separately, to stimulate alternative renewable energy sources in the electric power industry, the regulatory framework for their support in the wholesale and retail markets, in isolated energy regions, and for microgeneration has been formed and is being specified. With regard to carbon regulation in Russia, the Concept for the Formation of a System for Monitoring, Reporting and Verification of GHG Emissions in the Russian Federation (2015) was adopted [5]. As of January 2021, consideration of the rules for the introduction of mandatory carbon reporting (draft of the Federal Law "On the Limitation of GHG Emissions"), as well as the creation of conditions for the implementation of voluntary initiatives to reduce emissions and increase GHG absorption (draft Concept of the accounting system, registration, release into circulation, transfer and offset of the results of climate projects implemented on the territory of the Russian Federation). In January 2021, a roadmap was approved for the implementation of an experiment in the Sakhalin Oblast to establish special regulation of GHG emissions. In addition, the introduction of public non-financial reporting is being considered (draft Federal Law “On Public Non-Financial Reporting”) [5-6]. Interest in green finance is growing in Russia: the development of a national taxonomy of sustainable finance and the launch of a system of low-carbon certificates are being considered.

II. Methods

It seems important to move to proactive actions in terms of climate policy measures and focus on supporting the competitiveness of the Russian economy [4]. In the light of the planned introduction of a transboundary carbon mechanism in the EU, it can be expected that the problem of carbon regulation will reach the level of international relations. Russia is one of the major trading partners of the EU, which currently does not have any system of carbon regulation (carbon taxes or emissions trading), which deprives the country of flexibility in terms of the ability to offset payments for GHG emissions on its territory [6]. As a result, in order to maintain (full or partial) payments for GHG emissions in Russia, as well as for a symmetrical response, it is advisable to take the following steps: Explore the possibilities for developing carbon regulation measures in Russia (in the form of a national GHG emissions trading system (NTS)), which in the general case and at the initial stage will work on a voluntary basis. However, if there are relevant requirements from the EU for certain groups of goods (which are covered by the TUR), a transition to a mandatory regime may be required. It is proposed to hold timely consultations with the EU on issues of compliance with the EU decarbonization practice, as well as to study the experience of implementing the JTC in China. Explore the possibility of introducing symmetrical measures for imports from the EU (to equalize conditions with the EU and other countries that may introduce regulation in response to EU measures) with simultaneous compensation for consumers in Russia. Work out support (compensation) measures in Russia for enterprises and industries most affected by the introduction of TUR and carbon regulation measures, including benefits within the national trading system, as well as tax incentives [7]. In addition, along with those being implemented (improving energy efficiency, supporting RES, etc.), it is possible to identify measures for the further development of climate policy, on the introduction of which there is a relative consensus in Russia: Improving the accounting and protection of the forest fund: identifying preferred approaches to accounting for the absorptive capacity of forests , soils and water bodies; implementation of carbon farm projects; development of a methodology for accounting for GHG emissions by product range; improving the quality of data on Russian forests; expansion and protection of the forest fund of Russia. Implementation of a national system for reporting and monitoring GHG emissions: Development of a reporting system that will allow obtaining up-to-date information on GHG emissions at the level of regions, municipalities and sectors of the economy, as well as modeling and predicting the consequences of climate policy and climate risks. Development of a reporting system at the corporate level, which will allow Russian companies to comply with external "climatic" requirements in terms of information disclosure [8].

Study of methods and methods for assessing the carbon footprint and methods for verifying the data obtained (including the entire production chain). Formation of a system of low-carbon (including "green") certificates recognized at the international level (for a wide range of projects that contribute to the reduction of GHG emissions - renewable energy sources, "green" and "blue" hydrogen, projects to improve energy efficiency, increase GHG absorption). Conducting consultations with the European Commission for the recognition of local certification systems. Formation of the image of Russia as a climate-responsible country: coverage of the efforts undertaken by the country (with the indication of restrictions and intentions); looking for opportunities to promote climate initiatives that are in the national interest (eg international cooperation on climate change adaptation or support for carbon capture and storage (CCS) projects); creating alliances with countries with similar interests to strengthen the negotiating position during international climate negotiations; development of an index that evaluates the efforts of countries to combat climate change in Russia or within a regional association with Russian participation (for example, the EAEU or BRICS) [9]. Expanding opportunities for promoting Russian low-carbon technologies for export in order to diversify Russian exports: diversifying Russian exports of energy resources (in particular, hydrogen), energy efficiency and

renewable energy technologies, and other low-carbon technologies; exploring the possibilities of the Sustainable Development Mechanism (SDM) under the Paris Agreement; using mechanisms to provide sustainable (including green) financing; creation of conditions and support for the implementation of voluntary initiatives to reduce GHG emissions by Russian exporters. Equally important, but much more difficult in an economy dominated by traditional energy resources, is to agree on medium and long-term guidelines for national climate policy, which should indicate the direction of the transition to a low-carbon development path - in line with international trends [6]. This is the aim of the draft Strategy for the socio-economic development of the Russian Federation with low GHG emissions until 2050, prepared by the Ministry of Economic Development of Russia. It should determine: priorities for the development of the domestic market, including the balance of traditional and new low-carbon areas; assessment of the prospects for export diversification (by directions and types of supplied goods and technologies); conditions for strengthening Russia's climate policy - they may be the most difficult to agree on, but, nevertheless, it is advisable to work them out as risk scenarios in order to prevent a slowdown in economic growth rates and a lag in the long term (in the event of a deterioration in the situation with adaptation and acceleration development of climate policy in the world)[5]. The draft Strategy for Social and Economic Development with Low GHG Emissions provides for the development of an action plan for its implementation, which proposes to take into account the identified challenges and measures. In addition, we can consider the organization of monitoring the challenges of the development of climate regulation in the world for the Russian economy and a comprehensive assessment of their impact.

III. Results

Climate change is one of the key global challenges. There is a conventional position, fixed at the UN level, that this problem is of an anthropogenic nature. The increase in the concentration of greenhouse gases in the atmosphere, caused by human activity, puts the dynamics and accounting of GHG emissions at the center of attention of international climate policy [4]. The international climate policy framework is shaped by the UN and is characterized by a truly global scope. The common basis for interaction and coordination was laid by the UNFCCC, and issues related to GHG emissions from international aviation and maritime transport are dealt with by such UN specialized agencies as the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) [5]. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) to prepare independent, science-based climate change assessments. The IPCC and former US Vice President Al Gore were awarded the 2007 Nobel Peace Prize “for their efforts to build and disseminate broader knowledge of anthropogenic climate change and lay the foundations for the actions needed to counter such change [6].

According to the UNFCCC, Parties develop, periodically update, publish and provide to the Conference of the Parties national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protoco [7]: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and fluorine-containing gases (perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulfur hexafluoride (SF6) and nitrogen trifluoride (NF3)), using comparable methodologies agreed by the Conference of the Parties [8]. The main greenhouse gas of the planet - water vapor - is not directly taken into account by the UNFCCC, but the IPCC reports noted that with warming, the content of water vapor in the atmosphere increases: with a temperature rise of 1 ° C, the atmosphere can contain approximately 7% more water vapor [9]. The obligation to annually provide information in the form of a national inventory according to the

reporting format of the UNFCCC is only for the countries of Annex I of the UNFCCC, including Russia. As a result, the UNFCCC database on GHG emissions is characterized by incomplete information on developing countries. As part of the specification of the rules for the implementation of the Paris Agreement, it was decided that national inventories of GHG emissions and removals should be submitted by all countries - developed countries starting from 2022, and developing countries - from 2024 [10]. For least developed countries and small island developing countries, there is more flexibility in reporting. The IPCC develops and updates for the UNFCCC the Guidelines for National GHG Inventories aimed at harmonizing the approaches of different countries (the last update was in 2019). Accounting does not involve measurement, but calculation of GHG emissions and removals (using emission and removal factors), but a decision on measurement can be made at the national level. Countries may use their own methodologies if they are scientifically validated and approved by the UNFCCC. The GHG inventory includes data related to LULUCF [9]: forest management, planting of forests, deforestation, more advanced agriculture and land use, etc. Accounting under the UNFCCC is subject to increase or decrease in carbon stocks as a result of human activities (in managed forests or on managed lands) over a certain period. In 2003, the IPCC introduced the Good Practice Guidance for Land Use, Land-Use Change and Forestry. Since LULUCF calculations and projections are subject to uncertainty, the UNFCCC records GHG emissions including and excluding LULUCF [9-10]. According to the IEA, the uncertainty in estimating global emissions of carbon dioxide is 10%, methane - 25%, nitrous oxide - 30%, fluorine-containing gases - 20%. At the country level, the uncertainty in estimating carbon dioxide emissions is in the range of 5–10%, and for other GHGs in some cases it can exceed 100% (for example, nitrous oxide emissions from agriculture or methane emissions from fossil fuel extraction), so that existing national estimates should be considered as estimates of the order of magnitude. Traditionally, GHG emissions are calculated from production activities, but there are a growing number of studies that estimate GHG emissions from consumption, taking into account export and import flows. Such calculations are more complex and involve greater uncertainty.

Since the beginning of the industrial revolution, anthropogenic GHG emissions have begun to rise and their sinks to fall due to intensive land use, which has changed the absorption properties of the earth's surface. The increase in anthropogenic GHG emissions resulted in an increase in global GHG concentrations in the atmosphere and air temperature. According to WMO data, the global molar fraction of GHGs in the atmosphere in 2019 reached record levels: carbon dioxide reached 410.5 (±0.2) parts per million, methane - 1877 (±2) parts per billion, nitrous oxide - 332, 0 (±1) parts per billion, which is 148%, 260% and 123% higher than pre-industrial levels, respectively[10]. The average global temperature in January–October 2020 was about 1.2 (±0.1)°C above pre-industrial levels (1850–1900). According to WMO preliminary data, 2020 will be one of the three warmest years on record. This finds expression in changing climatic conditions, the spread of adverse weather events and the increasing frequency of natural and man-made disasters. The growth of anthropogenic GHG emissions in the world is on an upward trend, despite the expected decline of 7% in 2020 as a result of the spread of coronavirus [10]. According to the Netherlands Environment Agency (PBL) [8], global GHG emissions reached 52.4 billion tonnes of CO2-eq in 2019. Taking into account LULUCF, GHG emissions in 2019 are estimated at 57.4 billion tons of CO2-eq [10]. Although the PBL data are not reference data and may differ from national inventories (in particular, for Russia they exceed the national estimate), they offer the most complete temporal and country coverage of GHG emissions. The largest GHG emitters in the world in absolute terms are China, the US, the EU-27, India, Russia and Japan. They accounted for 61.1% of total GHG emissions in 2019 (excluding LULUCF). Their combined share, according to PBL, has remained virtually unchanged since 1990 (62.4%), although GHG emissions in China and

India increased by 3.5 and 2.6 times, respectively, while in Russia and the EU-27 they decreased by 16.4% and 22.3% [8]. At the same time, according to the data of the national cadastre of Russia, in 2018 the decrease compared to 1990 was 30.3%. Other major GHG emitters include Brazil, Indonesia, Iran [8-9].

Along with absolute indicators of GHG emissions, relative estimates are common. Russia's values for both indicators are higher than the global average: according to PBL, in 2019 they were 640 kg CO2-eq/USD. (in constant 2017 GDP PPP prices) (with a world average of 400 kg CO2eq/US$) and 17.4 tCO2eq/person [8]. (with the global average of 6.8 tCO2-eq/person). An analysis of the structure of GHG emissions shows that the energy sector is the largest contributor to GHG emissions in all countries. This is due not only to the intensive consumption of fossil fuels, but also to the peculiarities of the interpretation of the "energy" sector by the IPCC: it includes GHG emissions from the combustion of all types of fossil fuels, including for the purpose of generating heat and energy and in transport, as well as atmospheric losses of gaseous fuels. products that occur in the form of technological emissions, leaks and flaring, regardless of the economic sectors in which they occur [5]. The energy sector, as interpreted by the IPCC, accounts for an average of about 70% of total GHG emissions. The structure of greenhouse gas emissions is dominated by carbon dioxide (72.5% in 2019 excluding LULUCF), methane accounts for 18.7%, nitrous oxide - 5.4%, the remaining 3.3% is provided by fluorine-containing gases.da, Mexico, the Republic of Korea, Australia, Saudi Arabia, Turkey and South Africa [8-9].

IV. Discussion

Most of the world's countries have now outlined their climate goals and commitments to reduce GHG emissions at the international level (in Nationally Determined Contributions under the Paris Agreement). Some countries go further by declaring a commitment to carbon neutrality, that is, achieving zero net carbon emissions [8-9]. The Paris Agreement is comprehensive, but countries shape their goals and commitments on their own - based on the principle of common but differentiated responsibilities (according to national circumstances) - and regularly review them towards increasing "ambition". The Paris Agreement affirmed that developed countries "should continue to take the lead by setting economy-wide absolute emission reduction targets", but the commitments of developing countries are very diverse. Of the 190 parties to the Paris Agreement, the majority (74 countries) have formulated their commitments to reduce GHG emissions relative to the business-as-usual scenario (scenario targets); 61 parties, including Russia and the EU, have fixed absolute targets (as a percentage of the base year) and 8 more have indicated the target level of GHG emissions they are striving for; 25 countries declared only actions aimed at reducing GHG emissions, and another 13 - indirect goals that are not directly linked to GHG emissions; 9 countries focus on relative GHG emission reductions, typically per unit of GDP (relative targets). In addition, many countries, along with unconditional, have conditional goals that can be achieved by providing them with financial assistance. The question of the wording of goals causes a lot of controversy in international climate negotiations - so far only an agreement has been reached19 that from 2031 a single time frame for the provision of NDCs will be in force for all countries. There are opinions that large developing countries are not interested in a clear system of comparison, as it will focus on the dependence of global GHG emissions on their national actions.

The strengthening of the climate agenda is leading to an increase in the demand for disclosure of carbon reporting by businesses, which is broadcast through investor sentiment, the development of voluntary initiatives, and changes in relevant regulation. There is a constant increase in the requirements for the volume and quality of the requested information, which is

reflected in the change in methodologies. International standards for carbon reporting emerged in the early 2000s. In 2003, the World Resources Institute, together with the World Business Council for Sustainable Development, created the GHG Protocol, the global standard for accounting for GHG emissions in carbon reporting. This Protocol distinguishes GHG emissions depending on the scope: "Scope 1" includes direct GHG emissions that are emitted from sources owned or controlled by the reporting entity; 'scope 2' shows the indirect GHG emissions associated with the production of electricity, heat or steam purchased by the reporting entity; 'scope 3' shows all other indirect emissions, including transportation in vehicles not owned or controlled by the reporting entity, outsourced activities, waste disposal, etc [9]. In 2015, at the initiative of G20 finance ministers and central bankers, the FSB Task Force on Climate-related Financial Disclosure was established under the Financial Stability Board. In 2017, the TFCD developed recommendations for voluntary disclosure of information about the financial risks of companies arising from global climate change. The recommendations have become the de facto new standard for carbon reporting disclosure, which has found wide support among regulators and companies. In the context of increasing demand for carbon reporting, voluntary initiatives in this area are developing. A striking example is the international project on voluntary disclosure of carbon reporting (Carbon Disclosure Project), which arose in the early 2000s. The development of voluntary initiatives is accompanied by an increase in the number of cases of introduction of mandatory requirements [10]. In 2018, the EU adopted obligations to disclose non-financial reporting, including environmental issues (Directive 2014/95/EU44) for 6,000 large European companies. We can expect further expansion of the practice of legislative consolidation of mandatory requirements for the disclosure of carbon reporting, including due to the growing interest in introducing trade restrictions based on the carbon footprint of manufactured products. In this case, the company's carbon reporting will be the main source of information for regulators who will make appropriate decisions. Stock exchanges are also actively introducing carbon reporting into their own activities as one of the components of sustainability reporting and issuer reporting.

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