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## **Institutional regulation of the global and regional climate agenda in the context of deglobalization<sup>1</sup>**

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### **Abstract**

The problem of climate change is a global challenge that requires a joint solution at various levels—global, regional, national, and individual. At the same time, modern global and economic processes are characterized by two significant trends: the growth of regionalization and the intensification of deglobalization, which cannot but affect the architecture of the climate agenda. In this article, we review the current state of the multilevel climate agenda and discern the factors of this agenda that affect the activities of multinational enterprises in the context of deglobalization. We conclude that we should expect further fragmentation in the climate regulation system at the global level, which will affect the configuration of global value chains (GVC) of companies. The regionalization of GVCs increases the importance of regional interaction and building relationships between business and government on climate issues to ensure economic competitiveness along the entire value chain from upstream to downstream.

**Key words:** Key words: climate agenda, governance, decarbonization, energy transition, Global value chains (GVC)

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### **Introduction**

In academic community and among politicians, as well as generally in society, there is an active debate on how to contribute to solving environmental problems, which are currently one of the grand challenges that determine the development of the economy and society [Buckley, Doh, Benischke, 2017]. The problem of climate change refers to the phenomenon of the so-called "tragedy of the commons" [Hardin, 1968], where the actions of individual players acting in their individual interests lead to the depletion of the common resource. Anthropogenic climate change presents a collective action problem, that is, a situation in which individual strategies lead to a suboptimal collective outcome. Collective action theory suggests that emission reductions are only achievable if emissions are regulated to overcome the "free-rider problem" - the evasion of paying for the use of a public good [Brennan, 2009]. Thus, government regulation is seen as an appropriate and necessary response to the problem of climate change, with an international climate agreement being a key element.

Regulation is understood as a process of decision-making and formation of institutions that determine the rules of behavior in a certain area, as well as mechanisms for compliance with these rules [Sovacool, 2011]. One of the most striking features of international climate regulation is its increasing complexity, which is expressed in the existence of a multilateral and multilevel system of cooperation aimed at addressing climate change [Bliznetskaya, 2023].

Decarbonization is considered one of the main goals of the climate agenda [KPMG, 2022]. To stimulate this process, various national and international regulatory measures have been adopted by governments of different countries to create economic incentives to reduce carbon emissions by pricing CO<sub>2</sub> emissions [Nippa, Patnaik, Taussig, 2021]. Currently, the public policy measures adopted are insufficient to address climate change problem, as evidenced by the gap between declared climate ambitions and the actual emissions trajectory [IEA, 2021]. Investment costs to transition of energy systems to net-zero emissions are estimated at \$275 trillion [IEA 2021]. It is estimated to cost US\$275 trillion between 2021 and 2050 [Krishnan et al., 2022], which requires regulatory support. Given the scale of change required to achieve decarbonization goals, the global climate agenda is diverse and includes efforts at both country and regional levels and at the global level [Di Gregorio et al., 2019]. The complex structure of the climate agenda reflects the "glocal" nature of climate change issues: its impacts require the involvement of actors at different levels [Gupta, van der Leeuw, de Moel, 2007].

Researchers note that global political and economic processes are characterized by two significant trends: the growth of regionalization and increasing de-globalization [Panibratov et al, 2022]. According to the World Bank, the peak of foreign direct investment in the world dates back to 2007 and amounts to 5.3% of global GDP, while in 2020 this figure was only 1.3% [Rajan, 2020a]. Moreover, trade growth has also slowed: from 1990 to 2007, trade grew 2.1 times faster than real GDP, but since 2011 it has grown only 1.1 times faster, according to the World Trade Organization [Lund et al., 2019]. Trends towards globalization and regionalization directly affect the global climate efforts of countries that suffer from this fragmentation [Hartmann et al., 2022]. The aim of this article is to analyze changes in the climate regulatory architecture and identify the impact of the climate agenda on multinational enterprises [MNEs] in the context of de-globalization.

The article is divided into three parts: in the first part we examine the climate agenda from the perspective of political economy theories, in the second part we analyze the multi-level architecture of the climate agenda, and we further discuss the institutional factors of the climate agenda that influence the operation of ISPs in general and the construction of global value chains in particular.

## **1. The political economy of decarbonization**

There are several possible interpretations of the complexities of the low-carbon transition. For example, neorealism prioritizes the security of states in the system of international relations as the key factor determining the behavior of states on the world stage. The argumentation is based on the need to ensure energy security, and while for traditional energy importers the green transition promises to bring benefits in the form of reduced dependence on energy imports [Stevens, 2019], for countries that are exporters of traditional energy resources, the energy transition is associated with economic as well as political risks. In particular, for a number of countries in the Persian Gulf and Africa, oil revenues provide 60-90 percent of budget receipts [Fattouh, 2020]. In addition to energy security, considerations of technological leadership also play an important role. For example, leadership in the field of green technologies is one of the drivers of energy transition for developed countries, and the issue of ensuring technological security in the field of green energy and maintaining competitiveness is traditionally raised in the discussion on the priorities of the green agenda in emerging markets, including Russia and the EAEU [EAEU, n.d.].

The neoliberal approach points to the institutional structure of climate agenda regulation as the main negative factor. The crisis of international climate cooperation is attributed not to the unwillingness of individual countries to participate in climate change mitigation, but to the objective features of the international relations system. Rigid climate regulation is impossible to implement without the involvement of a regulator external to the participants, capable of monitoring the implementation of the rules of the game [Makarov, 2013]. In other words, the lack of an institutional framework to ensure the fulfillment of commitments undertaken by countries under the Paris Agreement reduces the effectiveness of international climate regulation.

The discussion of the political economy of decarbonization includes a debate on the various factors affecting it, and such conversation is often characterized by the presentation of polar points of view. The progress of the green agenda is determined by a number of economic, institutional and political factors [Omri, Chtourou, Bazin, 2022]. Economic factors include mainly the level of economic development, the availability and cost of renewable technologies, and dependence on external energy supplies and energy costs. For example, Germany and California in the US are two progressive examples of advancing the climate agenda largely because they have substantial industrial capacity that can be used for renewable energy development. States without such industrial capacity, on the other hand, may find it difficult to develop renewable energy [Biber, Kelsey, and Meckling, 2017]. At the same time, the example of Germany shows that in the context of energy import dependence and rising global energy prices, there may be a return to coal-fired capacity [Eckert and Sims, 2022]. Further on, institutional factors can include, among others, the presence and stringency of climate regulation in a country, as well as the development of competition in energy markets, for example in sectors such as oil and gas or electricity. Another factor affecting the political economy of decarbonization is the nature of the country's political regime. Democratic regimes are more likely to adopt green tariffs than authoritarian regimes. This is because democratic regimes have political incentives to adopt practices like green tariffs because they improve the environment, support rural development, and distribute energy revenues among many stakeholders [Biber, Kelsey, and Meckling, 2017]. The complexity and multifaceted nature of the climate agenda and the fact that it is at the intersection of the interests of multiple stakeholders at both national and international levels determines the multivariability in the degree of engagement, pace and priorities of decarbonization depending on the national context.

The decarbonization agenda seems to be relevant for Russia as well. Thus, in 2021, the Strategy for socio-economic development of the Russian Federation was adopted which included the low greenhouse gas emission plan until 2050, and in 2023, the Climate Doctrine was adopted. These strategic documents set the goal of achieving carbon neutrality by 2060. Given the importance of the contribution of traditional energy sectors to the Russian GDP structure, achieving carbon neutrality implies overcoming a number of challenges related to economic diversification, ensuring competitive advantage in low-carbon technologies, as well as regulatory support for the low-carbon transition. A significant part of the low-carbon transition strategy for Russia is to increase greenhouse gas absorbing capacity in managed ecosystems, including the absorbing capacity of forests. Accordingly, the implementation of the low-carbon development target scenario for Russia implies harmonization of Russian and international standards in the field of climate regulation, including taxonomy and

verification of the results of green projects. Thus, the study of international regulation of the climate agenda is of high relevance.

Researchers distinguish two different but not mutually exclusive trends in climate governance: multilateralism, which includes negotiations between countries within the framework of the UN Charter principles, and minilateralism, which involves focused efforts of a limited number of actors [Falkner, 2016]. Next, we will examine climate governance under multilateralism - at the global level, and under minilateralism. One of the varieties of the latter trend is the idea of climate clubs [Falkner, 2016; Popova, 2023], which we will consider below.

## **2. Global Climate Agenda: Status and Challenges**

### *2.1 National and international level of climate regulation*

The climate agenda is regulated through international, national or sub-national policy institutions related to carbon footprint management. Climate change is often seen as an economic problem, namely as one of market failure [Prudham, 2009]. This perspective assumes that excess greenhouse gases are emitted into the atmosphere due to negative externalities (pollution), and accordingly, there is a need to put a price for this environmental damage [Walenta, 2018]. Thus, the need for government involvement in the regulation of companies' activities is justified, and this intervention should be based either on market mechanisms [Lovell, 2015] or on measures of administrative coercion [Makarov, 2013]. It is noted that market economic mechanisms are characterized by greater efficiency compared to administrative-command mechanisms. In other words, prescriptive setting of emission ceilings for companies or administrative bans on non-environmental technologies may work in a limited number of cases [Makarov, 2013].

International cooperation on climate change was born in the early 1990s with the adoption of the UN Framework Convention on Climate Change and the Kyoto Protocol of 1997. Despite a number of achievements, in general, the Kyoto stage of cooperation is assessed as unsuccessful, as greenhouse gas emissions have increased by 52% since 1990, and the fulfillment of climate goals was achieved due to the transformational decline of post-socialist economies, as well as the modesty of the goals themselves [Makarov, 2013]. The next significant stage in the development of international climate cooperation is considered to be the signing of the Paris Agreement in 2015, which implies a gradual strengthening of climate change commitments, as well as the beginning of the transition to a low-carbon world [UN, n.d.].

Solving the climate problem is a global public good, non-competitive and non-excludable. Thus, climate change policy is an example of global governance and involves an international policy response [Rodrik, 2020]. The Paris Agreement sets a goal of holding global temperature rise to 2°C and continuing efforts to 1.5°C. However, it does not provide a direct solution to the collective action problem. The Paris Agreement is based on the principle of "common but differentiated responsibilities and respective capabilities" [UN, n.d.]. The setting of climate targets at the country level remains within national competencies to take into account country-specific circumstances, and no binding legal mechanisms or sanctions are envisioned to ensure that the goals of the Paris Agreement are met.

The relationship between industrial growth and greenhouse gas emissions raises questions about the distribution of responsibilities and costs between developed and developing countries. In such circumstances, the transition to a low-carbon economy is not linear and is progressing at an uneven pace across countries, taking into account economic, social, regulatory and technological factors at the country level [Bass, Grøgaard, 2021].

Despite the global trend towards stronger climate policies under the international Paris Agreement, climate policy objectives and environmental regulations are still determined at the national level. The global regulatory space is fragmented and the progress among countries that have ratified the agreement varies widely [Bass, Groggaard, 2021]. As of 2022, there are 68 different carbon pricing initiatives [carbon taxes or emissions trading systems] around the world, totaling about 23 percent of global carbon emissions. Within these national initiatives, carbon prices range from less than one dollar per ton of CO<sub>2</sub>-equivalent in Poland to \$137 per ton of CO<sub>2</sub> in Uruguay [World Bank, 2022]. High carbon prices at a level consistent with the goals of the Paris Agreement apply to less than 4 percent of global emissions, and in many cases the current level of carbon price is not high enough to stimulate a change in the behavior of economic agents. The international expert community recognizes that

achieving the goals of the Paris Agreement is possible only if carbon prices increase and a wide range of policy measures aimed at directing investment to decarbonization, accompanying technological and fuel shifts, as well as stimulating energy and carbon efficiency [IEA, 2022].

## *2.2 Regional level of climate regulation*

Climate regulation at the regional level exists within the framework of political organizations and integration associations. By regional integration we understand the process of developing cooperation between two or more states, while the development of economic cooperation does not necessarily imply a common border, and a number of regional trade agreements transcend geographical regions [WTO, n.d.]. Researchers of international business argue that many multinational companies concentrate their trade and investment activities within separate regional groupings [Rugman, Verbeke, 2004; Arregle et al., 2013], with the climate agenda becoming an element of regional economic regulation.

Regional groupings such as the EU, the Community of Latin American and Caribbean States, the African Union and others play a role in articulating common interests and discussing climate issues at the supranational level (Jänicke, 2017). Such associations have their own climate agenda. For example, APEC has five initiatives to advance the environmental sustainability agenda in the region, among them, Green Towns [Green Towns] and Clean Transportation [Clean Transportation] [APEC, 2021]. ASEAN is also advancing its climate agenda by proposing a number of regional cooperation measures on climate issues. For example, efforts to adapt to climate change and reduce damage from its effects are organized into 4 groups: Acquaint-Integrate-Involve-Motivate or AIIM.

The goal of the AIIM framework is to achieve the required pace and scale of climate change mitigation in the ASEAN region. ASEAN climate efforts are designed to improve existing national policies of countries and promote the development of new measures, as the focus of these efforts is primarily the redesign of national regulatory measures. In addition, the AIIM framework aims to develop the capacity to accelerate sectoral transformation, both as a means of adaptation to and mitigation of climate change [ASEAN, 2023]. There are interesting climate cooperation projects between different regional and national players - for example, the EU-China partnership, both are prominent players in the climate arena in terms of the scale of greenhouse gas emissions, as well as in terms of the seriousness of their intentions to reduce them [von Lucke, 2023].

One bright example of the regional level of climate cooperation and regulation is the case of the European Union. There is a view that of all regional alliances, only the EU has the institutional capacity to formulate and implement ambitious climate goals [Jänicke, 2017; Richardson & Mazey, 2015]. The EU's climate agenda has been developing significantly since the early 2000s, and the EU is one of the pioneers in setting a goal of climate neutrality by 2050. The EU climate policy has stimulated development of climate legislation covering all relevant sectors such as construction, transportation, agriculture and others. From 2019 onwards, the development of the EU's environmental agenda is in line with the Green Deal which includes the increased ambition of emission reduction targets by 2030 and 2050 [Oberthür et al., 2022; von Homeyer, 2023]. The Green Deal involves integrating climate agenda goals into sectoral regulation [Oberthür, von Homeyer, 2023]. The climate agenda is also integrated into the EU's foreign policy [European Commission, n.d.].

Currently, the climate agenda is part of the EAEU's trade and economic agenda. Thus, ahead of the UN Climate Change Conference in Glasgow in 2021, the EAEU countries signed a joint statement on economic cooperation under the climate agenda, aimed at ensuring a harmonized approach within the regional association [EAEU, n.d.]. In October 2022, the First Package of Measures (Roadmap) on cooperation of the EAEU member states within the framework of the climate agenda was adopted. The Roadmap includes such areas as analysis of legislative regulation and preparation of proposals for the development of common approaches to the climate agenda, including joint market and non-market mechanisms of carbon regulation; formation of mechanisms to stimulate low-carbon transformation in certain sectors; support for the Eurasian initiatives of low-carbon development, for example, in the field of hydrogen technologies, energy efficiency and transportation; development of common measures in the field of green finance, as well as the formation of the Climate Technologies and Digital Initiatives Bank and coordination in international trade relations on the climate agenda [EAEU, n.d.]

Regulation at the regional level can be carried out both with reliance on formalized institutions of cooperation within the framework of regional associations, for example, within the EAEU, and

outside of them. For example, China actively promotes the transfer of clean technologies within the framework of the "One Belt, One Road" initiative aimed at supporting infrastructure investments. The latter is an interesting example of technology diffusion among developing countries [Zhang et al., 2023].

One of the varieties of climate regulation at the regional level is the concept of "climate club", i.e. the idea that it is necessary to create an association of countries with a more ambitious climate agenda [Popova, 2023]. The climate club is seen as a tool to regulate the international climate agenda and is a response to the free-rider problem that exists with respect to climate ambition [Overland & Sadaqat Huda, 2022]. Free-riding means that some countries rely on the climate commitments of other nations without proportionately participating in reducing emissions themselves. The problem of free-riding leads to the fact that existing multilateral climate agreements and plans are in danger of failing. Thus, the idea of a climate club is to bring together a limited number of countries outside the UN with clearly defined goals and conditions of membership, as well as possible sanctions for those countries that do not join the association [Falkner, Nasiritousi, & Reischl, 2022].

The idea of a climate club is being actively discussed in the academic and business circles, but there is still no agreement on what goals such associations should pursue and what distinctive features they should have [Popova, 2023]. The first country to propose the establishment of a climate club at the official level was Germany as the chair of the G7 in 2022 [Popova, 2023]. It is argued that in reality, climate clubs have limited capacities, as the mechanism of existing clubs does not imply the possibility to enforce the commitments [Falkner, Nasiritousi, & Reischl, 2022].

The peculiarity of regional climate regulation is that supranational interests can be strongly linked to regional energy sectors, demand patterns and the capacity of regional economies to cope with climate change [Monstadt, Scheiner, 2014]. The possible benefits and risks of state involvement in the regional climate agenda are summarized in Figure 1.

Figure 1. Regional level of climate regulation: opportunities and constraints for nation states  
Source: Compiled by the authors

### *2.3 Climate regulation: building a multi-level approach*

Researchers note that international and national efforts are not enough to cope with the effects of climate change. In other words, it is not only a matter for countries, but also for other actors such as NGOs and multinational enterprises (MNEs) [Jagers & Tripple, 2003]. Such actors articulate their positions and achieve their goals through lobbying and other practices [Genovese, McAlexander, Urpelainen, 2023]. In line with this discussion, the concept of multilevel climate governance was proposed at the 1992 UN summit in Rio de Janeiro, which implies the involvement of a wide range of actors to address climate change issues [Jänicke, 2017].

Combating climate change is a multilateral grand challenge involving many stakeholders [Doh, Budhwar & Wood, 2021]. While international and national political institutions face significant barriers to responding quickly to climate challenges, the involvement of non-state actors in the climate governance system is expected to accelerate the transition to a low-carbon economy [Gilligan & Vandenberg, 2020]. The latter is not a substitute for, but rather a complement to public governance institutions.

As Ostrom [2010] argues, collective action problems should be addressed through a polycentric approach, relying on multiple governance bodies operating at different levels, which increases the credibility and level of cooperation of actors. A polycentric approach can help address climate-related challenges by providing greater equity, inclusiveness, awareness, accountability, organizational multiplicity, and adaptability [Sovacool, 2011]. Thus, 'hybrid', polycentric, multi-stakeholder and multi-level governance builds on the complementarity of private and public institutions to address the global climate challenge [Ostrom, 2010; Sovacool, 2011; Hsu et al., 2015; van Tulder et al., 2021]. Such governance includes different scales (from global to local), mechanisms (including governance and control or free market regulation) and actors (government agencies, firms, civil society, individuals and households) [Sovacool, 2011].

Researchers in the field of international relations argue that solving global problems requires the involvement of international organizations, as countries project their national interests onto such organizations, and thus international dialogue is developed [Drezner, 2009]. However, even within organizations there are negotiating groups that influence the formation of countries' positions, and the unification occurs mainly on the basis of similar levels of economic development [Genovese, McAlexander, Urpelainen, 2023]. The multilevel architecture of the climate agenda is presented in Figure 2.

Figure 2. Multilevel architecture of the climate agenda  
Source: Compiled by the authors

### **3. Impact of the climate agenda on the transformation of the ISP's Global Value Chains (GVCs)**

#### *3.1 Goals and trajectories of decarbonization in the context of geopolitical crisis*

International agreements of countries to reduce emissions are part of the global climate agenda. However, processes taking place in the global economy have a direct impact on the success of climate cooperation. For example, the withdrawal of the US from the Paris Agreement, the UK - from the European Union, as well as trade wars between the US and China have led to the fact that intra-regional ties are becoming stronger than international cooperation [Wu et al., 2019], which cannot but have an impact on the global climate agenda.

The multidimensionality of the Sustainable Development Goals and their interconnectedness determine the trade-offs associated with policies to achieve them [Kostetckaia, Hametner, 2022]. The climate agenda is closely linked to economic growth and energy security policies. At the same time, the goals of economic policy, climate policy and energy security policy do not always coincide. For example, the return of EU members to using coal during the 2022 energy crisis shows the ambiguity of energy and climate policy decisions.

The COVID-19 pandemic and cases of corporate social irresponsibility such as the Volkswagen emissions scandals or the oil spill in the Gulf of Mexico resulting from the BP-owned Deepwater Horizon oil rig explosion [Jain and Zaman, 2019] have led to an increased focus on sustainability programs by companies as well [Srinivasan and Eden, 2021]. The transition to low-carbon products and solutions is becoming a driving force in the global economic recovery from the pandemic crisis. Achieving greener and more sustainable development has become an important goal for companies [Zhang and Kong, 2022]. However, geopolitical changes may lead to a shift in climate strategies at both macro and micro levels.

Researchers note that in recent years, the world economy has been experiencing a trend of deglobalization, implying the return of protectionist policies, the growing importance of nation-states, and a decline in the intensity of international trade [Witt, 2019; Kim, Li, Lee, 2020]. Such trends are at odds with the increasingly supranational climate cooperation that has developed in recent decades [Hartmann et al., 2022]. The impacts of deglobalization may negatively affect countries' climate change efforts along three climate action pathways: mitigation, adaptation, and migration to places with better climate characteristics. International cooperation is needed to act on all three tracks, but in a fragmented world of geopolitical rivalry, this is becoming increasingly difficult [Rajan, 2022b].

Deglobalization affects climate cooperation in terms of limiting foreign investment, reducing output and slowing innovation, with the above negative trends directly affecting the substitution of traditional energy sources with greener ones [Rajan, 2022b]. Adaptation to climate change is also complicated in a deglobalized world: high temperatures can negatively affect the agricultural industry in many countries. The solution may be the development of new technologies and innovative ways of farming, which requires substantial investment, while many developing countries cannot afford it [Rajan, 2022b].

In the context of de-globalization and restructuring of multilateral cooperation institutions, the regional economic agenda is gaining more relative weight. Regions are seen as a space where MNCs can develop their intra-firm advantages due to various similarities between home and foreign markets,

as well as countries' interest in economic cooperation [Asmussen et al., 2015; Panibratov et al., 2022]. These changes also affect the adaptation of HCCs in the context of the climate agenda.

### *3.2 Internationalization and low-carbon transition: new challenges for building global value chains [GVCs]*

As shown above, non-state actors play a significant role in climate regulation at various levels. The involvement of companies in the low-carbon agenda is linked to a number of reasons, and internationalization of business has traditionally played a significant role in this process. The way business acts can be dictated by both economic and political reasons, and will not necessarily coincide with government interests. Different variants of business strategies are possible, and the climate agenda may be perceived as an additional burden, or, on the contrary, it may be a source of competitive advantage. For example, the considers a business strategy of relocation to so-called "carbon havens", i.e. countries with relatively mild carbon regulation, which allows companies to avoid carbon taxes and receive economic benefits [Bu, Wagner, 2016].

On the other hand, nowadays companies are forced to follow the sustainable development agenda due to economic, social, technological and regulatory factors. Thus, doing business on the principles of sustainability is one of the ways to overcome the so-called liability of foreignness and ensure legitimacy in foreign markets [Panibratov, Abramkov, Ermolaeva, 2015]. In addition, companies develop so-called green firm-specific advantages in order to improve not only environmental but also economic performance, allowing companies to successfully compete in the market and provide leadership in the future [Ahmadova et al., 2022; Rugman, Verbeke, 1998]. In other words, the economic motives of companies in developing the climate agenda are essential.

When entering foreign markets, companies have to balance various considerations, including foreign and home market pressures [Hartmann et al., 2020]. Overseas investment by multinational companies is considered to be an important part of the energy transition as it helps to achieve rapid technology diffusion and hence faster and more efficient development of renewable capacity [Patala et al., 2021]. This is supported by the growing political impetus for decarbonization in favor of renewable energy [Bass, Grøgaard, 2021].

Environmental practices are embedded within global value chains [Vanalle et al., 2071]. Leading MNEs can pressure their contractors to adopt higher environmental standards [Golgeci, Makhmadshoev, Demirbag, 2021; Ben Brik, Mellahi, Rettab, 2013]. Indirect emissions, covering the entire value chain from extraction to final consumption, are gaining attention in the field of climate reporting. Voluntary carbon markets are actively developing [Favasuli & Sebastian, 2021], where IOCs can buy or sell emission allowances to realize their voluntary climate commitments. In this way, IOCs become agents for advancing the regulatory agenda for carbon pricing.

Responsible investment has now become an important determinant of capital allocation by increasing capital expenditure on brown projects compared to green projects [Chatzitheodorou et al., 2019; Hua Fan, Omura & Roca, 2022]. Carbon-intensive activities are characterized by higher climate risks, including political and legal, technological, market or reputational risks, and physical risks [TCFD, 2021], which negatively impacts the financial performance of companies.

Green activism on the part of civil society brings media and general public attention to climate change and the role of the corporate sector [Braungardt, van den Bergh & Dunlop, 2019]. Another important factor is litigation and climate lawsuits against large companies, which force companies and governments to make climate commitments, and raise public awareness of the urgency of combating climate change [Villavicencio Calzadilla, 2019]. Climate activism also drives down the stock prices of carbon-intensive companies [Ramelli, Ossola & Rancan, 2021].

Regulatory support is a significant factor for implementation of MNEs decarbonization strategies within the GVCs. Given the scale of investments required to achieve the energy transition goals, not only targeted government support for priority green industries and technologies, but also institutional support for the energy transition and the involvement of a wide range of non-state actors from the industrial and financial sectors are essential. Harmonization of regulatory approaches to the definition of green projects in the countries of operation along the entire value chain should be a key tool. In this way, the development and harmonization of green taxonomies will play an important role as a factor in stimulating investment in green projects in a particular region with the support of concessional financing. Currently there are about 15 taxonomies in the world, including taxonomies



of the EU, China, Russia and Kazakhstan. Thus, the development of the EAEU green taxonomy is designed to formulate unified criteria for green projects in order to finance them across the entire EAEU space [EAEU, 2023].

Important actors in the low-carbon transition are state-owned enterprises, which have a strong presence in various energy and industrial sectors responsible for large amounts of emissions. State-owned enterprises are often companies from strategic sectors that governments want to control [Casarin, Lazzarini, Vassolo, 2020]. One view is that state-owned companies tend to have a higher commitment to sustainability than private companies, but this depends largely on the country of origin and the industry [OECD, 2020]. Another approach relies on empirical evidence that private companies, for example in the US, are more open to the adoption of renewable energy [Biber, Kelsey, Meckling, 2017], but country contextual specifics may play a role here.

State-owned energy companies dominate the global electricity sector, while the Paris Agreement requires rapid decarbonization of the electricity system [Benoit et al., 2022]. State-owned companies control more than half of the world's oil and gas production and own a larger share of the world's hydrocarbon reserves [IEA, 2021]. A distinctive feature of state-owned companies in the decarbonization debate is that climate policy discussions are centered around market interventions such as carbon pricing and regulatory standards. Under this approach, the state provides rules for competition between private actors without direct intervention. Meanwhile, in the case of state-owned companies, the effect of market instruments may be different [Benoit et al., 2022].

In Table 1, we summarize the institutional environment factors that influence the configuration of the GVC. Formal institutions dominate the climate agenda, influencing both upstream and downstream GVCs. Upstream GVCs include all activities related to extraction, production, and the organization's suppliers: those parties who purchase raw materials to send to the producer. The lower end of the GVC includes post-production activities, namely the sale and delivery of the product or service to the end user. The lower links of a GVC of supply can also be thought of as "demand" and the upper links as "supply". Informal institutions, such as social pressure, have a multilateral effect on all the links of a GVC.

Table 1: Institutional factors of the climate agenda affecting the configuration of the GVCs

Factors	Formal / informal institutions	GVC
Legitimacy, overcoming the liability of foreignness	Formal and informal	All chains of GCV: upstream and downstream
Investments, financing	Formal	Upstream
Carbon taxes, fees	Formal	Downstream
Special terms and conditions from suppliers	Formal	Downstream
Special requirements for suppliers	Formal	Upstream
Public pressure	Informal	All chains of GCV: upstream and downstream

### Discussion and conclusion

Geopolitical tensions, which determine the current state of the international relations agenda, create additional risks for further progressive development of climate regulation at the global level. The resolution of political conflicts between major world powers, such as the US, the EU, Russia, and China, relegates the significance of climate challenges to the background, given the acuteness of the existing strategic contradictions. The latter complicates the formation of a unified global approach to climate regulation, for example, through the development of inter-country carbon trading mechanisms and the convergence of carbon price levels. Thus, we should expect to see continued fragmentation in the system of climate regulation at the global level.

On the other hand, in the context of geopolitical confrontation, the role of regional associations is increasing. Many experts argue about the transition to a multipolar world and the co-existence of different regulatory approaches in different country blocs. The latter creates an opportunity to build mechanisms to incentivize the low-carbon agenda for specific industries within regional groupings, including integration groupings involving Russia. The regionalization of GVCs increases the importance of regional engagement and business-government relations on the climate agenda to ensure economic competitiveness along the entire value chain from upstream to downstream. At the same time, the regionalization of GVCs entails risks such as limited access to commodity and financial markets in developed countries for companies from developing countries, as well as competitive risks in global markets.

In addition, the polycentricity of economic regulation approaches requires rethinking the role of state-owned companies in the low-carbon transition in the context of the importance of state capitalism in a number of countries. Thus, the regulation of the climate agenda implies the integration of the climate agenda into the strategy of state property management as one of the significant tools for implementing climate policy, in particular in the infrastructure and energy sectors, where the share of state-owned companies is traditionally high.

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