

Decarbonization as a multilateral political mechanism for carbon regulation

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ABSTRACT

Formulation of the problem. This article is devoted to the analysis of the current state and prospects of the decarbonization project and its role in foreign policy in the process of creating the emissions trading system and the mechanism of the new European system of taxation of imported goods that leave a large carbon footprint (Control Border Adjustment Mechanism, CBAM) (the so-called "carbon border"). The issues raised in this work correspond to the Sustainable Development Goals (SDGs), namely: the fight against climate change (13 goals), which were adopted by the United Nations in 2015 as a universal call to action to reduce poverty, protect the planet and ensure that by 2030 all people live in peace and prosperity. It was analyzed that the EU institutions (Commission, Council or European Parliament) had the greatest impact on the organizational structure of the European Union emissions trading (STV).

Purpose. The purpose of the study is to analyze the role of decarbonization as a multilateral political mechanism of carbon regulation at the border.

Methods. Comparative, systemic, institutional research methods are used in the article.

Research results. Attempts by the European Parliament to significantly change the decentralized nature of the ETS have failed. Thus, the process of updating the ETS and the mechanism of the new European system of taxation of imported goods that leave a large carbon footprint corresponds to the main provisions of the intergovernmental approach. Decarbonization is a term used to remove or reduce carbon dioxide (CO₂) emissions from the atmosphere. Decarbonization is achieved by switching to low-carbon energy sources. The project "Cross-Border Adjustment of the Carbon Tax Upon World Accession" makes it possible to avoid negative consequences for trade and can create a win-win situation - in economic, political and environmental terms. Documents reflecting the positions of the subjects and the course of the legislative process were used as primary materials. The research was conducted on the basis of the process tracking method. The article proves that the decisive confluence in the formation of the ETS design was the member states (the balance of interests and influence of the member states in the Council of the EU). The commission played a significant role as the author of the idea and moderator of compromises. The Commission and the European Parliament have on several occasions successfully blocked or softened Member State amendments that threatened to undermine the substance of emissions trading.

Conclusions. As the planet faces rising temperatures and more frequent extreme weather events, it is clear that our current infrastructure practices must evolve. To mitigate and adapt to climate change, sustainable infrastructure is not just an option; it is a necessity.

Keywords: decarbonization, decision-making process in the EU, USA, energy policy, climate policy, emissions trading system, greenhouse gases, carbon regulation, climate action.

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Formulation of the problem. By 2059, it is planned that Europe will completely abandon carbon energy. However, today companies are forced to pay taxes for the production of products that emit a carbon footprint. Decarbonization is the process of transition to a low-carbon economy. Decarbonization as a climate policy includes US and EU measures. Carbon footprint (English Carbon footprint) - the total emissions of all greenhouse gases are formed (directly and indirectly) as a result of the activities of an individual person, organization, city, country, etc. To simplify calculations, the amount of emissions of all greenhouse gases (water vapor, nitrous oxide, methane) is converted into CO₂ equivalent, that is, they calculate how much CO₂ gives the

same greenhouse effect as a certain amount of other greenhouse gas. A decarbonization strategy answers the question: If action should be initiated, international initiatives in the field of carbon regulation will create high-level technological and economic development. In 2015, the United Nations adopted the 17 Sustainable Development Goals (SDGs), also known as the Global Goals, as a universal call to action to reduce poverty, protect the planet and ensure that by 2030, all people live in peace and prosperity. The issues raised in this paper clearly correspond to one of them - the fight against climate change [1]. On the way to EU integration, the resolution of the Cabinet of Ministers of Ukraine of March 24, 2021 is important for Ukraine. No. 265

„On the establishment of a working group on the coordination of the approach to the application to Ukraine of the carbon adjustment mechanism at the border for consultations with the European Commission”.

Analysis of publications by research topic. In Ukrainian historiography, there are no special monographic or dissertation studies dedicated to the comprehensive study of decarbonization as a multilateral political mechanism of carbon regulation at the border („carbon borders”), the role of the complex in foreign policy at the current stage of the low-carbon economy. Scientific analysis of the role of decarbonization as a multilateral political mechanism of carbon regulation at the border („carbon borders”) at the current stage of the development of international relations should be regular, comprehensive and based on a wide documentary base. These problems were analyzed in domestic scientific works: M. V. Andrienko, V. S. Shako, A. I. Volkov, I. S. Varlamova, I. O. Lychenko, N. A. Malysh, A. A. Sadkov, M. B. Turchyn, O. V. Baluyeva, N. M. Chinkulyaka, A. V. Chugai, P. O. Fesyanova.

Andrienko M.V., Shako V.S. analyzed the adaptation of European practices regarding the implementation of state environmental policy at the regional level [1]. Baluyeva O.V., Chinkulyak N.M. carried out a cluster analysis of the territories of Ukraine according to indicators of anthropogenic loads on the surrounding natural environment [2].

I.S. Varlamova revealed theoretical approaches to defining the concept of "ecological safety" [3]. Volkov A.I. analyzed the prospects of using decision-making support systems for assessing and controlling the level of technogenic load on the environment [4].

Kirova M.O. analyzed the experience of foreign countries regarding the institutional provision of environmental safety: proposals for Ukraine [5].

Lychenko I.O. Environmental security problems of the temporarily occupied territories of Donetsk and Luhansk regions and the organizational and legal basis of their solution [6]. M. B. Turchyn analyzed environmental ethics in the paradigm of postmodernism [7]. Fesyanaov P.O. investigated state regulation of environmental safety at the regional level: the experience of European countries [8]. Chugai A.V. carried out an assessment of man-made load on environmental components of Odesa region [9].

In addition, among foreign researchers work on political and economic threats to environmental security, measures to stimulate technological and economic development, international initiatives in the field of carbon regulation by such authors as F. Cavalcanti, Michael Begon, Colin R. Townsend, John L. Harper. The problem of carbon energy in

the works of Ukrainian researchers is considered only fragmentarily. In connection with this, there is a need to summarize the available amount of knowledge on the problem, to draw appropriate scientific conclusions.

The term "decarbonization" is used as a broad general term, including its various nuances in the literature, low-carbon development and low-carbon transition are increasingly used to define sustainable transition processes. These mechanisms involve changing upstream and downstream aspects of energy systems, including coal and fossil fuel industries, energy-intensive sectors, buildings, transport and other service sectors.

Thus, decarbonization is a multifaceted concept that includes problems and solutions, biophysical and technological challenges, and multiple scales, locations, and levels of analysis and intervention [11, 20].

Expressions such as coal and carbon intensive regions (CCIRs) have been introduced to account for the multiple geographic, social, cultural and political aspects that characterize complex systems [10].

This, however, widens the number of actors to be considered as part of the decarbonization process, meaning extractive industries, carbon-intensive sectors and services, and local and imagined communities involved [17].

In addition, it clearly indicates the need for a systemic and interdisciplinary approach that jointly takes into account the various dimensions and participants involved in policy development and implementation [12].

Indeed, studies show how sectorality and lack of systemic awareness can lead to rebound effects and unintended feedbacks, such as those observed in the case of biofuel production or high-efficiency construction, in which local benefits can mean unintended social and environmental consequences [15].

On the contrary, different perspectives jointly emphasize how co-evolutionary interaction and coordination between ecological, technological and societal transformations are necessary to accelerate the transition [22].

Decarbonization has been studied from the perspective of: as part of socio-technical shifts towards clean energy systems [13, 16]; radical forms of change and socio-ecological reconfiguration [22]; changes in social representations [20], cultures and practices; and historical trajectories [13]. Decarbonization has also been studied in terms of the impact it can have on communities and individuals, either as a source of well-being and increasing the perception of (energy) justice [21]; or as a factor that divides communities [20]. In addition, changes in the energy system involve changes in the way of life, which affects a number of social problems: from

mobility (European Commission, 2007; European Commission, 2020) to gender relations [21], to public health [23] and well-being [19].

So the range of topics related to decarbonization is wide. Given their importance for policy and research, a comprehensive review of the scientific literature is needed to determine how the term has been defined and used, and to guide this field of research.

The purpose of the study is to analyze the role of decarbonization as a multilateral political mechanism of carbon regulation at the border.

Selection of previously unresolved parts of the general problem. The relevance of studying the state and prospects for the development of the decarbonization strategy, the impact of the problem on international relations, on the foreign policy of countries is due to several main reasons. First, decarbonization requires reducing greenhouse gas emissions in Ukraine, the US, and the EU by 2030. Investigating priority actions that will phase out fossil fuel use and replace it with a clean energy economy that is more efficient and better for health and well-being. The environmental policy strategy should determine not only the priority goals and directions, but also the appropriate measures and means of their implementation, taking into account the real state of the natural environment and trends in it, the needs of the socio-economic development of the country. is based on fundamental doctrinal provisions. This is the result of scientific research, which is related to the analysis of the essence of phenomena and processes, the clarification of regularities and trends.

Second, decarbonization efforts will require significant public investment in clean infrastructure and major changes in industrial policy. The effectiveness of the state environmental policy depends on the effectiveness of the tools for its practical implementation, including the relevant environmental legislation. Today, the environmental legislation of Ukraine, in order to become an effective tool and a prerequisite for the implementation of environmental policy, needs integration into society and the state at the level of reforming the system of relevant regulatory acts, which will be the subject of further research.

Thirdly, the task is to implement the Fit for 55 package of measures to achieve the EU's climate goals by 2030 on the way to climate neutrality. Reducing greenhouse gas emissions requires additional large-scale investments. Therefore, developing countries often perceive calls for the introduction of environmental technologies as a hidden policy of restraining their economic development. Since the signing of the UN Framework Convention on Climate Change in 1994, all the activities of the inter-

national community aimed at solving the problem of climate change can be divided into two stages: the Kyoto Protocol, which has actually ended, and a new stage of global action, which is determined by the conclusion of the Paris Agreement in 2015.

The main results of the study. The European Commission presented a document on the mechanism of the new European system of taxation of imported goods that leave a large carbon footprint (Control Border Adjustment Mechanism, CBAM) (the so-called „carbon border”).

O.N. Keohane, professor of international relations at Princeton University, and Jeff D. Colgan, associate professor at the Watson Institute of International Affairs at Brown University, identified Jeff D. Colgan in the article „Save the Environment, Save American Democracy”, in which it is determined that President Joe Biden announced the goal of sharply reducing greenhouse gas emissions by America 2030. The promise will be difficult to fulfill due to partisan polarization and a weak Democratic majority in Congress, but it is necessary to maintain a viable environment in the twenty-first century [16].

The carbon footprint consists of direct and indirect emissions. Direct emissions — the amount of CO₂ or other greenhouse gases emitted into the atmosphere from the territory of a specific enterprise, country, household, mainly during the burning of fossil fuels (oil products, gas, coal). It also includes heat and electricity consumption figures that are produced outside the enterprise or household. For an individual, direct emissions are calculated by determining how many trips a person makes on this or that type of transport (how much fuel is consumed), how much gas or coal needs to be spent (at the CHP or directly in the apartment) for heating the home, how much electricity is spent on the operation of appliances [25, p. 19]. Indirect emissions - the amount of CO₂ or other greenhouse gases emitted into the atmosphere during the production and transportation of products used by a specific person, company, or country. The amount of greenhouse gas emissions can only be calculated approximately, more or less accurate statistics can be collected only when calculating the amount of fossil fuel burned in industry, housing and public utilities, and in transport. Volumes of emissions from anthropogenic forest fires, decomposition of household waste cannot be determined precisely or cannot be calculated at all.

Decarbonization requires creative reforms. The US needs to take action to phase out fossil fuel use and replace it with a clean energy economy that is more efficient and better for people's health and well-being. Numerous reports demonstrate how technological advances have made this possible:

mass clean electrification (which is driving the EV revolution) is becoming possible. The green economy from hydrogen cars to ultra-low emission industrial processes is becoming a reality [36].

Decarbonization efforts will require significant public investment in clean infrastructure and major changes in industrial policy. However, it will also create millions of jobs in the installation of wind turbines, the modernization of buildings and the construction of new manufacturing facilities. The benefits of such green reindustrialization are huge, and the long-term economic costs are modest, especially compared to the cost of inaction [27].

Decarbonization as a climate policy is not only a domestic policy, it is also a foreign policy. For US environmental efforts to be successful, they must not threaten the global competitiveness of US industry or increase emissions from its trading partners. Thus, climate policy must be multifaceted, allowing the world to take bold steps toward decarbonization.

The goal of achieving EU carbon neutrality by 2050 was announced by the President of the European Commission, Ursula von der Leyen, in September 2019. This event was preceded by the commitment of the EU countries, as well as the strategy of transition to a carbon neutral economy adopted in November 2018. It is obvious that the ambitious tasks of decarbonization affect European producers of the most carbon-intensive industries - energy, metallurgy, chemical, oil refining and others.

While domestic policy goals are often at odds with foreign policy goals, this is not the case with climate policy. They have a historic opportunity to simultaneously help save the planet, strengthen social solidarity and strengthen ties with their allies in Europe and Asia [30].

In the period from 1947 to 2017 US trade policy was aimed at reducing protectionist barriers both domestically and globally. This goal was achieved first through mutual trade agreements and then through international institutions such as the General Agreement on Tariffs and Trade and the World Trade Organization. A fundamental rule of the GATT (General Agreement on Tariffs and Trade) and the WTO is non-discrimination: foreign supplies cannot be treated differently than domestic suppliers. The European Union has historically been a major proponent of free trade, but its approach to climate change is now forcing it to reverse course. In July 2021, the European Commission proposed a path that would make it the world's first economic bloc to achieve zero greenhouse gas emissions by 2050. *The plan, called the European Green Deal (2020)*, involves a major overhaul of EU laws and regulations in eight key policy areas, targeting €1 trillion in climate-related investment. It will also

expand the EU's carbon market, known as the European Union Emissions Trading Scheme [33].

The European Union Emissions Trading Scheme (EU ETS) requires industry in the European Union to buy carbon credits to offset their emissions, and for the first time now a significant price of around €55 per ton of carbon is charged for greenhouse gas emissions. The Commission can act independently, but important measures will require the approval of the European Council and member state governments.

The Control Boundary Adjustment Mechanism (CBAM) focuses on industries that are major sources of carbon emissions, and its penalties will only apply to countries that do not have comparable domestic carbon fees to offset the cost of carbon and foreign producers. If it is adopted unilaterally, it will face objections under WTO rules. The Organization for Economic Co-operation and Development (OECD) held high-level meetings to bring a cross-border carbon tax (CBAM) into line with WTO rules. Those meetings revealed significant differences, including objections from the Biden administration.

The Carbon Cross-Border Adjustment (CBAM) program, which is being implemented unilaterally by the US, will face the same challenges as the EU. Both policies cause enormous political resistance from trading partners and suffer from the economic inefficiency of tariffs. However, multilateral CBAM is attractive. Thus, the initiatives of the EU and the OECD (Organization for Economic Cooperation and Development) provide the USA with a historic opportunity.

If the US were to adopt CBAM with the agreement of the European Union, it would exempt the EU from any sanctions and provide strong incentives for other countries. The combination of the US and EU CBAM, implemented in coordination with each other, also encourages China and other countries to take their own measures to lower carbon prices to avoid paying US and EU tariffs.

The effectiveness of CBAM (Control Border Adjustment Mechanism, CBAM) is evidenced by several important events. Under the leadership of Prime Minister Yoshihide Suga in 2020-2021, Japan reaffirmed its commitment to the climate, pledging to cut emissions by 46 percent by 2030 and reach zero emissions by 2050. On July 16, China opened its own carbon trading market as part of a new national emissions trading system. Ukraine China prices remain low, but the EU's ETS (Greenhouse Gas Trading System) also starts at low prices, and carbon credits have become more expensive over time. emissions, the more attractive the global CBAM implementation initiative should be.

SWAM has differences from STV. The EU ETS is the world's first international emissions trading system and the EU's leading policy on climate change. It sets limits on greenhouse gas emissions by industrial enterprises by industry. Quotas must be purchased on the STV market; a number of free allowances are also allocated to prevent carbon leakage. This system has proven to be effective in reducing the risk of leakage, but it also reduces the incentive to invest in greener production in the EU and abroad. CBAM will gradually become an alternative to this system. At the same time, according to the new version of the ETS proposed by the Commission, the number of free allowances for all sectors will eventually decrease, making the ETS the most effective in achieving the EU's ambitious climate goals. Starting in 2026, free allowances will be phased out for CBAM sectors. In addition to the ETS, CBAM will be based on the purchase of emission compensation certificates for products imported into the EU. However, CBAM differs from STV in that it does not aim to "cap and sell". Prices of CBAM certificates will correspond to STV prices.

To ensure a level playing field for European and non-European companies, when the CBAM enters into full force in 2026, the system will be adjusted in line with the updated EU ETS, for example by reducing the number of free allowances available in the sectors covered by the CBAM. This means that the CBAM will apply to products gradually and in direct proportion to the reduction of free allowances allocated to these sectors under the ETS, until the free allowances are completely abolished in 2035. CBAM will only apply to the part of emissions not covered by free allowances under the ETS. EU ETS, which will ensure equal treatment of EU importers and producers.

A decarbonization agenda as a domestic climate policy, combined with measures to encourage other countries to adopt similar policies, could help Washington regain global leadership. However, US polarization has weakened foreign policy. The decarbonization movement can help create a sense of purpose for a broad political coalition that will last from election to election. This, in turn, will help restore a sense of national solidarity: by creating well-paid green jobs and rebalancing the social contract between the rich and the working class. This is aimed at preserving the climate and reducing inequality [24].

On the way to decarbonizing the US, the Biden administration faces serious obstacles in Congress. Thus, the multi-faceted mechanism of regulation of carbon limits, which is necessary for decarbonization, is difficult to reconcile. However, emergency situations (forest fires and floods in the USA, similar situations in China and Germany) illustrate the

destructiveness of the climate catastrophe. That is why, thanks to the implementation of a multilateral pro-climate policy regarding decarbonization, Biden will achieve three main goals: preserving the world's environment, strengthening US global leadership, and strengthening American democracy.

Decarbonization as a climate policy is analyzed in Central Asia the WECOOP (European Union - Cooperation on Water, Environment and Climate Change, WECOOP) newsletter, which regularly contains brief information on changes in EU policy and legislation, as well as new reports and research. published by the European Environment Agency and other specialized agencies [34].

Special attention in the „Fit for 55” package of measures is paid to the carbon border adjustment mechanism (CBAM), which determines the achievement of the EU's climate goals by 2030 on the way to climate neutrality. This is especially important for other countries. The „Fit for 55” package will accelerate the process of reducing greenhouse gas emissions over the next ten years. Its proposals include applying the Emissions Trading Scheme (ETS) to new sectors of the economy and strengthening existing ETS requirements, greater use of renewable energy sources, increased energy efficiency, and accelerated adoption of low-emission and essential vehicles. infrastructure, fuel, bringing tax policy into line with the goals of the European Green Deal. The package provides for the formation of tools for the preservation of natural carbon sinks [36].

The decarbonization agenda proposes a new Social Climate Fund to provide targeted funding to member states, which in turn can help their citizens invest in energy efficiency, new heating and cooling systems and cleaner vehicles. The Social Climate Fund will be financed from the EU budget in the amount of 25% of the expected revenues from emissions trading in the residential and automotive sectors. Between 2025 and 2032, member states will receive €72.2 billion in targeted adjustments to the Multiannual Financial Development Program. If equal funding is provided by member states, the Fund will be able to mobilize €144.4 billion to ensure a socially just transition. The benefits of immediate action to protect people and the planet are clear: cleaner air, cooler and greener cities, healthier citizens, lower energy consumption and lower bills, new jobs, technology and manufacturing opportunities, more space for nature and a healthier planet for generations to come. The task of the green transition is to ensure general access to benefits and opportunities [36].

Fit for 55 package is a socially just transition to reduce average emissions for new cars by 55% by 2030 and 100% by 2035 compared to 2021, making

all new cars registered after 2035 zero-emissions. To ensure drivers can charge or refuel their cars across Europe, the new version of the Alternative Fuels Infrastructure Regulation requires Member States to expand the network of charging stations to zero sales of zero-emission cars by equipping charging devices and filling stations on main roads - charging stations every 60 kilometers and hydrogen filling stations every 150 kilometers.

As part of the ReFuel initiative EU Aviation fuel suppliers will have to increase the proportion of clean fuels in aviation fuel used at EU airports, including low-carbon synthetic fuels known as e-fuels. Similarly, the Fuel initiative EU Maritime will stimulate the adoption of clean, zero-emission marine fuels and technologies by setting a limit on the greenhouse gas content of the energy used by ships calling at European ports.

The energy taxation system should protect and improve the single market, as well as support the „green” transition by creating the right incentives [36].

The revision of the Energy Taxation Directive proposes to bring the energy taxation system in line with the EU's energy and climate policy by promoting the use of clean technologies and abolishing outdated benefits and reduced rates, which today only encourage the use of fossil fuels [26].

The updated EU Emissions Trading Scheme (ETS) sets annual carbon prices and lowers emission limits in certain sectors of the economy. Over the past 16 years, emissions in the power industry and energy-intensive industries have decreased by 42.8%. The European Commission proposes to further reduce the emission limits and increase the annual rate of reduction. The Commission also proposes to phase out free emission allowances in the aviation sector, to align it with the Global Carbon Offsetting and Reduction System for International Aviation (CORSA), as well as to include the shipping sector in the EU ETS for the first time. To address the problem of insufficient emission reductions in the automotive and residential sectors, a new, separate EU Emissions Trading Scheme (ETS) was created to allocate fuels in these sectors.

Ukraine is also taking measures to decarbonize its economy, confirming its desire to move towards European integration and achieve carbon neutrality by 2060. It undertook to achieve carbon neutrality on the way to the EU. The Minister of Ecology and Natural Resources of Ukraine, Roman Abramovsky, spoke about Ukraine's goals at the UN Climate Change Conference COP 26 (World Environmental Forum) UNFCCC (Framework Convention on Climate Change) in October 2021. The UN Conference on Climate Change (COP 26), which took place in Glasgow from October 31 to November 12, 2021,

called for defending its own national interests and providing Ukraine with calculations of greenhouse gas emissions in Crimea and the temporarily occupied territories of Donetsk and Luhansk regions in relation to climate goals, outlined in the updated national Paris Agreements with a defined contribution. The conference ended with a „compromise” agreement on climate change. It was determined that all states should demonstrate readiness to achieve mitigation of the consequences of global warming, expand alternative projects aimed at protecting nature and developing an ecological approach to agriculture [29].

Action plans of Ukraine regarding the financing of the national defined contribution project (HBB 2 - Hemoglobin subunit beta -2, HBV 2) [35] to the Paris Agreement; access to global climate financing to achieve the goals of the Paris Agreement (WB 2); presentation of the Ukrainian climate monitoring system (monitoring, reporting and verification), which has already started work and is the first step towards the launch of the greenhouse gas emissions trading system - an economic tool for stimulating emissions reduction; creation of the Ukrainian Climate Fund and launch of the climate monitoring system; creation of marine protected areas in Antarctica. "Ukraine supports the creation of a marine protected area in the East Antarctica [35]. The round table in 2023 organized by the Ministry of Environmental Protection and Natural Resources of Ukraine was attended by representatives of public organizations. The task was set to build a comprehensive state monitoring of the environment, which would not only meet the requirements of the EU, but also satisfy the demands of society.

However, this is only one aspect of the preservation of these ecosystems. The second nationally defined contribution (HBB 2 – Hemoglobin subunit beta -2, HBV 2) of Ukraine to the Paris Agreement declares ambitious goals – to reduce greenhouse gas emissions by 35% by 2030 compared to 1990. The Ukrainian Climate Fund appeared in 2023. At the time of its launch, the fund provided about UAH 8 billion of its own funds. Ukraine created a decarbonization fund to reduce carbon emissions. From January 1, 2024, the State Fund for Decarbonization and Energy-Efficient Transformation became operational in Ukraine. It will be filled by using the environmental tax on CO₂ emissions paid by industrial enterprises. Fund funds will be used to support energy efficiency projects and the use of renewable energy sources. This will allow Ukraine to reduce carbon emissions and become a more ecologically clean country. This is an important step for Ukraine, because it corresponds to European principles and will contribute to the recovery of the economy.

According to the information published on the

official website of the Ministry of Environmental Protection and Natural Resources of Ukraine at the link: <http://surl.li/ppkle>, within the International Conference "United for Justice. United for Nature" in October 2023, the Climate Office was opened. On the official website of the Ministry of Environmental Protection and Natural Resources of Ukraine, you can find a number of news about the activities and work of the Ukrainian Climate Office (hereinafter-UKO), for example, at these links: <http://surl.li/qfizn>, <http://surl.li/qfiz>, <http://surl.li/qfizx>. The EPL welcomes the creation of the Ukrainian Climate Office as a step towards Ukraine's fulfillment of its international, in particular, European integration obligations in the field of climate change. However, due to the fact that in public access we were not able to get acquainted with any regulatory or other acts on the creation of the Ukrainian Climate Office, with the official website of the Ukrainian Climate Office, acts of the Ministry of Environment or the CMU, which would allow us to establish in which in which institutional or organizational form this office was created, what is its status, how does this office interact and correlate with the central bodies of executive power, what are the financing mechanisms for its activities, key goals and tasks facing it, we sent an information request to the Ministry of Environment with a number of questions So, what is the newly created UKO. UKO was created within the framework of the „Capacities 4 Climate Action” project (in English, „Capacities 4 Climate Action”, hereinafter - the C4CA project). One of the main tasks of the C4SA project is the development of potential in the field of climate protection in Ukraine. It is important that the direct tasks of the C4SA project include the creation of an independent „Ukrainian climate office” - an independent center of excellence. Regarding the legal basis of project implementation, C4SA was launched on the basis of the decision of the European Union and the Federal Ministry of Economy and Climate Protection of Germany (BMWK). In response to the question about the institutional and/or organizational form in which the UKO was created, we were given the following answer: The Ukrainian Climate Office is created on a project basis and is implemented by the C4SA project (current status is a project office). Research is currently being conducted on the possible legal forms of a new legal entity, which should act independently to determine the optimal organizational and legal form of the Ukrainian Climate Office. The Ministry of Environmental Protection and Natural Resources of Ukraine is a beneficiary of the C4SA project.

The goals and objectives of the C4SA project are to strengthen the potential of state and municipal structures, business and non-governmental organiza-

tions/civil society organizations in the field of climate protection in Ukraine by providing cross-sectoral services. Regarding the financing mechanisms of UKO, the C4CA project is co-financed by the European Union and the German Federal Ministry for Economic Affairs and Climate Protection (BMWK). The German part is financed by the International Climate Initiative (IKI).

Ukraine is focusing on the development of new technologies that will help humanity achieve climate neutrality by 2060. However, according to Stanislav Zinchenko, director of the GMK Center, CBAM will apply to all goods exported to the EU that use electricity. Ukrainian metallurgists who export their products to the European Union will lose 500 million euros per year due to CBAM (Control Border Adjustment Mechanism), a new European system of taxation of imported goods that leave a large carbon footprint). At the conference „Trade Wars: The Art of Defense”, organized by the law firm „Ilyashev and Partners”, it was noted that CBAM will affect everyone sooner or later, although the introduction of this tax was foreseen only for the import of a limited number of goods (cast iron, steel, aluminum, cement, some chemicals, fertilizers). However, it was planned that in the next 2-5 years, the norm will apply to all goods that use electricity in their production or are transported with emissions. As a result of the conference proposals, the Science-Based Targets initiative provides businesses with a clearly defined path to reducing greenhouse gas emissions in line with the Paris Agreement standards (limiting global warming below 2°C compared to pre-industrial temperatures, but aiming to stay below 1.5°C). Science-Based Targets (SBT) add value because they help companies evaluate scenarios and whether they can realistically accomplish them. As the Net 0 program meets all science-based goals, ESG reporting is defined among stakeholders and shows that environmental impacts are successfully reduced over time.

Since the damage to the environment from the war is significant, the climate policy of Ukraine cannot „wait” until the end of the war. It is important to form and plan for the period of its reconstruction in modern conditions. Yes, during the 555 days of the war in our country, CO₂ emissions reached 150 million tons. Of these, 60 million tons were caused by fires and military activities. Climatic problems lead to the "extinction" of territories. The economic losses of the world may reach 120-600 trillion dollars by 2100. The Minister of Environmental Protection and Natural Resources of Ukraine, Ruslan Strelets, determined that it is almost like the square of Montenegro. For Ukraine, an effective climate policy is a matter of movement towards the EU and green reconstruction. Therefore,

priority steps that bring the country closer to these goals have already been determined. Among the launched practical processes, he noted: updating and improving the national system for monitoring reporting and verification of greenhouse gas emissions; a pilot emissions trading system is planned to start in 2025 with a full launch in 2026. This will allow the country to join the European ETS. President Volodymyr Zelenskyi determined that the government sees Ukraine as climate neutral in the future. For this, it is necessary to implement national policy in conditions of war. Reconstruction of Ukraine is not only about what we have to do after our victory, but also about what needs to be done in today's conditions. At the first coordination meeting of international donors and representatives of projects in the field of climate protection in January 2024, the following projects were presented: „Potential for Climate Action (C4CA)” (Ukrainian Climate Office) GIZ, GIZ STV Project, European Climate Foundation in Ukraine, Office of the Transition to green economy (GETO), the CIVITTA project, as well as the „Agreement of Mayors-East” project.

The impact assessment of CBAM was determined in September 2020, when the first mechanisms were created, that Ukrainian exporters will lose 570 million euros per year. Of them, 95% of the amount will be paid by metallurgists and energy companies. In a second round of calculations in April 2021, when more details were available, their center built a model for the steel industry. About 200 million euros per year for metallurgy alone [32].

From October 2023 to December 31, 2025, the transitional period of SVAM applies. In 2023, the European Parliament approved it. This requires EU importers to start reporting the emissions embedded in the EMS products they import. Failure to comply with the requirements of the Regulation entails the imposition of fines, followed by a ban on trade in the EU. As a result of the proposals, the advantages of a business that uses the SVAM mechanism are determined: to improve the reputation through the mechanism of attention of environmentally conscious customers; ensuring a competitive advantage as campaigns become more aggressive in the market; to join global initiatives, since participation in the mechanism of SVAM supports global efforts in the fight against climate change [25].

The very content and scope of the concept of „international ecological security” arose, developed and received wide application in international politics only in the second half of the 20th century. as a result of the rapid economic and technological development of mankind after the Second World War. It is very important to emphasize that the subject of analysis itself has been constantly changing, which

is noticeable in one of its aspects (climate security), which, as is known, has changed significantly in a negative direction over the past 50 years. There were justified fears and the objective need to eliminate negative consequences for human civilization, especially in the field of ecology, and perhaps for the very existence of humanity, required a reassessment of the scale of the threat [35].

The US government allocated \$3.5 billion in 2023 to clean the atmosphere from carbon Technology that can affect climate change turned out to be too expensive The US government provided grants for \$3.5 billion to build plants for carbon capture and storage, and also increased the tax credit up to \$180 per ton to support the technology (Climate Home News). It is a global effort to help stop climate change through direct carbon capture (DAC).

So, in Great Britain, the government has allocated about \$124 million for carbon capture, while \$12 billion has been allocated to stimulate demand for personal and commercial electric vehicles. The US plans to support four hubs. Their competition consists of two large projects of the oil company Occidental Petroleum. They have the potential to meet the US government's target of one million tons per year.

In 2024, 10 EU countries undertook to decarbonize the energy sector by 2035. Analysis by campaign group Beyond Fossil Fuels found that only four of the 10 EU countries that plan to phase out fossil fuels by 2035 or earlier have committed to replacing coal and gas with renewables. Other countries rely on inappropriate electricity generation technologies. Only Austria, Denmark, Lithuania and Luxembourg plan to replace coal and gas with RES. Belgium, France, Germany, Greece, Italy and the Netherlands have also committed to decarbonizing their energy sector by 2035.

Portugal, Sweden and Romania have similar obligations, but not adhere to this one give. Although they could increase the number of decarbonized energy capacities of the EU to 70%. Beyond Fossil Fuels emphasized that specific national commitments are the first step in transforming Europe's energy sector. After all, it provides clear signals to industry and the financial sphere about the direction of the energy transition. Meeting the 2035 time horizon is only part of the challenge.

Prospects for further research. It is important to analyze: will the appropriate carbon control mechanism be applied only to certain industries (for example, cement and metallurgy) or to the entire industrial production? What form will CBAM take? Will it be introduced as a special tax, or will it be included in the existing Emissions Trading Scheme (ETS)? Will the EU be able to develop an objective methodology for calculating the carbon footprint of

industrial products? Does the presence of an ETS - like emissions trading scheme in the country of origin exempt CBAM from use? What are the minimum standards for emissions trading schemes outside the EU? Does the introduction of CBAM mean a complete end to free FTAs for industries? What needs to be done to ensure that CBAM complies with the EU's obligations under international economic law, WTO requirements, the EU's bilateral trade agreements with third world countries and international environmental agreements that provide for „common but differentiated responsibilities” in the fight against climate change?

Exploring the issue demonstrates the importance of interdisciplinarity by pointing to the wide range of disciplines involved in decarbonization research. Moreover, the need for transdisciplinarity and systemic approaches [18] has been emphasized in such research to contribute to policy implementation that takes into account different institutions and actors (e.g. experts, lay people, stakeholders sides) and the parameters involved. In addition, this paper offers various ideas for future research. For example, the need to consider environmental events and policy agendas alongside changes in scientific fields to understand further levels of explanation for changes in the use and meaning of scientific terms such as decarbonization.

Conclusions. Stopping the next wave of emissions is entirely possible if developed and developing countries show leadership in addressing this problem. Many emerging market economies are ready to adopt climate change mitigation policies: Of the roughly two dozen countries identified as having the potential for high rates of emissions growth, half have proposed net-zero targets by mid-century. Indonesia intends to introduce a modest carbon tax on coal-fired power plants, and Mexico and South Africa already have carbon taxes in place.

China completed the creation of a national emissions trading system for power plants, Kazakhstan established its own emissions trading regime. Ethiopia has released an economic strategy that prioritizes "green" development, including plans to expand the supply of electricity from renewable sources and restore the country's forests.

It is well-founded that decarbonization as a climate policy is not only an internal policy, it is also a foreign policy. For US environmental efforts to be successful, they must not threaten the global competitiveness of US industry or increase emissions from its trading partners. Thus, climate policy becomes multifaceted, allowing the United States and the world to take bold steps toward decarbonization.

It has been proven that the carbon capping mechanism (CBAM) developed by the EU Green Deal has obstacles and commercial risks during its implementation. The challenge is to reduce America's greenhouse gas emissions by 2030. Investigating priority actions that will phase out fossil fuel use and replace it with a clean energy economy that is more efficient and better for people's health and well-being. Decarbonization efforts are driving significant public investment in clean infrastructure and major changes in industrial policy.

The task is to implement the Fit for 55 package of measures to achieve the EU's climate goals by 2030 on the way to climate neutrality. The goal is to achieve carbon neutrality of the EU. Carbon targeting instruments generate revenue that can be reinvested in driving innovation, economic growth and investment in clean technologies.

Ukraine is also taking measures to decarbonize the economy. The government is developing new technologies that will help humanity achieve climate neutrality by 2060.

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Декарбонізація як багатосторонній політичний механізм регулювання

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Стаття присвячена аналізу поточного стану і перспективам проекту декарбонізації та його роль у зовнішній політиці в процесі створення системи торгівлі викидами та механізму нової європейської системи оподаткування імпортованих товарів, що залишають великий вуглецевий слід (Control Border Adjustment Mechanism, CBAM) (так званий «вуглецевий кордон»). Проблематика, порушена в даній роботі відповідає цілям сталого розвитку (SDGs), а саме: боротьба зі зміною клімату (13 ціль), які були ухвалені Організацією Об'єднаних Націй у 2015 році як універсальний заклик до дій щодо скорочення бідності, захисту планети та забезпечення того, щоб до 2030 року усі люди жили в мирі і достатку. Проаналізовано, що інституції ЄС (Комісія, Рада чи Європейський парламент) найбільше вплинули на організаційну структуру торгівлі викидами Європейського Союзу (STV). Метою дослідження є аналіз ролі декарбонізації як багатостороннього політичного механізму регулювання вуглецю на кордоні. Використано порівняльний, системний, інституціональний методи дослідження в статті. Спроби Європарламенту істотно змінити децентралізований характер ETS зазнали невдачі. Таким чином, процес оновлення ETS та механізм нової європейської системи оподаткування імпортованих товарів, що залишають великий вуглецевий слід, відповідає основним положенням міжурядового підходу. Декарбонізація досягається шляхом переходу на низьковуглецеві джерела енергії. Інфраструктура відіграє вирішальну роль у вирішенні проблем зміни клімату. Проект «Транскордонне коригування податку на вуглець при вступі світу» дає змогу уникнути негативних наслідків для торгівлі, може створити вигідну ситуацію – в економічному, політичному та екологічному планах. Дослідження проводилось на основі методу відстеження процесу. Стаття доводить, що вирішальним злиттям у формуванні дизайну ETS були держави-члени (баланс інтересів і впливу держав-членів у Раді ЄС). Комісія відіграла значну роль як автора ідеї та модератора компромісів. Комісія та Європейський парламент кілька разів успішно блокували або пом'якшували виправлення держав-членів, які загрожували підірвати зміст торгівлі викидами. Оскільки планета стикається з підвищенням температури та частішими екстремальними погодними явищами, стає зрозуміло, що наша поточна інфраструктурна практика має розвиватися. Щоб пом'якшити наслідки зміни клімату та адаптуватися до них, стійка інфраструктура – це не просто варіант; це необхідність.

Ключові слова: декарбонізація, процес прийняття рішень в ЄС, US, аенергетична політика, кліматична політика, система торгівлі викидами, парникові гази, вуглецеве регулювання, боротьба зі зміною клімату.

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