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DECARBONIZATION POLICY IN THE EURASIAN ECONOMIC UNION: MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE
(comparative analysis)

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The article examines the issues of decarbonization in the member states of the Eurasian Economic Union in the context of global challenges of climate change. The international regime for reducing greenhouse gas emissions into the atmosphere is analyzed. Its impact on the global political agenda is determined. It is established that one of the main challenges to reducing emissions is the development of "green" types of energy, which should be understood as not only renewable energy sources, but also natural gas and nuclear energy. Through a comparative analysis of both energy systems and national programs for reducing greenhouse gas emissions of the EAEU member states, their potential for implementing the "energy transition" and decarbonization is determined. The challenges of economic development in the EAEU are shown through the prism of the Paris Agreement on Climate Change. Recommendations are given for improving cooperation between the EAEU member countries in the field of decarbonization and synchronizing strategic approaches in the field of climate management and sustainable development.

Key words: *decarbonization, climate, greenhouse gases, international regime, Paris Agreement, EAEU, sustainable development*

Introduction

Environmental issues have become one of the determining factors in world politics since the 1970s. The correlation between anthropogenic activities and global warming has become a subject of scientific and political discussions and a key factor in the formation of prior directions for the socio-economic development. The international climate regime was formed gradually, having gone through a difficult path from the United

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Nations Framework Convention on Climate Change (UNFCCC) to the Paris Agreement and still remains vulnerable. The growing aggravation of confrontation between global powers still calls into question the further interaction of a number of states on key issues of the global climate agenda.

A significant contribution to the greening of the world economy and the formation of new trends in the development of the global energy system was made by the Paris Agreement, adopted as part of COP-21 in order to combat climate change and reduce greenhouse gas (GHG) emissions. Currently, 194 countries have joined the Paris Agreement. The agreement emphasizes efforts to limit temperature increase to 1.5°C above pre-industrial levels, thereby reducing the risk of climate change. The legal status of the Paris Agreement can be called hybrid: it combines a top-down approach, when obligations are imposed on states, and a bottom-up approach, when many issues are left to the discretion of national states[1]. The signatories of the Agreement agreed to work towards a common goal of limiting temperature rise to 1.5°C above pre-industrial levels as a measure to support the most vulnerable countries.

Unlike the previous international treaties on climate control imposing obligations and responsibilities on a limited number of countries, the Paris Agreement abolished the principle of differentiated responsibilities, calling the international community to cooperate for managing the climate change issue. According to the Paris Agreement, the concept of "Nationally Determined Contributions" (NDC) was introduced, which can be defined as a set of obligations of states to achieve the goals of the Agreement which should "be implemented in a facilitative, non-intrusive, non-punitive manner, respectful of national sovereignty"[2]. The national contribution to climate protection is determined at the national level according to a country's capabilities. Thus, as part of COP-26, more than 140 countries pledged to achieve zero emissions.

In the context of the contemporary approach of universal responsibility for climate change, the problem of green transformation of energy systems becomes especially relevant. Although industrial processes, agriculture, transport and other life spheres also generate GHG emissions, the majority of emissions globally - about 70% - are associated with energy production and consumption. To address climate risks, the global energy industry is going through a long-term stage of "green transition".

The decarbonization of the global energy system is carried out in different ways, including the introduction of renewable energy sources (RES), synergistic combinations combining the capabilities of RES, nuclear energy and fossil fuel generation. In turn, the development of renewable energy makes it possible to increase the level of energy independence, since it significantly reduces the dependence of states on external fuel supplies, thereby strengthening the energy security system[3].

Energy systems are evolving towards universal access to clean energy. The Ukrainian crisis has caused an energy crisis in a number of countries and has created new adjustments in global energy policy. The subsequent large-scale geopolitical crisis sparked an

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[1] **Apanovich M., Barabanov O.** et al. Climate Policy in a Global Risk Society. Report of the Valdai International Discussion Club. 2020. P. 14. (in Russ.)

[2] Paris Agreement. Adopted on 12.12.2015. https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

[3] **Simonova M.D., Zakharov V.E.** Statistical Analysis of Development Trends in Global Renewable Energy. MGIMO Review of International Relations. 2016; (3(48)). P. 214-220. (In Russ.) https://doi.org/10.24833/2071-8160-2016-3-48-214-220

"energy war" between the "collective West" and Russia, relegating the green agenda to a secondary position[4]. The energy crisis in European countries forces acceleration of greening processes in the energy sector through intensive development of RES to increase the level of energy independence of a number of countries.

It should be noted that RES currently account for more than 80% of new added capacities[5]. According to the report of the International Renewable Energy Agency, "World Energy Transitions Outlook 2022", in order to achieve the goals of the Paris Agreement, global energy consumption must be reduced by 11% compared to 2019 levels through measures of improvement of energy efficiency while simultaneously increasing the share of RES in the global energy mix - up to 79% by 2050 from 19% in 2019. At the same time, the use of RES should be increased in all end-use sectors, including transport and construction[6]. In the last decades, the renewable energy technologies counter increases of the fossil energy prices; they act as a backstop of energy prices[7]. Renewable energy is seeing a truly explosive growth worldwide, especially with the diffusion of the "new renewables" in the form of photovoltaics and wind energy[8]. On the other hand, the rapid pace of development of renewable technologies creates preconditions for discrimination against fuel and energy complexes.

The importance of greening energy systems is also reflected in the UN Sustainable Development Program. The seventh goal of the program is to ensure access to affordable, reliable, sustainable and modern energy sources[9]. Sustainable development of energy systems, as well as other life spheres according to the UN sustainable development program, should include components of social, economic and environmental development. This means that the world must strive towards the goal of developing secure, affordable, clean energy systems through the introduction and considerable increase of new capabilities of RES. To limit temperature rise to less than 1.5°C over the century, the share of RES should reach 33-38% by 2030, and in the case of the electricity sector it should be 60-65%. In 2021, there was a record increase in renewable energy capacity in developing countries (+9.8% per year), with the total installation capacity reaching 268 Watt per capita[10].

While an environmental focus in national energy policies to curb global warming is vital to mitigating the impact of climate change, a broad range of factors is much more important in shaping national energy strategies: the availability of energy sources, energy security, independence from energy supplies, energy equity, macroeconomic stability, geopolitical and geoeconomic shifts, technological progress, etc. Despite the importance of green transformation for energy systems and efforts of national governments to manage climate and environmental threats, the influence of non-environmental factors remains decisive in shaping the global energy development agenda.

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[4] **Rovinskaya T.** Global Climate Agenda: Big Gamble. World Economy and International Relations, 2023, vol. 67, no. 9, pp. 15-30. https://doi.org/10.20542/0131-2227-2023-67-9-15-30

[5] World Energy Trilemma Index 2021. In partnership with Oliver Wyman. URL: https://bityl.co/BG2s

[6] World Energy Transitions Outlook 2022. 1.5°C Pathway. IRENA. 2022.

[7] **Krozer Y.** (2017), Energy markets: changes toward decarbonization and valorization. Current Opinion in Chemical Engineering. Volume 17. P. 61-67. https://doi.org/10.1016/j.coche.2017.06.004.

[8] **Bardi U.** The grand challenge of the energy transition. Front. Energy Res. 2013. URL: https://doi.org/10.3389/fenrg.2013.00002

[9] The 17 Goals. Department of Economic and Social Affairs Sustainable Development. URL: https://sdgs.un.org/goals

[10] The Energy Progress Report 2023: Tracking SDG7. International Bank for Reconstruction and Development. The World Bank. 2023.

The problems and prospects for greening of energy systems in the EAEU states

The search for ways to solve the problem of global warming and the implementation of coordinated policies towards the greening of energy systems can't be effectively realized without international cooperation within the framework of various international structures, as well as forms of bilateral and multilateral cooperation. Integration associations like the European Union (EU), Association of South East Asian Nations (ASEAN), BRICS, Shanghai Cooperation Organization (SCO), Eurasian Economic Union (EAEU) and others get actively involved in greening processes.

The EAEU is the most ambitious regional integration project in the post-Soviet space since the collapse of the USSR. It differs from other regional organizations in the post-Soviet area in that it claims to be a supranational political structure similar to the European Union. It must be taken into account that the EAEU is still at the stage of formation and has many promising areas for its development. Accordingly, each participating state, due to its own characteristics, has its own vision of its development within the EAEU.

Integration of the energy systems of member countries is one of the priorities of the Eurasian integration process which leads to the implementation of a coordinated energy policy, the formation of common energy markets and the creation of a common electricity market among member states. The Treaty on the Eurasian Economic Union of May 29, 2014 notes that "in order to effectively use the potential of the fuel and energy complexes of the member states, as well as to provide national economies with the main types of energy resources (electricity, gas, oil and petroleum products), the participating states develop long-term mutually beneficial cooperation in the energy sector, pursue a coordinated energy policy, and carry out the gradual formation of common markets for energy resources, taking into account energy security...[11]". Subsequently, on May 29, 2019, an agreement on the common electricity market of the EAEU was signed. In accordance with the approved action plan, the launch of the common electricity market is planned to be carried out no later than January 1, 2025. The common electricity market will increase the volume of mutual trade in electricity within the Union and will increase the level of energy security of member states, contributing to the sustainable development of their national economies.

The EAEU countries (Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia) hold significant joint energy potential, providing almost 20% of global natural gas production, 15% of oil extraction, 7% of coal mining and ranking 4th in the world by electricity generation. It would seem that circumstances push the leaders of the EAEU countries to pursue development as brown economies rather than green ones. That holds true for Russia and Kazakhstan where mineral resources and petroleum products have become an irreplaceable source of national income[12]. However, the green transformation of the global economy is an objective reality.

The development of "green" types of energy is considered a priority within the framework of Eurasian integration. It is stated in the "Strategic Directions for Developing the Eurasian Economic Integration until 2025", approved by Decision N12 of the Supreme Eurasian Economic Council on December 11, 2020. Particularly, the development of economic

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[11] Treaty on the Eurasian Economic Union. Adopted May 29, 2014. URL: https://www.arlis.am/documentview.aspx?docID=95276

[12] **Yurgens I., Romov R.** Enabling Green Integration and Building a Common Sustainable Development Space in the EAEU. Moscow. 2023. P.5.

cooperation on "green" technologies and the protection of the environment are enshrined in point 8.3. The Interaction between the Member States in the fields of energy saving, energy efficiency, the use of renewable energy sources, and environmental protection are recognized as prior directions for greening of energy systems within the Union[13]. As the integration process in the EAEU energy market has launched, it is planned to develop an interstate program, the priority areas of which are the development of renewable and alternative energy sources and the expansion of participation of the EAEU member states in the implementation of projects in the field of nuclear energy.

The EAEU is actively promoting political initiatives to strengthen energy security and develop "clean" energy. The main initiatives of the EAEU in this direction are programs to increase domestic production of renewable energy, improve energy efficiency and reduce CO_2 emissions from burning fossil fuels. These programs are implemented through subsidies for renewable energy sources, taxes on the use of primary energy to improve energy efficiency and reduce CO_2 emissions[14]. In 2016, the "Eurasian Technological Platforms" (ETP) were formed within the EAEU, among which the platforms of "Environmental Development Technologies" and "Nuclear and Radiation Technologies" are of particular importance, within the framework of which the main joint environmental and nuclear projects of the Eurasian states are defined. This will contribute to technological development and increase the competitiveness of Eurasian countries in the global energy market. From the point of view of environmental feasibility, nuclear energy is an indispensable area for promoting "green" energy in the EAEU countries. The accumulated experience in the development of nuclear energy within the EAEU allows to highly evaluate the potential of the industry for the sustainable development of the energy systems of member countries.

All the EAEU countries are parties to existing international agreements in the field of environmental protection. However, structural differences in the economies of the EAEU countries and the difference in the abilities of national economies to green their economies and energy systems dictate the need for a separate study of the experience and potential of each member country to identify main problems in the greening of energy systems within the Union.

Russia.

Russia has joined the Paris Agreement in 2016 and has the most ambitious plans among all the EAEU members to reduce emissions by 70% by 2030 compared to 1990 levels. Russia concentrates its efforts on reducing anthropogenic GHG emissions and increasing their absorption by implementing the following measures: increasing energy efficiency in all sectors of the economy, developing the use of non-fuel and renewable energy sources, protecting and improving the quality of natural sinks and reservoirs of GHG, stimulating the reduction of anthropogenic GHG emissions through financial and tax policy.

In 2021, the "Strategy for long-term development of the Russian Federation with low greenhouse gas emissions to 2050" was adopted. According to the strategy, it is planned to introduce financial and tax policy measures that stimulate the reduction of anthropogenic

[13] Strategic Directions for Developing the Eurasian Economic Integration until 2025. Approved by Decision No. 12 of the Supreme Eurasian Economic Council dated December 11, 2020.

[14] **Saiymova M., Shakharova A.,** et al. Energy Security, Economics and Environment in the Eurasian Economic Union: Current and Future Scenarios // International Journal of Energy Economics and Policy. 10(4). 2020. P. 293–299.

GHG emissions in the most inefficient carbon-intensive sectors of the economy, to replace part of coal generation with carbon-free and low-carbon ones, and to ensure the growth of electricity generation to meet the needs of the economy through carbon-free generation and a significant increase in generation based on renewable energy sources[15]. According to the strategy, energy-efficient and environmental projects should reduce the carbon intensity of Russia's GDP by 8–10% by 2030 and by 40–50% by 2050. Currently, green energy is produced in Russia at more than 200 large facilities, including solar, wind, geothermal power plants, as well as biogas stations and small hydroelectric power stations, totally producing about 20% of total electricity generation.

According to the Resolution of the Government of the Russian Federation dated September 21, 2021 No. 1587 "On approval of criteria for sustainable (including green) development projects in the Russian Federation and requirements for the verification system for sustainable (including green) development projects in the Russian Federation" Russia has recognized renewable energy sources, low-carbon and hydrogen fuel, hydropower and nuclear power as environmentally sustainable types of economic activity in the energy sector in the Russian Federation and included them in its Green Taxonomy[16]. Russia, as a country promoting Eurasian integration as a prior vector of its foreign policy, is one of the world leaders in the development of nuclear energy with 37 operating reactors with a total capacity of 27,727 MW (20,6% of total energy production). The portfolio of foreign orders of the Russian state corporation "Rosatom" includes 35 units at various stages of implementation, including the construction of the Belarusian NPP, Akkuyu NPP in Turkey, Kudankulam NPP in India, Paks-2 NPP in Hungary, Rooppur NPP in Bangladesh, Xudapu NPP and Tianwan NPP in China, and El Dabaa NPP in Egypt. Nuclear energy is both a low-carbon and reliable source of energy that allows to escape nearly 110 million tons of carbon emissions annually in Russia, so increasing nuclear capacity is obviously a solution to manage the climate agenda for Russia[17].

The current positions of "Rosatom" in the global nuclear technology market can become decisive for promoting multilateral cooperation in nuclear energy through the development of nuclear energy in the Eurasian space, including the construction and operation of new nuclear power plants, cooperation in the field of transportation, processing and the disposal of spent nuclear fuel and radioactive waste. In today's geo-ec9+onomic realities, "Rosatom" is faced with the task of firmly gaining a foothold in the market for technologies and equipment for the nuclear fuel cycle, including the development of advanced nuclear technologies and fourth-generation reactors.

Thus, energy policy in Russia has a balanced approach to ensuring guaranteed energy security by stimulating the development of fuel and energy complexes, taking into account the importance of environmental protection and combating climate change risks in the energy sector.

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[15] The Strategy for long-term development of the Russian Federation with low greenhouse gas emissions to 2050. Approved by Resolution of the Government of the Russian Federation of 29th October 2021 No. 3052-r.

[16] Resolution of the Government of the Russian Federation dated September 21, 2021 No.1587 on Approval of the Criteria for Sustainable Development Projects and the Verification System Requirements

[17] World Energy Issues Monitor 2022. Russia. URL: https://www.worldenergy.org/assets/downloads/ World_Energy_Issues_Monitor_2022_Russia_commentary.pdf

Kazakhstan.

The economy of Kazakhstan is highly dependent on the energy sector which produces 80% of carbon emissions in the country. About 70% of the country's electricity is produced by coal-fired electricity plants. Thus, the process of greening the Kazakh economy needs serious financial efforts for implementing structural changes in the energy mix of the country that will also have a positive impact on the energy security. The country's economy needs foreign direct investment for rapid green development, which is most likely to come from China or Russia. Green energy technologies are cheaper in China, therefore, Kazakhstan relies on Chinese investments and innovations, but adheres to the EAEU development course[18].

Kazakhstan ratified the Paris Agreement in November 2016 and adopted its first NDC only in

2023, according to which emissions are planned to be reduced by 15% by 2030 compared to 1990 levels. To achieve this goal, it is planned to increase the share of alternative sources of energy production to 30% by 2030 and to 50% by 2050 and the share of gas power plants to 25% by 2030 and to 30% by 2050 in total electricity generation[19]. The country plans to achieve carbon neutrality by 2060.

In 2013, Kazakhstan adopted the Concept of the Transition of the Republic of Kazakhstan to Green Economy. According to the concept, it is necessary to transform the national economy by 2030 by focusing it on rational use of natural resources, the introduction of renewable energy technologies and the construction of facilities based on high energy efficiency standards. The main directions towards greening the energy system are the improvement of energy efficiency, the increase of the share of renewable sources in the energy mix, reduction of the GHG emissions and the attraction of foreign investments.

In 2022, the Ministry of Energy of the Republic of Kazakhstan presented its vision of the Energy Balance, where modeling of the development of the energy complex was carried out. To cover the need for electricity by 2035, it will be necessary to ensure the massive commissioning of new generating capacities, especially sources of low-carbon generation and renewable energy sources. To cover the needs of the economy and the population, it will be necessary to commission 16.5 GW of new generation by 2035. The structure of new energy capacities includes more than 2 GW nuclear generations[20]. Discussions on the construction of a nuclear power plant are already underway in Kazakhstan, which corresponds to demands of the green agenda. Moreover, Kazakhstan is the world leader in the production of the main type of nuclear fuel – uranium, and plans to retain this position in the global uranium market.

In the Development Strategy of Kazakhstan until 2050, it is planned to generate up to 50% of all consumed energy from RES by 2050, not including large hydropower. In addition, in December 2020, President Tokayev promised that the country would achieve net carbon neutrality by 2060. Obviously, such a transition requires profound policy reforms

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[18] **Sadovnikova, N. A., Abramov, V. L., Ogryzov, A. A., & Makhova, O. A.** (2020). Clean Energy in the EAEU in the Context of Sustainable Development: Compliance and Prospects. International Journal of Energy Economics and Policy, 10(5), 272–280. Retrieved from https://econjournals.com/index.php/ijeep/article/view/9512

[19] Concept for Transition of the Republic of Kazakhstan to Green Economy. approved by Presidential Decree No. 557 on 30.05.2013.

[20] On the energy balance of Kazakhstan until 2035 // Ministry of Energy of the Republic of Kazakhstan. URL: https://www.gov.kz/memleket/entities/energo/press/news/details/345485?lang=ru

and the implementation of new sources of energy beyond fossil fuels. An institutional framework is being prepared for the transition to green development. In particular, on July 1, 2021, Kazakhstan adopted a new environmental code, which is an important step forward in reducing and mitigating the impact of hydrocarbon energy on the environment.

Armenia.

The main source of GHG emissions in Armenia is the energy sector. In 2017, 66.7% of total GHG emissions in Armenia came from the energy sector. The energy sector includes emissions from all uses of fuels for energy production, including fuels used in transportation and fugitive emissions associated with the transportation, storage and distribution of natural gas. The second sector by volume of GHG is agriculture, forestry and other types of land use (18.5%), the third is the industrial sector (8.9%), and the fourth is the waste management sector (5.8%). In the absence of domestic fossil fuel resources, Armenia is dependent on imported oil and gas. The main generating capacities in Armenia are the Armenian NPP, thermal power plants, large hydroelectric power plants, as well as RES (small hydro, wind and solar power plants), which provided 33.7%, 18.1%, 37.0% and 11.1% of the total electricity production in 2017, respectively[21].

Like most countries in the world, Armenia is taking steps towards a green transition by developing clean and renewable energy technologies. At the strategic level, the Republic gives great importance to the decarbonization of the energy system in accordance with its capabilities and strategic vision for the development of the industry. Armenia ratified the Paris Agreement in 2017, and in 2021, the Government of the Republic of Armenia approved the revised National Contribution (NDC) of Armenia for 2021-2030, according to which the country has set a target of reducing emissions by 40% by 2030 compared to the level of 1990.

The "Strategy for Ensuring National Security of the Republic of Armenia" emphasizes the importance of international cooperation in the field of environmental protection and use of natural resources, especially in the field of mitigating negative consequences of global climate change by reducing the level of pollution in the Earth's atmosphere[22]. In particular, the "Concept for Ensuring Energy Security of the Republic of Armenia" notes the importance of developing renewable energy sources and ensuring environmentally sustainable energy supply based on the principles of sustainable development and international environmental obligations adopted by the Republic of Armenia[23]. At the same time, the development of RES is considered one of the main directions to diversify the national energy system in order to increase the level of energy independence.

The further development of nuclear energy will continue to play a decisive role in the decarbonization of the Republic's energy system. The "Strategic Energy Development Program of the Republic of Armenia (until 2040)" emphasizes that extending the operating life of the second power unit of the Armenian NPP after 2026 is one of the main priorities of the Government of the Republic of Armenia, and after the expiration of the term, the construction of a new NPP is the main goal. The presence of a NPP in the energy system will allow to further diversify energy resources and not increase dependence on natural gas

[21] Third Biennial Update Report under the United Nations Framework Convention on Climate Change. Yerevan. UNDP Armenia. 2021. P. 33-40.
[22] National Security Strategy of the Republic of Armenia. July, 2020.
[23] Concept for ensuring energy security of the Republic of Armenia. Adopted on 23.10.2013

imports, as well as the volume of emissions[24]. Thus, according to the World Nuclear Association, over the entire period of operation of the Armenian NPP, 51.52 metric tons of CO_2 emissions were avoided[25]. Moreover, according to studies conducted at the national level and coordinated by the IAEA, an assessment of several energy scenarios for Armenia showed that continued use of nuclear energy could allow the country to fully meet its obligations under the Paris Agreement[26]. Thus, the presence of nuclear energy in Armenia solves a dual problem, helping to ensure energy security, reduce emissions and, thereby, increase the environmental sustainability of the national energy system.

Conditioned by obligations under the Paris Agreement, by 2035 the internal demand for electricity in Armenia is planned to be covered by renewable energy. This, in turn, will ensure that Armenia fulfills its obligations under the Paris Agreement which will also have a certain impact on increasing the energy independence of the Republic and reducing the negative impact on the environment. The state program in the field of energy development is also aimed at increasing the energy efficiency of economy and encouraging energy conservation.

Belarus.

The Republic of Belarus has limited fuel and energy resources. The country is highly dependent on the imported gas from Russia, the share of which in the overall system of energy resources is 96%. That's why the energy policy of the county is mainly focused on the diversification of the energy system and the introduction of more coal-based energy production and renewable energy capacities.

Belarus has submitted an NDC to reduce greenhouse gas emissions by at least 35% by 2030 compared to the level of 1990. About two-thirds of current GHG emissions in Belarus originate from energy production. The country considers the development of RES as a general way to cleanse the republic's ecosystem and an effective measure to diversify the national energy system. It should be noted that a balance between economic growth, energy security and the greening of the energy system should be maintained to meet the set goals. In 2010, Belarus adopted the Law on Renewable Energy Sources by recognizing the importance of green energy development for the country's energy system and ecosystem. According to the Law, renewable energy producers benefit from a guaranteed connection to the electricity grid. In 2015, "Concept of Energy Security of the Republic of Belarus" was adopted. According to the document, increasing energy independence should be carried out taking into account the maximum possible involvement of local energy resources, primarily renewable energy sources in the energy balance[27].

However, alternative sources of energy production remain non-competitive compared to the use of fossil fuels. At the same time, the Republic of Belarus is among the 20 most energy-dependent countries in the world, mainly depending on the import of energy fuel from Russia. The contribution of alternative sources to energy independence

[24] Strategic program for energy development of the Republic of Armenia (until 2040). Decision of the Government of the Republic of Armenia No. 48-L dated January 14, 2021.
[25] World Nuclear Performance Report 2021. COP26 Edition. WNA. 2021.
[26] Nuclear Energy for Climate Change Mitigation to Benefit Several Countries, New Studies Show // IAEA. URL: https://www.iaea.org/newscenter/news/nuclear-energy-for-climate-change-mitigation-to-benefit-several-countries-new-studies-show
[27] Concept of energy security of the Republic of Belarus. Adopted on 23.12.2015.

is insignificant and amounts to 6%. This is primarily due to the tariff policy pursued in the country and the clash of interdepartmental interests[28].

A significant contribution to the greening of the republic's energy sector was the commissioning of the Belarusian nuclear power plant, with a capacity of 2220 MW. The construction of Belarusian NPP by Russian design became a successful example of cooperation in the energy sector within the Eurasian Union. It helps to reduce gas consumption by Belarus, thus the reliance of Belarus on Russia as the single gas importer. Reducing the use of fossil fuels due to the commissioning of Belarusian NPP will lead to a reduction in GHG emissions by more than 7 million tons per year.

In current geoeconomic and geopolitical reality the greening agenda in Belarus may be delayed due to sanctions of Western countries towards the Lukashenko administration because of its support to Russia in the Ukrainian crisis. These restrictions limit several economic sectors and make barriers for green investments in the country.

Kyrgyzstan.

The country has set an NDC by planning an emissions reduction target of 15.97% by 2030. Unlike other EAEU countries, a significant share of emissions comes from agriculture (40.4%) in Kyrgyzstan. The energy sector of Kyrgyzstan is actually "greened", since over 90% of electricity is generated from hydropower resources[29]. Unlike other EAEU states Kyrgyzstan faces difficulties in meeting the internal electricity demand due to insufficient funding, serious infrastructure deterioration, difficulties with providing electricity in remote mountainous areas. As per 2020 data, only 72.8% of the population had access to electricity, with the share in rural areas being 64%[30]. So the construction of new units of renewable and nuclear energy sources is a priority for the country in the short-term both for meeting the internal energy demand and answering the challenges of the global climate agenda.

There are a number of strategic documents in Kyrgyzstan (the National Development Program of the Kyrgyz Republic until 2026, the Green Economy Program for 2019–2023) that determine prior areas for sustainable development with an emphasis on improving the standard of living of the population and ensuring economic growth. This is expected to be implemented through large-scale development of hydropower, electric transport, orientation towards organic production in agriculture, etc[31].

An important step to the reduction of GHG emissions and diversification of the national energy system will be the construction of nuclear power plant in the Republic. In 2022, a memorandum of cooperation in the construction of low-power NPP was signed between the Ministry of Energy of the Kyrgyz Republic and "Rosatom" cooperation. At

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[28] **Baitasov R.R.** Green Energy of Belarus: Achievements and Problems/ Digital Technologies: Education, Science, Business. 2020. P. 76-78.

[29] **Saipidinov I.M., Momosheva G.A.** (2023). Prospects for Green Economy Development in Kyrgyzstan. Economy and Business: Theory and Practice, vol. 6-1 (100), 126-128. doi: 10.24412/2411-0450-2023-6-1-126-128

[30] **Yurgens I., Romov R.** Enabling Green Integration and Building a Common Sustainable Development Space in the EAEU. Moscow. 2023. P.16.

[31] **Vinokurov E., Albrecht C.** et al. Global Green Agenda in the Eurasian Region. Eurasian Region on the Global Green Agenda. May 11, 2023. Reports and Working Papers 23/2. Almaty: Eurasian Development Bank, 2023, p. 49.

first, it was planned to construct NPP with a small modular reactor. However, the capability of the future nuclear station is under question and the construction of an NPP with a capability of 300 MW is being discussed.

The development of green energy is a priority for Kyrgyzstan, taking into account the international obligations of the country to decrease mitigations and the significance of ensuring energy security due to the country's high dependence on imported oil products and natural gas. However, there are some obstacles to the transition to green energy, such as the high costs of the introduction of new technologies, a lack of qualified specialists and the lack of necessary legislative and regulatory mechanisms[32]. So, in 2022, "The Law on Renewable Energy Sources" was adopted to regulate the development and use of renewable energy sources. A number of measures were created to stimulate the development of renewable sources, including tax benefits, subsidies for the purchase of equipment and technologies, as well as the provision of priority rights to connect to electrical networks.

Conclusion

The "green" transformation of the economy is a long-term factor in shaping national strategies of economic development worldwide. Obviously, the decarbonization of energy systems is one of the most significant trends in the world economy. The foundations for the new geopolitics of energy will be centered on the ability to develop and produce the equipment that will be at the heart of the decarbonization of the global energy economy[33]. The integration of energy systems within the EAEU is aimed at creating effective cooperation between member countries to meet challenges in the global energy market. This will let the EAEU countries stay competitive in the global energy market both in technological and geopolitical terms.

Climate change poses certain risks for countries in the Eurasian region. Thus, the greening of energy systems and the development of clean energy are considered to be one of the main directions of mutual cooperation within the Union. Energy, agriculture, industry, transport and buildings account for the bulk of GHG emissions in the EAEU countries. Thus, the EAEU countries introduce the principle of "green" economy in such areas as energy, transport, agriculture and other areas.

Kyrgyzstan has the lowest level of GHG emissions per capita compared to other EAEU countries (Fig. 1). This difference in indicators is certainly associated with structural differences in the national economies of the EAEU countries. In Russia, Belarus, Kazakhstan and Armenia the main emitters are the energy and industrial sectors. In Kyrgyzstan, a significant share of emissions comes from agriculture. However, there is also a difference in the Nationally Determined Contributions (NDC) of the EAEU countries. Russia has ambitious plans to reduce emissions by 70% by 2030 compared to 1990 levels; Kyrgyzstan set an NDC to reduce emissions by 15.97%, Belarus - by 28%, Armenia – by 40% by 2030. Kazakhstan, in turn, adopted the first NDC document only in 2023, according to which emissions are planned to be reduced by 15% by 2030 compared to

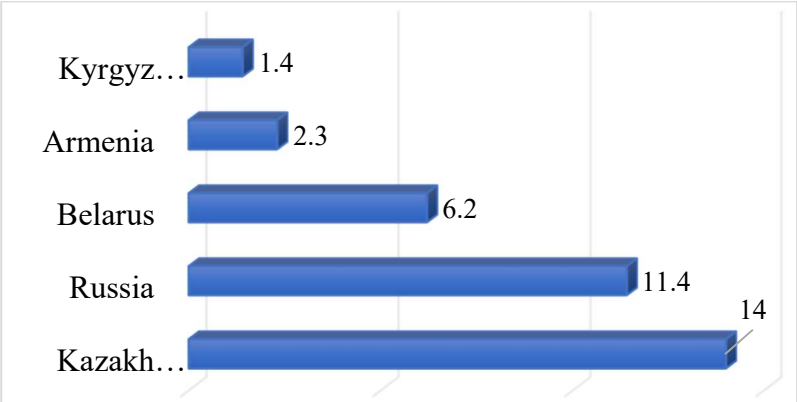
[32] **Saipidinov I.M., Momosheva G.A.** Rospects for Green Economy Development in Kyrgyzstan. Economy and Business: Theory and Practice, vol. 6-1 (100), 2023. P. 126-128.

[33] **Henderson J, Sen A.** The Energy Transition: Key challenges for incumbent and new players in the global energy system // Oxford Institute for Energy Studies. 2021. – https://www.oxfordenergy.org/wpcms/wp-content/uploads/2021/09/Energy-Transition-Key-challengesfor-incumbent-players-in-the-global-energy-system-ET01.pdf

the level of 1990. This difference in the set goals depends on both the market structure features and the ability of countries to meet the climate challenge in the medium term.

Fig. 1

Carbon dioxide emissions per capita in the EAEU countries in 2022, tons per capita/year



The EAEU countries develop and implement national concepts, programs and strategies for low-carbon development to achieve the set goals. All EAEU countries have already introduced regulations related to environmental management and renewable energy into their national legislation. Some of them develop green taxonomies that encourage and provide benefits for the development of clean energy production, including RES and nuclear energy. Thus, in 2023 the EAEU model taxonomy was developed as a basis for the development or updating of national taxonomies ensuring access to green financial instruments for member countries[34].

The most promising directions for "green" transformation of energy systems in the EAEU countries are the development of wind, solar and hydroelectric power plants, as well as nuclear power plants. Unlike the EU where active debates on the development of "peaceful atom" are going on, nuclear energy is of great importance for the energy transition in the EAEU countries. Nuclear energy is recognized as an important area for energy transition and is involved in the "green" taxonomy in the Russian Federation and in the model taxonomy of green projects of the EAEU. Uranium reserves in Russia and Kazakhstan account for almost a quarter of global reserves. Besides, Russia has a leading position in the field of nuclear energy globally with its powerful scientific and technical potential. The further formation of the EAEU electric power market will allow establishing stronger mutually beneficial partnerships between member countries in the field of nuclear energy within the Eurasian space. Expanding the participation of EAEU members in the implementation of projects in the field of nuclear will increase the innovative potential of the Union in the field of nuclear technologies, which, in turn, will contribute to increasing interest of foreign countries in the EAEU electric power market and in cooperation with the EAEU countries in the field of nuclear energy.

[34] Criteria for Green Projects of the Member States of the Eurasian Economic Union / Protocol No. 43-AS dated December 22, 2022. https://eec.eaeunion.org/upload/medialibrary/df7/Kriterii-dlya-opublikovaniya-_Modelnaya-taksonomiya_.pdf

To achieve common goals for greening the economies and energy systems of the EAEU countries, it is necessary to harmonize environmental standards to avoid trade barriers, develop common energy efficiency standards and general principles of carbon regulation in the EAEU, as well as common plans for the development of low-carbon energy production. The establishment of a common climate monitoring and regulation system can help to identify climate risks. At the stage of forming general plans for the development of clean sources of energy production within the EAEU, it is necessary to take into account the experience of each country regarding the exchange of information and methods and rules in greening the national energy systems.

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ՎԱՀԵ ԴԱՎԹՅԱՆ, ՍԻԼՎԱ ԽԱՉԻԿՅԱՆ – ***Դեկարբոնիզացման քաղաքականությունը Եվրասիական տնտեսական միությունում. կլիմայի գլոբալ փոփոխության մարտահրավերներին ընդառաջ (համեմատական վերլուծություն)*** - Հոդվածում ուսումնասիրվում են Եվրասիական տնտեսական միության անդամ երկրներում դեկարբոնիզացման հիմնախնդիրները կլիմայի փոփոխության գլոբալ մարտահրավերների համատեքստում: Վերլուծվել է ջերմոցային գազերի արտանետումների նվազեցման միջազգային ռեժիմը: Գնահատվել է դրա ազդեցությունը համաշխարհային քաղաքական օրակարգի վրա: Հեղինակները կարծում են, որ արտանետումների նվազեցման հիմնական մարտահրավերներից է էներգիայի «կանաչ» տեսակների զարգացումը, որի ներքո

պետք է հասկանալ ոչ միայն էներգիայի վերականգնվող աղբյուրները, այլ նաև բնական գազն ու միջուկային էներգիան: ԵԱՏՄ անդամ երկրների ինչպես էներգետիկ համակարգերի, այնպես էլ ջերմոցային գազերի արտանետումների նվազեցման ազգային ծրագրերի համեմատական վերլուծության միջոցով գնահատվել է նրանց «էներգետիկ անցման» և դեկարբոնիզացման իրականացման ներուժը: Տնտեսական զարգացման մարտահրավերները վերլուծվել են Կլիմայի փոփոխության մասին Փարիզյան համաձայնագրի լույսի ներքո: Տրվել են առաջարկություններ ԵԱՏՄ անդամ երկրների միջև դեկարբոնիզացման, կլիմայի կառավարման և կայուն զարգացման բնագավառներում ռազմավարական մոտեցումների սինխրոնիզացման ու համագործակցության բարելավման համար:

Բանալի բառեր – *դեկարբոնիզացում, կլիմա, ջերմոցային գազեր, միջազգային ռեժիմ, Փարիզի համաձայնագիր, ԵԱՏՄ, կայուն զարգացում*

ВАГЕ ДАВТЯН, СИЛЬВА ХАЧИКЯН – ***Политика декарбонизации в Евразийском экономическом союзе: навстречу вызовам глобального изменения климата (сравнительный анализ).*** **–** В статье рассмотрены вопросы декарбонизации в странах-членах Евразийского экономического союза в контексте глобальных вызовов изменения климата. Проанализирован международный режим сокращения выбросов парниковых газов в атмосферу. Определено его влияние на мировую политическую повестку. Установлено, что одним из главных вызовов в плане сокращения эмиссии является развитие «зеленых» видов энергии, под которыми следует понимать не только возобновляемые источники энергии, но также природный газ и атомную энергетику. Посредством сравнительного анализа как энергетических систем, так и национальных программ сокращения выбросов парниковых газов стран-членов ЕАЭС определен их потенциал осуществления «энергетического перехода» и декарбонизации. Сквозь призму Парижского соглашения о климате показаны вызовы экономического развития в ЕАЭС. Даны рекомендации по совершенствованию сотрудничества стран-членов ЕАЭС в сфере декарбонизации и синхронизации стратегических подходов в сфере управления климатом и устойчивого развития.

Ключевые слова: *декарбонизация, климат, парниковые газы, международный режим, Парижское соглашение, ЕАЭС, устойчивое развитие*