

# **ОСОБЛИВОСТІ РОЗВИТКУ СВІТОВОГО ГОСПОДАРСТВА ТА МЕВ**

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## **INSTITUTIONALIZATION OF CLIMATE CHANGE COMBAT IN THE EU AND SOCIO-ECONOMIC EFFECTS OF INDUSTRY DECARBONIZATION**

## **ІНСТИТУЦІОНАЛІЗАЦІЯ БОРОТЬБИ ЗІ ЗМІНАМИ КЛІМАТУ В ЄС ТА СОЦІАЛЬНО-ЕКОНОМІЧНІ ЕФЕКТИ ДЕКАРБОНІЗАЦІЇ ПРОМИСЛОВОСТІ**

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**Abstract.** *The purpose of the article is to determine the specifics of the process of institutionalization of the fight against climate change in the EU and generalize the potential socio-economic effects of industrial greening with an emphasis on the inevitability of changes in the taxation system. It is argued that the rhetoric in many European countries is changing, from perceiving the climate as a burden, challenge and danger to promoting the idea of the benefits that can be gained by gaining the status of a "leader of the green transition". It was concluded that in order to implement ambitious plans for industrial greening, it is necessary to use the potential of macroeconomic regulation with a combination of monetary and tax-budgetary policy instruments, to review the "ceiling" of the permissible budget deficit and to determine priority areas for capital investments. At the same time, the reduction of intra-European competition will be facilitated by the coordination of industrial development strategies of the EU member states, and, therefore, the volumes of state aid and subsidies related to the functioning of ETS1 and ETS2. Such large-scale government interventions at the national and supranational levels of the EU will enable the green transition, because no one will succeed in creating a "new green reality" relying on the market. The existing economic approach, according to which private investments determine the directions of development, without interfering with what, how and why companies actually produce, is losing its relevance. And that is why the states will have to formulate and consolidate with relevant legal acts a clear and comprehensive understanding of sectoral climate goals with the subsequent inclusion of these goals in the process of economic decision-making. After all, the creation of new markets while*

*gradually closing existing ones implies the creation of transparent rules of the game. This involves approving requirements for subsidizing instruments, taxation, permitting procedures, providing grants for R&D, as well as developing new infrastructure solutions and state funding mechanisms. Therefore, governments, and not "spontaneous" markets, will have to take on the authority to coordinate pricing mechanisms, as well as develop principles for attracting investments and applying uniform rules for regulating economic activity. The declared "green transition", if it is also "just", will require deeper structural changes, for example, thanks to the increase in the amount of "green" investments for low-income or low-income families.*

**Key words:** *decarbonization, sustainable development, circular economy, green transition, financial instruments, climate finance, green investment, taxes, CBAM mechanism, Emissions Trading System, regulation, monetary policy, fiscal policy, EU, strategic interests, economic interests.*

**Анотація.** *Мета статті полягає у визначенні специфіки процесу інституціоналізації боротьби зі змінами клімату в ЄС та узагальнення потенційних соціально-економічних ефектів озеленення промисловості з акцентом на неминучості змін у системі оподаткування. Розглянуто ризики декарбонізації для конкурентоспроможності європейських виробників. Визначено особливості анонсування кліматичних цілей як складової промислових стратегій розвитку, що тягнуть за собою перегляд фінансово-фіскальних інструментів сприяння зеленому переходу. Державне стимулювання модернізації виробничих потужностей за рахунок комбінації прямих і непрямих заходів підтримки визначено дієвим інструментом амбітного плану боротьби із наслідками змін клімату та адаптації до них, прийнятого на наднаціональному рівні регулювання політики в ЄС. Стверджується, що реалізація задекларованих цілей передбачає не лише розробку превентивних заходів для протидії соціальним наслідкам декарбонізації промисловості, а й перехід до стратегічного довгострокового планування, що відображено в Плані дій з економіки замкненого циклу в ЄС. Проаналізовано потенційні наслідки впровадження Механізму регулювання вуглецевих кордонів через систему торгівлі квотами на викиди та Механізму прикордонного вуглецевого коригування. Розглянуто пастки фінансування та залучення інвестицій в зелені проекти. Доведено, що сприяння конкурентним відносинам всередині ЄС в процесі реалізації зеленого переходу виступатиме запорукою координації стратегій промислового розвитку держав-членів ЄС, що відповідає національним інтересам.*

**Ключові слова:** *декарбонізація, сталий розвиток, циркулярна економіка, зелений перехід, енергоресурси, фінансові інструменти, кліматичне фінансування, зелені інвестиції, податки, механізм СВМ, міжнародна торгівля викидами парникових газів, торгівля квотами, монетарна політика, фіскальна політика, ЄС, стратегічні інтереси, економічні інтереси.*

**Introduction.** To model the impact of climate change on GDP, monetary authorities of developed countries try to "capture" complex interactions between the physical and economic aspects of climate change. Some of them actively use the Integrated Assessment Models, which provides for the assessment of the "social cost of carbon". Others, such as the United States, rely on climatology and econometric studies to assess how climate change affects key economic sectors. Climate impacts are modeled in the study with a very high degree of detail, highlighting regional variations in climate impacts. Further quantitative research based on such detailed data and climate knowledge could potentially enable monetary policymakers to better assess the long-term physical effects of climate change. The Bank of England has long assessed the short-term impact of abnormal weather events on economic activity. For example, it simulates the impact of winter (depending on the degree of snow cover) on retail trade, construction and the hotel business. Analysts of JP Morgan take into account, for example, the water level in the Rhine and other major rivers in the assessment of economic growth in Germany. They established a direct link between the impact of extreme heat in 2018 on the decline in economic growth

The process of decarbonization of such important industries as steel, cement, and chemicals affects not only the strategic interests of market participants, but will also affect consumers, who will feel the socio-economic consequences of the green transition with their wallets. For example, in the EU, almost 80% of all productions will require significant modernization. European experts believe that their industrial policy until recently was exclusively defensive in relation to competitors and was not far-sighted. Governments shied away from interventions that could harm competition between already existing firms in the domestic market and therefore fell behind in the industrial race in the foreign market (*Abdelli, M., & Batsaikhan, U., 2022*). At the same time, taxes on energy resources (which make up almost 60% of environmental taxes in the EU) for heavy industry were kept at a low level thanks to a series of complex preferential tariffs and benefits. And a wide range of aid, such as subsidies, investment support, research and development grants, was provided without any clear conditions or long-term planning.

However, the situation is beginning to change. The Netherlands and Germany have announced a number of new climate targets and laws, including quantitative targets for industrial emissions. So far, the German approach to stimulating the green transition has been based mostly on subsidizing research and development (R&D) and investing in the development of new markets for environmentally friendly products. The Netherlands opted for a combination of "whip and gingerbread": a combination of subsidies, higher prices for carbon emissions and a review of the taxation policy of different types of energy. The accepted political and economic "pair" in both countries was inclined to a compromise that market adjustments combined with indirect and direct support measures should contribute to the greening of the economy. Some countries, notably Belgium, have bet on a full-scale industrial transition, and its only major steel producer will receive substantial government support to modernize production facilities. In many European countries, the rhetoric is changing: from perceiving the climate as a burden, challenge and danger to promoting the idea of the benefits that can be acquired by gaining the status of a "leader of the green transition".

**The purpose of the article** is to determine the specifics of the process of institutionalization of the fight against climate change in the EU and generalize the potential socio-economic effects of industrial greening with an emphasis on the inevitability of changes in the taxation system.

**Literature review.** Ukrainian scientists prove that the modern strategic prospects of reforming the current system of environmental business taxation and increasing its effectiveness should be connected, first of all, with the improvement of the forms and methods of its coordination operating in international economic practice. This is, first of all, the introduction of a system of global anti-carbon taxation at a worldwide fixed tax rate; inclusion in the Paris climate agreement of quantitative obligations of each participating state to reduce greenhouse gas emissions (*Chala, V., Orlovs'ka, Y., Kvaktun, O., Vovk, M., 2017*); introduction of legal responsibility in the form of international anti-carbon sanctions for violations of assumed environmental obligations in relation to each signatory country, proportional to the damage caused to the environment (*Chala, V., Kakhovych, E., Mashchenko, S., Dryhola, K., 2019*); introduction of a two-level carbon transport tax, taking into account the level of CO<sub>2</sub> emissions and the type of fuel used, with a simultaneous commensurate reduction in the tax rates of companies' wage funds and individual incomes of citizens; systematic linking of the amount of environmental fines of economic entities with the amount of economic benefit received by them from illegal actions; introduction of a system of tax benefits and preferences for those producers who apply ecological innovations and developments (*Chala, V., Bozhanova, V., Niameshchuk, H., Hlushchenko, A., 2021*); *Chala, V., Orlovska, Yu., 2021*). The green economy is no longer considered by scientists in isolation from the structural dynamics of social development, and its modern theoretical discourse is based on the principles of the complexity of socio-economic processes (*Fromberg, E.H.E., Bakker, C.A. & Peck, D., 2023*; *Kandpal, V., Jaswal, A., Santibanez Gonzalez, E.D.R., Agarwal, N., 2024*). Today, we are all witnesses of the further active evolutionary development of scientific thought in the direction of moving away from the qualification of the green economy as an industrial subsystem to a qualitatively new, post-industrial paradigm. It is primarily

about a systematic transition from a linear understanding of the connections between economic, social and ecological aspects of social development to their comprehensive understanding taking into account circular approaches (Dovgal, O., Borko, T., Miroshkina, N., Surina, H., & Konoplianyk, D., 2024; (Prokopowicz, D., 2022). Scientists (Krysovaty, A., Zvarych, R., Zvarych, I., Reznikova, N., & Homotiuk, V., 2021; Mercy, T., 2023) investigate the specifics of the implementation of national strategies for green transformation and green growth management, as well as study the impact of decarbonization of industry in the context of macroeconomic stability challenges (Melnyk, T., Reznikova, N., & Ivashchenko, O., 2020; Diluio, F., B. Annicchiarico, M. Kalkuhl, and Minx J. C., 2021; Abdelli, M., & Batsaikhan, U., 2022; Schoenmaker, D. & Tilburg, R.V., 2016; Van Lerven, F. & Ryan-Collins, J., 2017). The study of the system of internationally institutionalized rules, principles, norms and regulators of greening processes contributes to a critical understanding of the potential of monetary and fiscal instruments for promoting decarbonization and combating climate change (Reznikova, N., & Grod, M., 2023).

**Main results of the research.** The EU has already recognized that the existing economic approach, according to which private investments determine the direction of development, without interfering in what, how and why companies (plants and factories) produce, is losing its relevance. And that is why the states will have to formulate and consolidate with relevant legal acts a clear and comprehensive understanding of sectoral climate goals with the subsequent inclusion of these goals in the process of economic decision-making. After all, the creation of new markets while gradually closing existing ones implies the creation of transparent rules of the game. This involves approving requirements for subsidizing instruments, taxation, permitting procedures, providing grants for R&D, as well as developing new infrastructure solutions and state funding mechanisms. Therefore, governments, and not "spontaneous" markets, will have to take on the authority to coordinate pricing mechanisms, as well as develop principles for attracting investments and applying uniform rules for regulating economic activity (Reznikova, N., & Grod, M., 2023).

Of course, this will require a demonstration of political will and an appeal to national interests. It is at this stage that demarcation lines may emerge, which will demonstrate the multidirectionality of strategic planning at the level of EU member states and the difficulty of bringing to a common denominator the proposed way of implementing green transition initiatives. After all, today it will be necessary to look behind the scenes of the future and determine the list of production and sales chains that could potentially be in demand from the standpoint of national security in 2050. Moreover, minimizing the social consequences of the green transition involves a return to clear planning and the development of preventive measures to curb potential disturbances in society.

One of the examples of such strategizing is the Circular Economy Action Plan. The circular economy involves a radical change in the organization of production and consumption — from a linear growth model (extraction, production, disposal) to a sustainable alternative (recycling, reuse, recycling, sharing), when waste becomes a resource. But since there is no economically justifiable benefit in preventing waste generation given the availability of resources that can be extracted and developed, national and local governments will have to subsidize such circular production and encourage the reuse of waste.

It will not be possible to avoid competition between methods of processing waste into energy, which will be preferred in different EU countries in an uncoordinated manner. For example, waste-to-energy (WTE) plants require significant investment, so private operators typically force municipalities to commit to waste for several decades, often up to 50 years. WTE cannot be considered as a single solution to waste problems, but should be integrated into a single solid waste management system, adapted to specific local conditions, taking into account the structure of such waste, the features of its collection and recycling, the share the shadow sector of the economy, environmental problems, methods of financing, cost of resources and other aspects. At the same time, the United Nations Environment Program has warned that WTE can create a blocking effect: a certain amount of waste is required for the operation of factories, which in turn does not interfere with the prevention of their formation. In this connection, there are increasingly calls to return to state ownership, because then profit will not be prioritized over environmental considerations. The most circular capital of the EU is considered to be Ljubljana in Slovenia, where a waste processing plant based on WTE technology is financed and managed by the state. At the same time, waste processing

is carried out together with waste minimization measures and a municipal waste collection system that encourages waste sorting for recycling at home.

It is clear that the green transition can lead to the loss of competitive positions by European companies based on the price criterion. Therefore, a number of instruments have already been developed to help them protect against external competition, such as the "Mechanism for the Regulation of Carbon Borders through the Emissions Trading System" (ETS, but in view of the proposals to supplement this system, it is already designated as ETS1), the package of measures "Next Generation EU" and "Readiness 55" ("Fit for 55" proposals, 55 is the percentage of emission reduction until 2030 according to the Paris Agreement, which the EU undertook) (*Agora Energiewende and Ecologic Institute, 2021*).

The package of legislative initiatives "Fit for 55" envisages the following goals: by 2030, 40% of the produced energy should be provided from renewable energy sources (previous goal - 32%); by 2030, the share of primary and final energy consumption will decrease to 39-41% and 36-37%, respectively; by 2030, carbon emissions from new cars should be reduced by an average of 55% compared to 2021, and from 2035, the sale of cars with an internal combustion engine will stop altogether in the EU, and the number of charging stations for electric cars will increase; from 2023, the aviation and shipping sectors will also be involved in the expanded EU emissions trading scheme, in particular, it is proposed to introduce a so-called "kerosene" tax on air travel, which may affect the price of tickets. The ReFuelEU aviation initiative aims to reduce carbon emissions by increasing the amount of green jet fuel used in the EU (*Pilszyk, M., Lipiński, K., Miniszewski, M., 2024*).

To build up sustainable aviation fuels (SAFs), the EU intends to introduce a fuel blending mandate. All planes departing from EU airports will have to refuel with green aviation fuel, the minimum share of which should be 2% in 2025, and 5% in 2030. Similarly, the FuelEU Marine Initiative will encourage the use of sustainable marine fuels and zero-emission technologies by introducing targets to reduce the carbon content of the fuel used by ships calling at European ports. Over time, these restrictions will become stricter, and therefore the construction of ships focused on the use of alternative energy sources, as well as the construction of sustainable marine infrastructure (refueling complexes, a service network for conversion and technical operation of ships) will be actualized (*Chala, V., Bozhanova, V., Niameshchuk, H., Hlushchenko, A., 2021*).

"Fit for 55" envisages that from 2023 the transitional three-year phase of the implementation of the carbon border adjustment mechanism (CBAM) will begin, which will be applied to the import of steel, fertilizers, aluminum, cement and electricity, and its full implementation is expected from 2026. This measure is aimed at protecting European business from environmental dumping and preventing "carbon leakage" in situations where European businesses, for example, plan to move outside the EU to avoid paying for CO<sub>2</sub> emissions. The CBAM mechanism actually imperatively encourages the EU's international partners to take steps in the same direction. CBAM will operate in addition to the European emissions trading system, but instead of quotas, special CBAM certificates will be introduced, which will be purchased in the EU by importers of products according to the volume of emissions. Certificate prices will be calculated based on the average auction price of quotas within the EU ETS.

ETS (and, in fact, ETS1) covers greenhouse gas emissions of large enterprises in the energy and manufacturing sectors. These enterprises must measure and report emissions from their production facilities and must use carbon credits (quotas) accordingly. They either buy such "carbon credits" on the ETS1 or use allowances issued to them for free, as is the case in many industrial sectors, such as steel and cement production.

However, in construction and road transport in the EU, 70% of emissions fall on households. This became the reason for the creation of a new EU carbon market for heating and road transport (ETS2). Given the complexities that will inevitably arise in forcing 200 million households to report emissions from heating their homes and using cars, the reporting and monitoring obligations under the newly established ETS2 will fall on fossil fuel suppliers. And therefore, according to ETS1 and the proposed ETS2, companies transfer the costs of their own emissions to end consumers. But in the case of ETS2, investment decisions will largely depend on consumers, since, for example, the transition to low-carbon heating systems, increasing the energy efficiency of buildings, and the transition to low-emission modes of transport will be entrusted to them (*Görlach, B., Jakob, M.,*

*Umpfenbach, K., Kosch, M., Pahle, M., Konc, T., Brehm, J., Feindt, S., Pause, F., Nysten, J., Abrell, J., 2022*). At the same time, alternatives to fossil fuels may not be available to all families, for example, due to a lack of financial resources for energy modernization, poor access to public transport (distant or high-quality), lack of charging infrastructure in sparsely populated areas, not to mention the availability of electric vehicles (*Görlach, B., Jakob, M., Umpfenbach, K., Kosch, M., Pahle, M., Konc, T., Moore, Nils aus dem, Brehm, J., Feindt, S., Pause, F., Nysten, J., & Abrell, J., 2022*). Therefore, it is clear that the creation of a new EU carbon market for heating and road transport will not only exacerbate existing social problems, but also cause political escalation.

The ETS market mechanism entails price uncertainty, as the price of carbon depends on the demand for carbon allowances. In the already existing EU carbon market (ETS1), the CO<sub>2</sub> price has ranged from €5 to €60 per tonne over the past five years. In the EU, the 10% of households with the lowest income spend almost 10% of their income on energy, excluding transport costs. According to calculations, a CO<sub>2</sub> price of €100 per tonne would increase the road transport and heating bills by around 25% (*Acworth, W., Schambil, K., and Bernstein, T., 2020*). This could have dramatic consequences for those who rely on fossil fuels, or for those living in rural or suburban areas who rely heavily on gasoline and diesel cars for daily transportation. Today, at least 35 million (7%) Europeans cannot afford adequate indoor thermal comfort, and 90 million (20%) EU citizens face difficulties accessing public transport (*Rosendahl, K. E., 2019*). Therefore, the declared "green transition", if it is also "fair", will require deeper structural changes, for example, thanks to the increase in the amount of "green" investments for low-income or low-income families. That is why it was proposed to start the Social Climate Fund (SCF).

The SCF will support EU member states in financing measures to mitigate the social consequences of ETS2 both in the form of social compensation (temporary income support) and in the form of green investments for the most vulnerable citizens and micro-enterprises. To gain access to funding, member states will have to submit social climate plans for approval to the European Commission and undertake to co-finance at least 50% of activities and investments. The SCF will start operating in 2025 (one year before the proposed ETS2 is launched) and is expected to operate with €10 billion per year, based on an estimated carbon price of €48 per tonne (*Schmidt, L., 2020*). In general, the Social Climate Fund will mobilize 144.4 billion euros by 2032 for a socially just transition. The SCF will be financed by the EU budget, and from 2026 it will also receive 25% of the revenues from the trading of allowances for companies to pay for emissions related to heating homes with fossil fuels and from road transport, which will be controlled by the new ETS2 system. The start of social compensation before the implementation of ETS2 is an important component of initiatives to increase the social acceptability of the green transition. But given the time limits projected for the Social Climate Fund, there are doubts that green investment aimed at protecting vulnerable families from rising prices will hit the mark, as it is too late to do so just a year before ETS2 is introduced.

The reason for the transition to investments in renewable energy sources and the rejection of investments in non-renewable ones lies not only in the planning horizon (because it is believed that existing technologies give a current, short-term effect, and renewables can provide production benefits in a longer term). Institutional pressure on manufacturers is no less important. The increase in long-term productivity will offset the economic costs associated with reducing current production. Therefore, increasing the long-term rate of profit from mining ultimately stimulates investment and growth.

The inevitability of the transition period and intertemporal compromise, which have to be faced during the restoration of natural capital, is obvious. Inefficient, unsustainable and excessive use of resources in the past is an obvious fact. The paradox is that the countries that went through the stage of rapid industrialization of the 19th and 20th centuries ("unsustainable" in today's terms of the UN Sustainable Development Goals) and took full advantage of its benefits are now shifting the responsibility for global warming to other states, regardless of today's level and their development needs. And the contribution that countries must provide to reducing CO<sub>2</sub> emissions is calculated as the "average temperature in the hospital". After all, the Paris Climate Charter states that "countries adopt ambitious plans to prevent climate change." According to this, all countries together will reduce CO<sub>2</sub> emissions on the planet by 50%: some - more, some - less. But definitely - ambitious! Governments, incited by ambitions to get to the top of the "green transformer countries", refuse

serious calculations of socio-economic, humanitarian consequences of the "green transition" (*Prokopowicz, D., 2022*). At the same time, the amount of investments necessary not only for adaptation to the new economic reality, but also for mitigating the consequences of the transition, taking into account the country's industry specifics, is not analyzed. And the less economically developed a country is, the more severe economic consequences it expects from excessive ambition.

It is also necessary to determine the side effects of policy in the process of implementing the "green growth" model, which arise in a situation where political intervention in the functioning of some sectors of the economy fundamentally changes the nature of compromises in others. In this case, economy-wide "coordination problems" can be a serious impediment to growth (*Melnyk, T., Reznikova, N., & Ivashchenko, O., 2020; Diluiso, F., B. Annicchiarico, M. Kalkuhl, and Minx J. C., 2021*). And the question lies not only in the country's ability to produce new technologies, introduce them into the production process and promote their application in foreign markets, so as not to remain in the status of an eternal hostage to the consumption of imported technologies, the "poor relative", exchanging their raw materials for them in unimaginably terrifying proportions. The problem is that under the proposed innovations in the way of the "greening" of industry, the need to create a completely new type of production is often masked, which can be compared to the closure of the existing one, and therefore, a violent rejection of the country's specialization. It is the kind of raw material specialization that was actually imposed on the countries of the second and third world by the global market, promoting liberal and neoliberal theories of comparative advantage.

There is no doubt that if CO<sub>2</sub> emissions are reduced through the transition to cost-effective low- and zero-carbon energy supply and energy efficiency, the strengthening of CO<sub>2</sub> bans will have less impact on growth. It is implied that the transition to a low-carbon economy can be achieved without a significant negative supply shock if sufficient investments in low-carbon energy sources are made at an early stage. We emphasize: "in the early stages." If the country has not done this, growth will slow down and move into negative indicators. Inflation rate volatility may also increase as the share of bioenergy increases, as energy and food prices may be affected by the same weather shocks. Although this effect can be mitigated by a gradual reduction in the share of food and energy in the population's consumption basket (and hence the effect on the consumer price index) as countries become richer. But in poor countries, the shift towards bioenergy is expected to cause inflationary pressure and further impoverishment of the population. Moreover, in the context of climate change, which affects weather conditions, the issue of food security in general will become key.

**Conclusions.** The main source of risk for the country's macroeconomic stability is populist environmental policy and climate policy. Some of the tools proposed by environmental populists, including interventions such as CO<sub>2</sub> pricing, impose a burden on economic activity, at least in the short to medium term. As compliance with environmental regulations forces companies to limit production or direct certain resources to reduce emissions, this has a negative impact on profitability, productivity, employment and, ultimately, GDP. From the point of view of monetary policy, climate policy, which affects the final prices of producers through its fiscal instruments, is expected to provoke a negative shock on the supply side. By setting a price on carbon, regulators seek to discourage the production and consumption of high-emission goods. The carbon price is set through a carbon tax or through a system of limiting emissions, in particular, the Emissions Trading System (ETS). ETS works on the cap-and-trade principle. The government sets a cap or limit on the total volume of emissions in one or more sectors of the economy. Companies must have permits for each unit of emissions, which they can obtain for free or buy from the state, as well as from other companies through a specially created market. The question lies in the amount of funds and their sources. Countries burdened with a debt burden (those sitting "on a credit needle"), budget deficits, and an underdeveloped stock market initially acquire the status of "outsiders." And the clichés about "perfect competition", "market economy", "equal opportunities" that are replicated at the same time become a weapon that shoots at defeat.

Within an allowance trading system, the price of carbon emissions is set indirectly: a regulatory body sets the total allowed emissions, and then the price of carbon is set through the allowance market. A one-time increase in the price of emissions usually has only a temporary effect on the inflation rate, provided agents recognize that it is a one-time change. Such a policy has the effect of raising the price level, and the inflation rate will quickly return to its original level. At the same time,

the relative price of carbon-intensive goods will be constantly higher. In addition, emission costs are almost entirely passed on to wholesale electricity prices. According to observations of the impact of the ETS system on wholesale electricity prices in 20 European countries and calculations by European scientists, it was found that a significant share of the cost of CO<sub>2</sub> emission allowances (which are freely distributed) is transferred to electricity prices, as a result which increases prices for consumers. The ETS carryover ratio was particularly high in the carbon-intensive electricity and metallurgy industries, which are characterized by limited internal competition.

Since the introduction of carbon pricing has a one-time temporary effect on inflation, monetary policy authorities usually monitor this effect to avoid raising interest rates and depressing the economy. Both the physical aspects of climate change and the transition to a low-carbon economy are major structural changes that will require systemic transition and innovation in many sectors of the economy. Both physical risks and transition risks associated with climate change can potentially affect long-term growth, and therefore require a review of the Central Bank's ability to use monetary policy instruments to ensure price and financial stability.

To implement the mentioned plans of greening economy, it is necessary to use the potential of macroeconomic regulation (monetary and credit and tax-budgetary policy), review the "ceiling" of the permissible budget deficit and determine priority areas for making capital investments. At the same time, the reduction of intra-European competition will be facilitated by the coordination of industrial development strategies of the EU member states, and, therefore, the volumes of state aid and subsidies related to the functioning of ETS1 and ETS2. Such large-scale government interventions at the national and supranational levels of the EU will be able to launch the green transition. After all, no one will be able to create a "new green reality" relying on the market.

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