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VALUE COMPETENCIES: EFFECTIVE MANAGEMENT OF SUSTAINABILITY AND DECARBONIZATION GOALS IN AN INNOVATIVE ENVIRONMENT

ЦІННІСНІ КОМПЕТЕНЦІЇ: ЕФЕКТИВНЕ УПРАВЛІННЯ ЦІЛЯМИ СТАЛОГО РОЗВИТКУ ТА ДЕКАРБОНІЗАЦІЇ В ІННОВАЦІЙНОМУ СЕРЕДОВИЩІ

Summary. It is noted that, according to data from international organizations, in particular, the Copernicus program, 2024 was the first year when the average temperature clearly exceeded 1.5 °C compared to the pre-industrial level – the threshold established by the Paris Agreement to reduce the risks and consequences of climate change. In this regard, the issues of climate preservation are becoming exceptionally important. The article also indicates that the aspiration of humanity for progress in various components and manifestations of this concept is the most important universal value of world civilization. The final document of the Summit on Sustainable Development within the framework of the 70th session of the United Nations General Assembly approved 17 sustainable development goals, which are an action plan for people, the planet and prosperity. The article presents a model developed by the authors for implementing the economic and energy objectives of the sustainable development goals, which involves the management of economic development, innovation, education, competencies, infrastructure, security, nature protection, and climate-neutral energy in the context of decarbonization. These components reflect the most important values of the development of human civilization in the direction of harmony and progress. The progress of the implementation of the sustainable development goals is analyzed.

Keywords: values, competencies, management, decarbonization, innovation, sustainable development, security, economy, efficiency, globalization.

Анотація. Зазначається, що, згідно з даними міжнародних організацій, зокрема, програми Copernicus – важливого елемента спостереження за кліматом у рамках Європейського Союзу, у 2024 році у світі спостерігалися безпрецедентні глобальні температури, які значно перевищували високі температурні показники 2023 року. 2024 р. також став першим роком, коли середня температура явно перевищила 1,5 °C порівняно з доіндустріальним рівнем – поріг, встановлений Паризькою угодою для зниження ризиків та наслідків зміни клімату. Зазначається, що за минулий рік перевищено безліч рекордних за всю історію показників, зокрема, за рівнем парникових газів, за температурою повітря та поверхні моря, що сприяло екстремальним явищам, включаючи повені, хвилі тепла та лісові пожежі, поширення пустель, танення льодовиків, повені. Подібні процеси можуть мати вкрай негативні наслідки для людства. У зв'язку з цим питання збереження клімату набувають винятково важливого характеру. У статті вказується також, що прагнення прогресу людства у різних компонентах і проявах цього поняття є найважливішою універсальною цінністю світової цивілізації. Підсумковим документом Саміту зі сталого розвитку в рамках 70-ї сесії Генеральної Асамблеї Організації Об'єднаних Націй «Перетворення нашого світу: порядок денний у сфері сталого розвитку до 2030 року» було затверджено 17 Цілей Сталого Розвитку. Цей Порядок денний є планом дій для людей, планети та процвітання. Його мета полягає також у зміцненні всезагального миру в умовах більшої свободи. Цілі сталого розвитку мають комплексний та неподільний характер і забезпечують зрівноваження трьох вимірів сталого розвитку: економічного, соціального та екологічного. У статті наведено розроблену авторами модель реалізації економічних та енергетичних завдань цілей сталого розвитку, що передбачає менеджмент розвитку економіки, інновацій, освіти, компетенцій, інфраструктури, безпеки, охорони природи, кліматично-нейтральної енергетики в контексті декарбонізації. Зазначені складові відображають найважливіші цінності розвитку людської цивілізації у напрямі гармонії та прогресу. Аналізується хід виконання цілей сталого розвитку, робиться висновок про значне відставання у вирішенні поставлених завдань та необхідності радикального прискорення процесів у рамках їх ефективного менеджменту.

Ключові слова: цінності, компетенції, управління, декарбонізація, інновації, сталий розвиток, безпека, економіка, ефективність, глобалізація.

Problem statement. Documents from international organizations testify to the negative climatic consequences of economic activity in the post-industrial period, which are already leading to large-scale hurricanes, floods, landslides, droughts, expansion of deserts, crop losses in agriculture and significant financial losses throughout the world. The common aspiration of humanity for progress is the most important universal value of world civilization. This has found embodiment in the implementation of the concept of sustainable development and its goals, which ensure the integration of three dimensions: economic, social and environmental. The integrated development of these elements serves the progress of human development.

Analysis of recent research and publications. The problem of sustainable development of the study of humanity and the global economy is constantly in the center of attention of scientists and experts from different countries. Numerous aspects of this most important problem of our time are analyzed, in particular, innovative achievements and urgent tasks of scientific and technological development in key areas of the economy, aspects of studying the characteristics of economic growth in different geographic regions. The study of the growing negative effects of climate change, the dynamic development of promising climate-neutral energy sources, complex aspects of decarbonization of the world economy is of interest to a wide range of specialists. In the work of Couckuyt D., Van Looy A. [1] topical issues of managing environmentally friendly business processes are considered, which is an important basis for sustainable development, Honcharuk I.V. [2] examines a set of aspects of energy independence, which is especially important in the context of high consumption and significant cost of energy resources. Authors Borysiak O., Mucha-Kuś K., Brych V., Kinelski G. [3] pay attention to the study of a set of problems of climate-neutral innovations and energy security. Scientists Sohns T.M., Aysolmaz B., Figge L., Joshi A. [4] study the problem of managing environmentally friendly business processes to ensure business sustainability using German enterprises as an example. The energy security assessment system in the context of green and low-carbon economic transition is studied in the work of scientists Shu Zhang, Yubo Ma, Xinzhu Zheng, Qianting Zhu, Xu Tang, in their work [5]. Author Umantsiv H. [6] considers issues of sustainable development and corporate social responsibility. Researchers Gouda K.C., Thirumalai Raja R. [7] study the significant benefits of zero-emission policies for preserving the natural environment, increasing energy security and energy equality in developing countries. Kuznetsova I. in the article [8] shows that the development of low-carbon production should be considered a strategically important vector of enterprises.

Previously unsolved parts of the overall problem. The problem of climate change on the planet under the influence of economic activity in the era of dynamic development of the global economy is in the center of attention of experts, specialists in many fields of science and practice. Many goals and objectives of sustainable development in the name of human progress determine that a detailed study of modern trends in their implementation, taking into account the complex dynamics of processes and many

contradictions, geographical features of different regions cannot be fully exhausted. Of considerable scientific and practical interest is the study of the values of humanity, especially the implementation of sustainable development tasks in terms of innovation, the development of climate-neutral energy, primarily wind, solar, nuclear, infrastructure development, education and science, assessment of the success of the process, management of its dynamics and content. The range of such tasks is quite wide and is due to the complexity of the problem of sustainable development.

The purpose of the article is to formulate a model for implementing the economic and energy objectives of the sustainable development goals.

Summary of the main research material. The Copernicus Climate Change Service (C3S) reports on significant global climate findings for 2024 [9]: "2024 saw unprecedented global temperatures, following on from the remarkable warmth of 2023. It also became the first year with an average temperature clearly exceeding 1.5°C above the pre-industrial level – a threshold set by the Paris Agreement to significantly reduce the risks and impacts of climate change. Multiple global records were broken, for greenhouse gas levels, and for both air temperature and sea surface temperature, contributing to extreme events, including floods, heatwaves and wildfires. These data highlight the accelerating impacts of human-caused climate change". The climate situation is moving in only one direction – negative. This is confirmed by numerous confirmations. The international climate agency further cites the following facts: [9]: "an analysis of climate observations of climate parameters for 2024 showed the following. It was the warmest year on record, 0.72 °C warmer than the 1991–2020 average and 1.60 °C warmer than the pre-industrial level (the 1850–1900 average), making it the first calendar year to exceed that level by 1.5 °C. The last ten years have been the warmest ten years on record. 2024 was the first year with global temperature more than 1.5°C above the pre-industrial level; 11 months of the year saw the global-average surface air temperature above this threshold. The combined average temperature for 2023 and 2024 is 1.54°C above the pre-industrial level".

Figure 1 from the Copernicus Climate Change Service provides some key facts about global temperatures in 2024. The Copernicus Climate Change Service also indicates [9]: "2024 was the first year with global temperature more than 1.5°C above the pre-industrial level; 11 months of the year saw the global-average surface air temperature above this threshold. The combined average temperature for 2023 and 2024 is 1.54°C above the pre-industrial level. The UNFCCC Paris Agreement aims at "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels".

The world's most authoritative space agency, the American National Aeronautics and Space Administration (NASA), has unique capabilities for its satellites to study climate change. According to data published in March 2025 NASA [10], (Figure 2), analysis shows unexpectedly large sea level rise in 2024. This graph shows global mean sea level

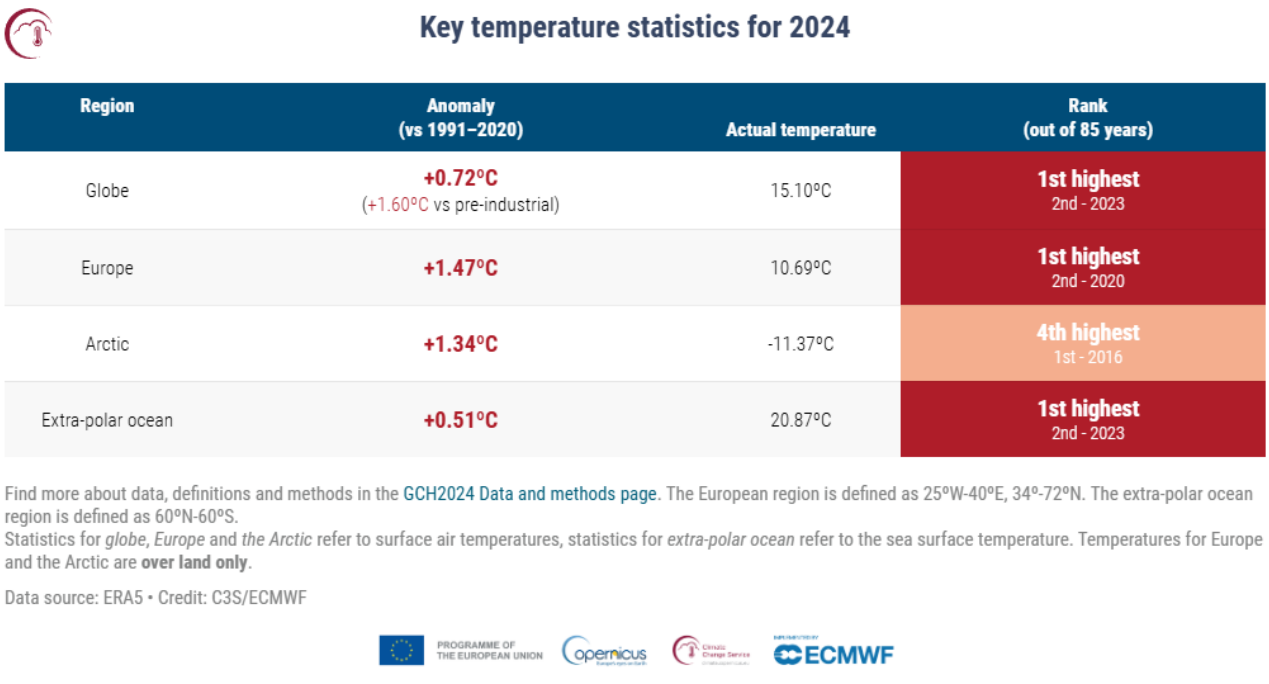

Figure 1 – Key temperature statistics for 2024

Source: [9]

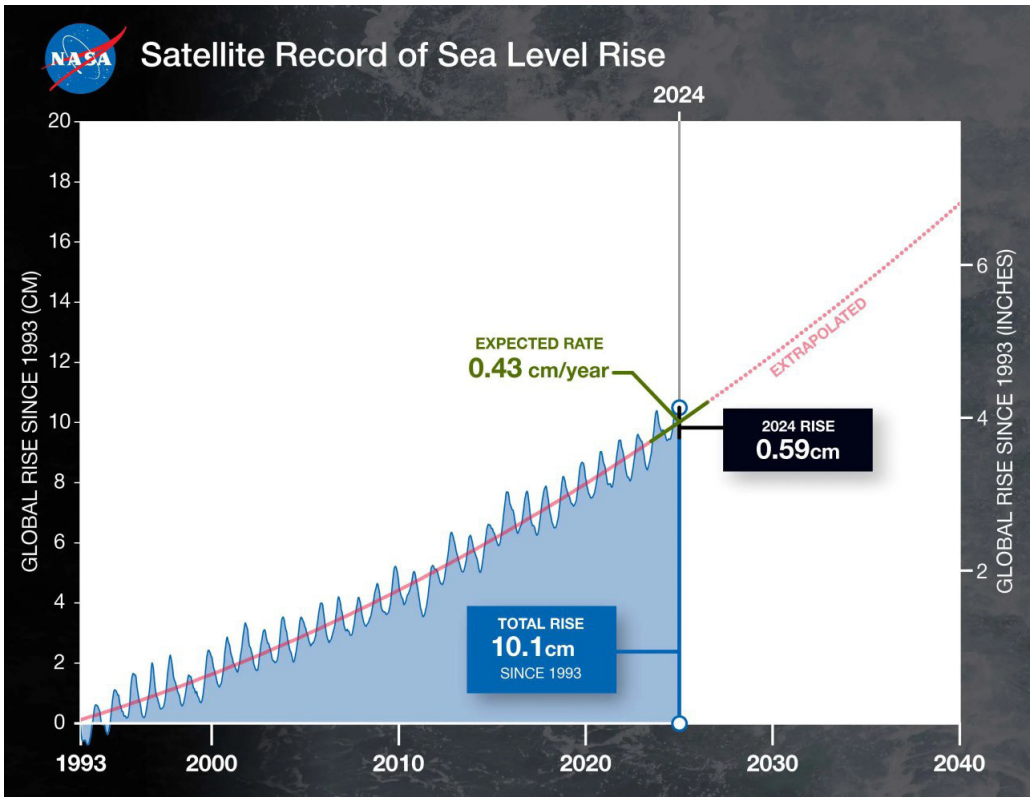

Figure 2 – Global mean sea level

Source: [10]

(in blue) since 1993 as measured by a series of five satellites. The solid red line indicates the trajectory of this increase, which has more than doubled over the past three decades. The dotted red line projects future sea level rise [10].

Global sea level rose faster than expected in 2024, mostly because of ocean water expanding as it warms, or thermal expansion. According to a NASA-led analysis, last year's rate of rise was 0.23 inches (0.59 centimeters) per year, compared to the expected rate of 0.17 inches (0.43 centimeters) per year [10]. "The rise we saw in 2024 was higher than we expected," said Josh Willis, a sea level researcher at NASA's Jet Propulsion Laboratory in Southern California. "Every year is a little bit different, but what's clear is that the ocean continues to rise, and the rate of rise is getting faster and faster [10]." NASA further indicates:" Since the satellite record of ocean height began in 1993, the rate of annual sea level rise has more than doubled. In total, global sea level has gone up by 4 inches (10 centimeters) since 1993" [10].

The desire for human progress in the most diverse components and manifestations of this concept is the most important universal value of world civilization. In the modern era of globalization, the principles of progress and harmony, which embrace all peoples of the earth regardless of geographical features, political structure and level of economic development, have found their embodiment in many international documents, among which a prominent place is occupied by resolution adopted by the General Assembly on 25 September 2015, the outcome document of the United Nations summit on the adoption of the development agenda Transforming our world: The 2030 Agenda for Sustainable Development [11]. The Sustainable Development Goals (SDG) and the values associated with them are intended to be implemented by all interested countries of the planet and various organizations and individuals around the world in solidarity cooperation and effective partnership in the interests of the common good. The interests of human development, of a specific individual, go hand in hand with the goals of preserving the natural environment surrounding man, preventing negative forms of human impact on nature, on global climate processes. Progressive development has generally accompanied humanity throughout its history. But such progress has often given way to crises and degradation instead of development, which has thrown the nations of the planet back, exacerbated crises, increased economic instability and general poverty. The United Nations declare their bold determination to give development a consistent, irreversible and sustainable nature in all areas most important for human civilization. The success of such multifaceted and complex processes is determined not only by the irreversibility of actions, but also by the efforts of all participants, taking into account their interests and the universal

solidarity of countries and peoples, which is of key importance. The international community undertakes an important commitment to achieve the implementation of 17 sustainable development goals, which reflect the key values of humanity and are the main comprehensive areas, as well as more specific and clearly defined 169 sustainable development tasks that correspond to the goals declared by the UN. The most important values of world civilization are associated with the possibilities of realizing human rights in their holistic understanding and ensure the harmonious implementation of the "three dimensions of sustainable development: economic, social and environmental" [11].

Let us analyze a number of UN sustainable development goals that are closely linked to the values of human development and reflect the international community's desire for progress, harmony, social, economic and climate sustainability, the development of innovative, emission-neutral energy, decarbonization, using the most important document for the global community, namely: (Table 1) [11].

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture. The growth of the planet's population, while simultaneously overcoming poverty, climate change and the response to it require a set of measures, in particular, a significant increase in the economic efficiency of agriculture, the introduction of many different types of innovations, an increase in production volumes that exceed global population growth, and the development of logistics. Very promising is the widespread use of specially designed biofuels for the purpose of decarbonization of various types of products and waste from agricultural production and the food industry. In particular, we are talking about solid biofuels, biomethane, biodiesel, the production of sustainable aviation fuel, which is extremely important. Sustainable aviation fuel is currently probably the only type of climate-neutral fuel for mainline aviation, capable of largely replacing aviation kerosene (Table 1).

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (Table 1). The development of various education, initially school, then vocational, but especially university, is an exceptionally important basis for innovation and production activities in all areas of modern science, fundamental and applied research, innovative developments of corporations, laboratories and research centers of universities. The importance of training highly qualified specialists

Table 1 – Model for the implementation of economic and energy objectives of the Sustainable Development Goals

№	Sustainable Development Goals [11]	Tasks of economic development and innovation	Decarbonization and energy development challenges
1	2	3	4
1	Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Increasing the economic efficiency of agriculture, introducing innovations, increasing production volumes, developing logistics, developing the food industry	Use of agricultural and food industry products and waste as biofuels
2	Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Education development is the basis for innovation and production activities. Lifelong education reflects the needs of a dynamically developing economy	The high role of innovation in the field of decarbonization and energy requires an appropriate level of preparation. Advanced ideas and the implementation of innovative developments rely on universities and research centers equipped with exceptionally trained personnel
3	Goal 6. Ensure availability and sustainable management of water and sanitation for all	Industrial and agricultural enterprises in many regions are experiencing problems with water. The world's population is growing rapidly. Measures are needed for rational use of water, its conservation	Climate change is exacerbating the water supply problem, especially in arid regions, which are becoming more numerous. The development of climate-neutral energy and decarbonization will help solve the water problem
4	Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all	For a high standard of living corresponding to the values of civilization, it is necessary to develop the production, transmission and storage of energy. The need for energy will increase, and resources will be exhausted. The international community must preserve nature and its resources, recognizing its full responsibility	The problem of providing all people on earth with climate-neutral energy is key to the modern global economy. Innovations and their use in energy allow us to successfully solve many problems by developing wind, solar, nuclear, and hydropower for the production and use of electricity. The most important direction of the global economy is the use of electric vehicles

End of table 1

1	2	3	4
5	Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for al	Effective economic development is possible in conditions of social harmony, decent treatment of individual rights, creation of conditions for revealing the creative potential of people, and continuous innovation process	The development of all sectors of the economy in the absence of large-scale crises is possible only under conditions of preserving the planet's climate, decarbonizing the economy, rationally using resources, and producing electrical energy in climate-neutral ways
6	Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	A developed and extensive sustainable infrastructure is the most important component of the modern economy. Innovation is the main driving force of human progress throughout its history, the source of industrial and post-industrial society, the most important value of civilization	Climate-neutral energy infrastructure is related to the production, transmission and storage of electric energy, hydrogen fuel, biofuels. Electric mobility infrastructure is related to charging devices and service elements of electric vehicles in various forms
7	Goal 12. Ensure sustainable consumption and production patterns	The category of rational consumption is an important condition for an effective economy and acquires additional value with the significant growth of the planet's population and the reduction of available resources	Sustainable energy production and consumption are linked to the development of climate-neutral energy and decarbonization, as well as the mainstream development of electromobility based on innovative achievements
8	Goal 13. Take urgent action to combat climate change and its impacts	The most important value given to humanity by nature is the possibility of existence and economic activity in conditions of a climate favorable for civilization. The main directions of human activity will always be the preservation of the planet's climate based on innovative achievements	Taking urgent measures to combat climate change and its consequences in the UN Sustainable Development Goals system is a category most directly related to decarbonization and the development of energy production and use. Electricity generation using wind, solar, and nuclear power plants will eventually replace traditional power plants using hard and brown coal, and oil products. The dominance of electric vehicles and electric rail transport is also a key factor
9	Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	The values of the environment in the form of the World Ocean, seas and marine resources are extremely important for the existence of all living things on earth, humans, and their economic activities	Decarbonization and climate-neutral energy contribute to the preservation of oceans and seas, including in terms of reducing water pollution and climate change
10	Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	The global system of measures for the protection and restoration of ecosystems on land, their rational use in economic activity, careful attitude to forests, the fight against desertification of soils reflects the system of human values that must be followed in the name of preserving the habitat	This direction of the system of sustainable development measures is directly related to decarbonization, since it is climate-neutral energy that helps preserve the climate, forests, soils, prevents the advance of deserts, and preserves biodiversity. Progress in this direction depends on the prospects in the innovation sphere
11	Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	This goal is of exceptional importance for the realization of all other goals: the most important universal value – solidarity – is at the same time a colossally effective global instrument for the development of civilization	Solidarity and joint efforts are the most important and only effective mechanism for solving the problem of climate change on the planet, taking into account innovative opportunities through the development of progressive types of energy, transport, the entire global economy and the rational use of resources

Source: developed by the authors using [11]

is especially increasing for international projects in areas of activity that are critical for the global community. The exceptionally high role of innovations in the field of decarbonization and energy requires a high level of training of specialists. Advanced ideas and the implementation of innovative developments, as a rule, rely on universities and research centers provided with extremely highly qualified personnel. Qualitative growth in the efficiency of climate-neutral energy, the production of electric vehicles, especially batteries, require the concentration of innovative efforts and investments, as well as the activities of scientists and engineers of exceptionally high qualification (Table 1).

Goal 6. Ensure availability and sustainable management of water and sanitation for all. People, industrial and agricultural enterprises in many geographic regions are already experiencing problems with water. The world's population is growing rapidly and such problems will worsen. Measures are needed for rational use of water, its conservation in production and household spheres based on the introduction of innovations. Climate change exacerbates the problem of water supply, especially in arid regions, the number of which is increasing. The development of climate-neutral energy and decarbonization will thus contribute to solving the water problem, preventing the increase in temperature on the planet.

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all. To ensure a high standard of living for people that meets the values and concepts of modern civilization, it is necessary to develop the production, transmission and storage of energy in the interests of the economy and individual citizens. The need for energy will increase, and many resources will be exhausted. The international community must work together to preserve nature and its resources, recognizing its moral responsibility to the present and future generations. The problem of providing all people on earth with energy in the quantities they need, in a reliable and constant manner, affordable, modern, climate-neutral energy is a key problem of the modern world economy and decarbonization. Innovations and their widespread use in the energy sector make it possible to successfully solve many of the problems of this problem by developing wind, solar, nuclear and hydropower for the production and use of electricity on an extremely large scale. The most important area of the global economy is the use of electric vehicles and their complete replacement of cars with internal combustion engines (Table 1).

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for al. Effective, progressive, comprehensive development of the economy is possible in conditions of social harmony, decent attitude to the rights of the individual, creation of conditions for revealing the creative potential of people, continuous innovation process, which is the basis of the values of modern civilization. Dynamic development of all sectors of the global economy in the absence of large-scale crises is possible only in conditions of preserving the planet's climate, decarbonization of the economy, rational use of all types of resources, production of large quantities of energy, to the greatest extent, electrical energy in climate-neutral ways.

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. Developed and extensive sustainable infrastructure is the most important component of the modern economy. The most important direction of development of transport infrastructure is the construction of highways and electrified railways (Table 1). Innovations are the main driving force of human progress throughout its history, the source of industrial and post-industrial society, the most important value of civilization. Infrastructure in the energy sector is of paramount importance and should be constantly developed. Climate-neutral energy infrastructure is associated with the production, transmission and storage of electrical energy, hydrogen fuel, biofuels. Electromobility infrastructure is associated with charging devices and service elements for electric vehicles in various manifestations. Innovations in the field of climate-neutral energy and electromobility ensure progress in this most important area of human activity and the modern global economy as a whole.

Goal 12. Ensure sustainable consumption and production patterns. The category of rational consumption is an important condition for an efficient economy and acquires additional value with the significant growth of the planet's population and the reduction of available resources. Rational production, as well as rational consumption, are associated with comprehensive innovations and the implementation of their achievements. Rational production and consumption of energy are very closely related to the development of climate-neutral energy and decarbonization, as well as the main direction of the development of electromobility based on innovative achievements.

Goal 13. Take urgent action to combat climate change and its impacts. The most important value given to humanity by nature is the ability to exist and carry out economic activity in a climate favorable for civilization. Human activity in the post-industrial era and especially in recent decades has led to extremely negative climate changes, which are constantly worsening. The key main areas of human activity will always be preserving the planet's climate based on innovative achievements and effective management in this area. Taking urgent measures to combat climate change and its consequences in the UN system of sustainable development directions is a category most directly related to decarbonization and the development of energy production and use. These actions can be successful only when the production of primary electricity using wind, solar, nuclear power

plants, in particular, using small modular reactors, as well as hydroelectric power plants, the use of hydrogen fuel and various types of biofuels will be such a widespread phenomenon that it will completely replace traditional power plants using hard and brown coal, fuel oil, and other petroleum products. A key factor is also the complete global dominance of electric vehicles, electric rail transport, hydrogen-fueled or biofueled ships, electricity in the public sector and industry, and other sectors of the economy.

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development. The values of the environment in the form of the World Ocean, seas and marine resources are extremely important for the existence of all life on earth. Decarbonization and climate-neutral energy contribute to the preservation of the oceans and seas, including in terms of reducing water pollution and climate change.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. This direction of the system of sustainable development measures is directly related to decarbonization, since it is climate-neutral energy that helps preserve the climate, forests, soils, prevents the advance of deserts, and preserves biodiversity. Progress in this direction depends on prospects in the innovation sphere, but has universal significance.

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development. This goal (Table 1) is of exceptional importance for the implementation of all other goals: the most important universal value – solidarity, the joint solution of all complex problems of humanity in the name of the present and future generations, is at the same time a colossally effective global instrument for the development of civilization. Solidarity and joint efforts are the most important and only effective mechanism for solving the problem of climate change on the planet, taking into account the innovative capabilities of leading universities, research centers, scientists and specialists, the general public through the development of progressive types of energy, transport, the entire global economy and the rational use of resources.

The Sustainable Development Goals Report 2024 shows the progress towards achieving the Sustainable Development Goals. António Guterres Secretary-General of the United Nations gives an assessment of this document [12]:" The Sustainable Development Goals Report 2024 makes for sobering reading. It finds that only 17 per cent of the SDG targets are on track, nearly half are showing minimal or moderate progress, and progress on over one third has stalled or even regressed. The climate crisis continues to escalate. Biodiversity loss is accelerating". Next, António Guterres formulates the key tasks for the implementation of the sustainable development goals [12]: "Massive investment and more effective partnerships are needed to drive critical transitions across food, energy, digital connectivity and more, unlocking progress right across the Goals".

An analysis of the energy aspects of the document shows negative conclusions in this area, which is critically important for humanity [12]: "Highest-ever greenhouse gas emissions reveal a global failure to meet climate goals. In 2022, global greenhouse gas emissions reached a new record of 57.4 gigatons of CO_2 equivalent, according to the United Nations Environment Programme's Emissions Gap Report 2023. About two thirds of emissions comprised CO_2 from fossil fuel combustion and industrial processes. Except transportation, emissions from all major sectors have rebounded since the pandemic and now exceed 2019 levels. The energy sector, responsible for 86 per cent of global CO_2 emissions, remains the largest contributor, driven by the expansion of coal- and gas-fired power generation. Governments plan to produce around 110 per cent more fossil fuels by 2030 than would be consistent with limiting warming to 1.5°C. Keeping warming to 1.5°C calls for a 42 per cent reduction in greenhouse gas emissions by 2030, requiring an 8.7 per cent annual decline. For a 2°C limit, a 28 per cent drop by 2030 is necessary or a 5.3 per cent annual decrease. The only comparable fall was by 4.7 per cent during the pandemic from 2019 to 2020. Current national policies set the world on track for warming of 3°C. There is currently only a 14 per cent chance of limiting warming to 1.5°C, underscoring the urgency of immediate, accelerated action to significantly cut emissions this decade" [12].

Analysis of the implementation of sustainable development goals allows us to make necessary adjustments to the process, rely on successful solutions of effective management, and more actively and consistently move towards grandiose milestones in the interests of the harmonious development of human civilization.

Conclusions. Taking urgent measures to combat climate change and its consequences in the UN sustainable development system is a category most directly related to decarbonization and the development of energy production and use. Electricity generation using wind, solar, and nuclear power plants will eventually replace traditional power plants using hard and brown coal, and oil products. The dominance of electric vehicles and electric rail transport is also a key factor. The authors present a model for implementing the economic and energy objectives of the sustainable development goals. These components reflect the most important values of the development of human civilization in the direction of harmony and progress. An analysis of the implementation of sustainable development goals showed a significant lag in solving the tasks set and the need for radical acceleration of processes within the framework of their effective management.

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