

CARBON REGULATION: EXPERIENCE IN DIFFERENT COUNTRIES AND RUSSIAN INITIATIVES

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Abstract: Challenges arising from global trends in climate policy highlight the need for further development of strategies and measures to combat global climate change. This study examines the functioning of greenhouse gas emissions trading mechanisms and the development of carbon regulation in individual countries, as well as the development of national carbon regulation and legislative measures for the functioning of the carbon market in Russia. Research on this topic can contribute to understanding and addressing the challenges facing the modern world in the context of prolonged environmental instability.

Key words: carbon tax, greenhouse gases, carbon footprint, climate change, air pollution.

Climate change remains one of the most serious global challenges facing the world today, causing ever-increasing climate cataclysms and threatening ecosystem destruction. A carbon tax offers a promising tool for creating incentives for environmental compliance both at the global level and at the level of individual small producers.

The relevance of this study is clear: the topic of a carbon tax intertwines with many important areas of life: from the global problem of climate change to economic justice, international trade, and national development in general.

Reducing emissions of greenhouse gases that contribute to global warming, such as carbon dioxide and methane, is crucial to addressing climate change. However, despite the barrage of climate commitments, global greenhouse gas emissions continue to rise, reaching 36.05 billion metric tons of CO₂ in 2023. By the end of 2024, emissions are projected to increase by 0.92%, reaching a record high of 37.42 billion metric tons of CO₂. Since 2000, CO₂ emissions have increased by more than 10% (Fig. 1).

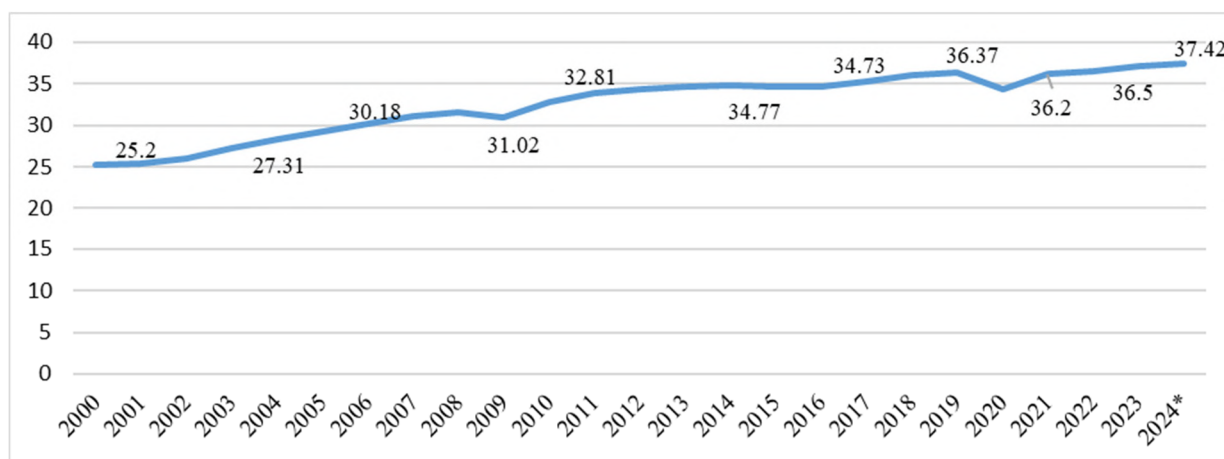


Fig. 1. Annual carbon dioxide emissions in the world from 2000-2024, billion m.t.

China is the largest contributor to greenhouse gas emissions. In 2023, China accounted for 30% of global greenhouse gas emissions, making it the world's largest emitter. It is followed by the United States and India. Together, these three countries accounted for approximately half of the greenhouse gases emitted in 2023 (Fig. 2).

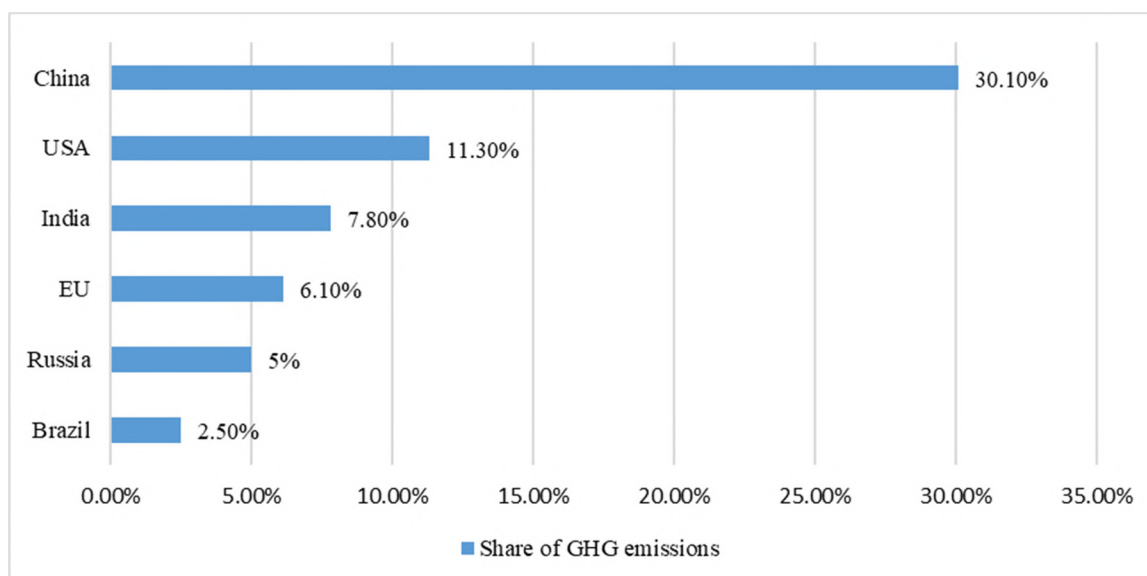


Fig. 2. Distribution of greenhouse gas emissions in the world in 2023, broken down by main emitters, %

Many countries are actively implementing new green regulatory tools. Examples include bans or phase-outs of polluting production processes, reforms to green technology subsidies, carbon taxes, new green product and fuel standards, and mandatory disclosure of information on climate change risks and corporate sustainability performance.

In 2019, the European Commission launched a new climate strategy – the European Green Deal. The core idea of this strategy is resource efficiency to mitigate climate change, halt biodiversity loss, and reduce pollution. The strategy sets the goal of achieving carbon neutrality by 2050. One component of this initiative is the European Border Carbon Tax (CBAM), which is intended not only to incentivize exporting countries to reduce the carbon intensity of their products but also to ensure that European producers do not lose their competitive advantages due to extensive climate regulation in the European Union and the lack thereof in other countries. Of course, there are many obstacles to its implementation, including whether it will actually significantly reduce carbon leakage, how other countries will respond, and whether the tax is the most effective way to reduce greenhouse gas emissions in other countries.

Discussions around carbon standards continue internationally. Since most countries have yet to fulfill their climate commitments, efforts to find a new international economic framework continue.

The COP29 climate summit, held in Baku, the capital of Azerbaijan, in November 2024, marked a significant milestone in global efforts to mitigate climate change and implement the Paris Agreement. Summit participants, including scientists, government leaders, environmentalists, and business representatives, addressed a range of issues related to reducing greenhouse gas emissions, adapting to climate change, and securing financing for sustainable environmental projects. Key decisions at the summit included strengthening cooperation on financing climate action in developing countries. A joint decision was made to allocate \$300 billion annually to developing countries for the global fight against climate change, with total climate financing expected to reach at least \$1.3 trillion by 2035. The decisions and initiatives adopted at the summit will lay the foundation for countries' subsequent efforts to achieve carbon neutrality [1,2].

Currently, more than 60 countries are planning to introduce or have introduced carbon taxes.

Carbon regulation has a history of continually transforming government regulatory mechanisms, with positive effects from reducing greenhouse gas emissions being observed. The emissions trading scheme, launched in 2005 in the European Union, is the first successful example, and is currently the largest in terms of greenhouse gas emitters. Approximately 4% of global greenhouse gas emissions and almost half of all emissions from the energy, industrial, and air cargo sectors of the economies of countries within the European Economic Area are traded through the emissions trading market [3].

In addition to the EU Emissions Trading System (EU ETS), national or subnational systems are already in place or under development in Canada, China, the United Kingdom, New Zealand, South Korea and Switzerland, among others (Tab.1).

Table 1. Greenhouse gas emissions trading systems in different countries (as of the end of 2023)

No.	Countries	Emissions million CO ₂ - eq.	Reducing greenhouse gas emissions by 2030	Net zero emissions	Emissions trading systems million CO ₂ - eq.	Coverage of the emissions trading system	Price in STV, \$
1.	European Union	3 400	55%	by 2050	1 500	39%	66
2.	Switzerland	45,2	50%	by 2050	5,5	12%	61
3.	United Kingdom	429,5	68%	by 2050	92,1	25%	44,5
4.	Canada	77,6	-37.5%	by 2050	51,6	80%	33
5.	Republic of Korea	676,6 .	40%	by 2050	547,9	89%	6,8
6.	New Zealand	79,8 .	50%	by 2050	27,9	48%	39,8
7.	China	12 000	–	by 2060	12 000	49%	8

Today, the need to reduce CO₂ emissions is clear to all economically developed countries. The decarbonization of industrial processes has been launched worldwide, and Russia cannot remain on the sidelines of this process.

The Russian Federation has been making significant efforts to create a hydrocarbon market for several years, but the mechanism has not yet been fully developed. In line with its announced climate commitments, Russia has declared its readiness to take measures to combat climate change and intends to become carbon neutral by 2060. To achieve this goal, Russia is developing a greenhouse gas emissions monitoring system. In the near future, it is expected that the state will participate in the creation of a trading platform, the main participants of which will be large energy consuming companies and non-residents conducting economic activity in Russia. The correct distribution of emission quotas is the greatest challenge for the carbon market. When formulating the climate agenda in the Russian Federation, it is necessary to pay attention to the country's natural resources.

In order to implement the adopted commitments, on November 4, 2020, the President of the Russian Federation signed Decree No. 666 "On the reduction of greenhouse gas emissions" [5,6]. The Government of the Russian Federation also developed a Strategy for the socio-economic development of the Russian Federation with low greenhouse gas emissions until 2050 [4].

Climate policy in Russia has gained momentum since the beginning of 2021, with discussions underway on a draft climate strategy with several scenarios for achieving carbon neutrality. Starting in 2022, many of Russia's largest enterprises with CO₂ equivalent emissions exceeding 150,000 tonnes will submit carbon reporting to the government. This year, companies with emissions of 50,000 tonnes or more have also joined this process.

The government is developing a Russian version of the EU carbon tax. The key objective is to develop national regulations, achieve international recognition, and ensure that payments for CO₂ emissions in Russia are offset by the European carbon control system [1].

Russia intends to significantly reduce its carbon footprint through technological innovation, but how this will be achieved in the current environment remains unclear. Previously, Russia purchased most of its machinery, equipment, and other technological advances from the EU or China, but due to sanctions imposed in most sectors, trade has stalled, meaning its carbon management strategy will need to be reconsidered.

We can see the significant importance of carbon regulation today for all countries worldwide, and one of the key tools for reducing the negative impact on the environment is undoubtedly cross-border carbon regulation (hereinafter referred to as CBR), which includes carbon taxation mechanisms. The purpose of such taxes is to establish a price for carbon on goods and services imported from countries with less stringent environmental standards. Currently, rules for implementing the cross-border carbon regulation system during its transition phase have already been approved. This phase began on October 1, 2024, and will last until the end of 2025. Consequently, until the end of 2025, suppliers exporting to the EU will not have to pay a carbon tax on cement, steel, fertilizers, aluminum, hydrogen, and electricity. Suppliers of these goods will only be required to declare them and submit reports. It is expected that over the next two years, the information collected in this way will help improve the system and move on to the main stage of the program – paying additional taxes on the supply of “dirty” products to Europe.

The implementation of a cross-border carbon tax undoubtedly implies close international cooperation, aimed at avoiding trade conflicts and ensuring coordinated measures to combat climate change. The essence of this tax mechanism is that the more carbon emissions a company emits into the atmosphere, the more taxes it pays. This provides an economic incentive for companies to transition to more environmentally friendly solutions.

It should be remembered that the introduction of a cross-border carbon tax will have varying consequences for both importing and exporting countries. And, of course, these consequences can be both positive and negative. A cross-border carbon tax is a new reality, a new standard that all countries will have to face [5].

Based on successful examples of carbon taxes, it's clear that their effective implementation can lead to significant emissions reductions, stimulate economic growth in the green sector, and achieve climate goals. However, without considering the social and economic consequences, and without effective mechanisms to mitigate the negative impacts on the population, it can lead to negative socioeconomic consequences. Therefore, a comprehensive and differentiated approach to carbon tax implementation is needed, tailored to the specific circumstances of each country. Policymakers and governments must take into account these lessons learned and adapt their strategies to overcome challenges and achieve sustainable results.

Given the important role of the BRICS countries as major industrialized nations in global climate action, it is crucial to ensure alignment between climate policy and national socioeconomic commitments, while also taking into account the interests of developing countries and least developed countries.

The Russian Federation, taking into account its national development priorities, must develop its own approach to climate change. It is essential to take targeted measures to encourage the use of the latest developments in eco-friendly design, planning, and operation of facilities whose operations may have the greatest negative impact on the environment, including carbon dioxide emissions. The fact that some Russian enterprises and pilot regions have begun to focus on sustainable development and environmental aspects will soon become a larger and more systemic phenomenon, which will enhance the long-term competitiveness of domestic industry.

The review revealed that the planned cross-border regulatory mechanism is not without its shortcomings, but these will be adjusted as it is implemented. It is important for Russia to take a constructive stance and participate in joint final decisions, taking into account its national interests. At the same time, it is hoped that the current risks and uncertainties will be transformed into growth opportunities for Russian business and the economy as a whole.

Currently, Russia's joint efforts with other countries, including the BRICS countries, in implementing climate and environmental goals will enable it to successfully achieve its objectives of reducing greenhouse gas emissions and transitioning to sustainable development. It is important for Russia to actively participate in international initiatives and agreements aimed at combating climate change and to adapt its domestic regulatory mechanisms to international standards.

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