

## ECONOMICS

UDC 338.24.021.8

## LOW-CARBON ECONOMY: WORLD TRENDS AND COUNTRY ANALYSIS

T. G. Zoryna<sup>1</sup>, Yang Zhuxi<sup>2</sup><sup>1</sup> Doctor of Economics Sciences, Associate Professor, Institute of Power Engineering of NAS of Belarus, Energy security department, Minsk, Republic of Belarus, e-mail: tanyazorina@tut.by<sup>2</sup> PhD student, Belarusian State University, Minsk, Republic of Belarus, e-mail: yangzhuxi21@gmail.com**Abstract**

This article outlines the current understanding and specific policies of different countries on the concept of "low-carbon economy", and is committed to studying the low-carbon economic policies implemented by various countries, with a view to further promoting the "green economy" transformation plan of the Republic of Belarus. This article introduces the energy policies of different countries by collecting and observing and comparing data and materials, and summarizes the current development trend of the world's low-carbon economy.

**Keywords:** low-carbon economy, green energy policy, energy transition, low-carbon society.

## НИЗКОУГЛЕРОДНАЯ ЭКОНОМИКА: МИРОВЫЕ ТРЕНДЫ И СТРАНОВОЙ АНАЛИЗ

Т. Г. Зорина, Ян Чжуси

**Реферат**

В этой статье описывается текущее состояние и конкретная политика разных стран в отношении концепции «низкоуглеродной экономики», а также она посвящена изучению низкоуглеродной экономической политики, проводимой различными странами, с целью дальнейшего продвижения «зеленой экономики» для трансформации Республики Беларусь. В этой статье представлена энергетическая политика разных стран путем сбора, наблюдения и сравнения данных и материалов, а также обобщены текущие тенденции развития низкоуглеродной экономики в мире.

**Ключевые слова:** низкоуглеродная экономика, политика «зеленой» энергетики, энергетический переход, низкоуглеродное общество.

**Introduction**

"Low carbon economy" first appeared in government documents in the 2003 the United Kingdom energy white paper "Our Energy Future: Creating a Low Carbon Economy" [1]. In the context of global warming, the "low carbon economy" based on low energy consumption and low pollution has become a global hotspot.

Low-carbon economy means that under the guidance of the concept of sustainable development, through technological innovation, institutional innovation, industrial transformation, new energy development and other means, the consumption of high-carbon energy such as coal and oil can be reduced as much as possible, and greenhouse gas emissions can be reduced [2].

The global background proposed by the low-carbon economic policy is a severe challenge to human survival and development caused by global warming [3]. A comparative analysis of the energy policies implemented by different countries will help us understand the decisions made by countries with different historical and natural environments to deal with the ecological energy crisis, thus providing recommendations for accelerating the transition to a green economy in the Republic of Belarus.

**Material and method**

We have collected and tabulated the low-carbon policies currently being implemented mainly by different countries (Table 1). A "+" in the table indicates that the policy is being implemented, and a "-" indicates that the policy has not been implemented or its implementation has been hindered. We will take the low-carbon policies in the table 1 as an example, look for the differences and similarities of low-carbon policies in different countries, and obtain conclusions by quantitative comparative analysis.

When collecting data and making a table of low-carbon economic policies in various countries, we can clearly see that due to the different natural environments and historical cultures between countries, the low-carbon policies adopted by countries are also different. We will elaborate and analyze these policies in detail.

**RES (Renewable energy resources)**

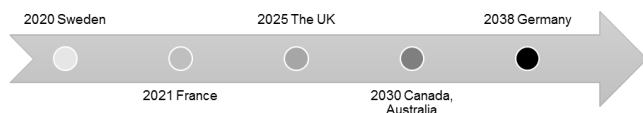
From table 1, we can see that all countries choose to use new clean energy.

**Table 1** – Low carbon policies in different countries [1–12]

	China	Belarus	the United States	the United Kingdom	Japan	Denmark	Russian Federatio	India	Germany	Turkey	Canada	France	Brazil	South Korea	European Union
RES	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Eco-industry	+	+	+	-	+	+	+	-	+	+	+	+	-	-	+
Climate change tax	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-
Financial subsidy	+	-	+	+	+	+	+	-	+	-	-	+	+	-	+
Tax incentives	+	-	-	+	+	+	-	-	+	-	+	+	+	-	+
Enact laws	+	+	+	+	+	+	+	-	+	+	+	+	+	-	+
Improve the carbon trading market	+	-	-	+	+	+	-	+	-	-	+	+	-	-	+
Eco-plan	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Reform the industrial structure	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

After investigation, the focus of new energy developed by different countries is also different. For example, China focuses on the development of wind, hydro, nuclear and geothermal energy. In April 2021, the National Energy Administration of China issued an announcement to solicit public comments on the "Notice on Matters Related to the Development and Construction of Wind Power and Photovoltaic Power Generation in 2021" [1]. The opinion stated that it is necessary to implement the goals of carbon peaking and carbon neutrality, and by 2030, the proportion of non-fossil energy in primary energy consumption will reach about 25 %, and the total installed capacity of wind power and solar power will reach more than 1.2 billion kilowatts; the European Commission passed in 2007. The EU strategic energy technology plan, the purpose of which is to promote the research and development of new low-carbon technologies [2]; the British government is currently not considering the construction of new nuclear power plants, and the important measures for carbon reduction are the development of wind energy and biomass energy [4]; the German government vigorously develops wind energy and promotes Existing wind equipment is replaced, and the development of biogas energy is encouraged. The German government has also formulated the "Renewable Energy Heating Law" to promote the use of renewable energy for heating. The EU emphasizes the increase in the proportion of renewable energy; Japan emphasizes the role of nuclear power and solar energy in terms of clean energy. To this end, Japan further implements incentive policies including subsidies to strengthen the world's first position in the use of solar energy. The United States has restarted nuclear energy development, including encouraging the construction of advanced nuclear power plants, funding research and development of advanced nuclear reactor technology, and establishing global nuclear energy partnerships [5].

In the first half of 2020, coal-fired power generation in Portugal, Spain, and Germany fell by 95 %, 58 %, and 39 %, respectively, and coal-fired power generation in the Netherlands, Austria, and France all fell by more than 50 % [6]. Germany, the United Kingdom, Austria and other countries have accelerated the shutdown of coal power facilities and made clear the timetable for the withdrawal of coal power. Germany passed the "Phase-out Coal Power Act" and the "Mining Area Structural Adjustment Act" in 2020, stipulating the phase-out of coal power by 2038 at the latest; the United Kingdom has pledged to completely stop using coal power by 2024. Australia plans to close coal-fired power stations by 2030 (Figure 1).



**Figure 1** –The withdrawal time of coal power in developed countries in the world [2, 4, 5]

### Eco-industry

From table 1, with the exception of the UK, India, Brazil and South Korea, all countries have opted to develop eco-industries. These countries hope to plan the structure of the industrial system into an industrial ecological chain consisting of three parts: "resource production", "processing production" and "reduction production" through legal, administrative or economic means.

China proposes to vigorously develop eco-agriculture, eco-industry and eco-tourism, that is, let the industry take the road of pollution-free and clean [1]. The construction of Japan's eco-industrial parks is dominated by regional autonomous bodies, jointly assisted and managed by the state and local governments, and the active participation of enterprises and administrative departments [7]. Germany mainly controls air pollution, actively establishes nature reserves, and restores polluted water bodies and vegetation [5].

In order to cope with climate change and reduce greenhouse gas emissions, many countries have successively established carbon neutrality goals to guide the green and low-carbon development of the economy.

Carbon neutrality refers to the greenhouse gas directly or indirectly generated by the country, enterprises, or individuals within a certain period of time, through afforestation, energy saving and emission reduction, etc.,

to achieve positive and negative emissions offset, so as to achieve the goal of "zero emissions".

According to statistics from the British Energy & Climate Intelligence Unit, as of January 2021, the European Union and 27 countries have achieved or committed to carbon neutrality goals (Table 2).

**Table 2** – Timeline for countries and regions to commit to carbon neutrality [1, 2, 4, 5, 7, 9, 10]

Countries	Target year	Current state
The UK, France, Denmark	2050	Legislation completed
EU	2050	Under legislation
Germany, Canada, Japan, Korea	2050	Policy statement
The US	2050	Policy statement
China, Brazil	2060	Policy statement

From table 2, we can see that 2050 is the main time node for the world to achieve carbon neutrality, including the European Union, the United States, France, the United Kingdom, and nearly 20 countries and regions that plan to achieve carbon neutrality by 2050. A few countries plan to achieve carbon neutrality earlier. It is worth mentioning that Bhutan has achieved the goal of negative carbon emissions in 2018 [8]. But while these countries have set near-term goals, many are not moving fast enough, and ultimately achieving carbon neutrality will not be easy. Take the G20 countries whose total GDP accounts for 90 % of the world's total GDP as an example. According to statistics from IEA, in 2019, the G20 countries emitted a total of 78 % of the world's carbon dioxide, but so far only 9 member countries have proposed carbon neutrality goals at the legislative or policy level.

### Climate change tax

The survey found that only the UK and France opted for a climate change tax [4]. The climate change tax is a national tax and is levied on fuels (electricity, natural gas, solid fuels or liquefied petroleum gas, etc.) used in the industrial, commercial and public sectors for heating, lighting or kinetic energy, is designed to encourage efficient use of energy and promote renewable energy, thereby helping the UK and France achieve their national and international targets for reducing greenhouse gas emissions. The household energy consumption does not fall within the scope of the collection, and small-scale business energy consumption is also not within the scope of collection.

### Financial subsidy and Tax incentives

China provides subsidies to consumers who purchase new energy vehicles. The specific standard is that the government will give subsidies of 3,000 yuan/kWh to new energy vehicles that meet the supporting conditions. The maximum subsidy for plug-in hybrid passenger vehicles is 50,000 yuan per vehicle; the maximum subsidy for pure electric passenger vehicles is 60,000 yuan per vehicle [1]. The sales volume of new energy vehicles in China increased from 507,000 in 2016 to 1.367 million in 2020, completing a leapfrog development in a short period of time.

Germany has established a low-carbon fiscal and tax policy from the perspective of improving energy efficiency and promoting energy conservation [9]. One is to levy an ecological tax on oil, gas and electricity since 1999; the other is to sign an agreement with the industry, stipulating that the tax incentives enjoyed by enterprises are linked to energy conservation.

EU fiscal policy focuses on developing new rules for the development of carbon capture and storage technologies and the application of market instruments such as environmental taxes [2].

In terms of encouraging enterprises to save energy and reduce emissions, the New Energy Law of the United States proposes that the government will provide 1 billion US dollars of financial support every year for sectors such as transportation and buildings with high energy consumption and encourage relevant research departments to develop energy-efficient operating systems. In encouraging families and individuals to use energy-saving products, the US government will provide tax relief for large-scale

energy-consuming facilities such as heating and air-conditioning [5]. In addition, each state government has also formulated local preferential tax policies for energy-saving products, such as California energy-saving dishwashers, washing machines, etc., according to the actual local conditions, and the tax reduction amount is between 50 and 200 US dollars.

The Canadian government implements the "green procurement" policy and increases financial support and guidance in energy conservation and emission reduction. Canada will invest 1.48 billion Canadian dollars in the next four years to carry out the "ecological energy renewable development plan". In addition, the government will invest \$ 35 million in the Eco-Energy Renewable Heating Program to support industry in developing environmentally friendly heating technologies for hot water supply and space heating [5].

Japan has established a relatively complete vehicle fuel tax policy. Implement high tax policies for energy products [7]. For example, the tax included in the price of oil is more than six times that of the United States. The government encourages people to use energy-saving products, and provides tax incentives and subsidies for energy-saving products. It is understood that the Japanese government implements special depreciation and tax relief for the use of 111 types of energy-saving equipment listed in the catalog, and the tax relief accounts for about 7 % of the equipment purchase cost. The Japanese government has also formulated a series of preferential measures to encourage the research and development and application of electric vehicles. Overprice subsidies, low-interest loans and a 7 % tax cut are offered to EV buyers. At the same time, the value-added tax, purchase tax and annual tax on electric vehicles will be lowered.

The UK uses fiscal and taxation policies to guide and support household energy conservation and emission reduction [4]. The first is to levy garbage tax and environmental protection tax. Garbage tax is calculated and levied according to the principle of "pay as much tax as you throw away"; environmental protection tax, also known as "green tax", requires house renters to hire an energy inspector to assess the energy consumption of the house before leasing, and then Obtain a rental license and pay environmental tax for the rated rental property.

The French government encourages the use of energy-saving equipment in industries, services, housing construction, transportation and other fields through preferential policies of tax reduction and exemption [10]. In addition, the French government also encourages enterprises and individuals to develop and use clean vehicles using solar energy or electricity, and through preferential depreciation ratios, new energy vehicles and related equipment are encouraged to enter the market. At the same time, the French government encourages the production and consumption of products listed in the catalogue published by the government through financial subsidies, and provides subsidies of 15 % to 20 % of the price for the purchase and use of related equipment. The establishment of an energy conservation guarantee fund is also an important part of the policy. The fund was jointly established by the French Environment and Energy Control Agency and the Small and Medium Enterprise Development Bank to provide loan guarantees for small and medium-sized enterprises to invest in energy efficiency, so as to ensure that small and medium-sized enterprises can apply for loans for energy efficiency investments.

#### Enact laws

In addition to India and South Korea, other countries have responded in terms of energy legislation. China has formulated the "Key Points of Energy Supervision in 2021" and "Key Task List of Energy Supervision in 2021", and seriously investigated and dealt with a number of typical cases. The UK proposed in May 2022 that an energy bill would be introduced to enable the transition to cheaper, cleaner and safer energy. From the National Energy Act of 1978 issued in November 1978 to the Energy Independence and Security Act of 2007 in December 2007, the United States has gradually established development strategies, development goals and technology research and development plans for new energy-related industries. In March 2010, Japan proposed the "Basic Act on Global Warming Countermeasures" and passed the "Renewable Energy Special Measures Act" in August 2011. In 2009, the European Union passed the "EU Third Energy Reform Plan", which proposed that by 2025, energy efficiency should be increased by 20 %, and new energy should account for 20 % of the total energy.

Through the above data, we found that the laws of energy conservation and emission reduction in western developed countries are structured from the two dimensions of energy legislation and environmental resources legislation. First of all, in the energy legislative framework, there are not only comprehensive energy basic laws, but also a separate law to adjust coal, electricity, oil and natural gas, and there are legal norms that harmonize the environment and resources. For example, under the leadership of its basic energy law, the Energy Act (enacted in 1935, revised in 1998), Germany has established special energy laws including the Coal Economy Act (1919) and the Energy Supply Security Act (1974) legislative system.

Secondly, developed countries will choose to establish a special energy conservation legal system. For example, in order to promote the legislative process of energy conservation and emission reduction in its member states, the EU has promulgated and implemented three mandatory minimum energy efficiency standards, one framework directive on mandatory energy efficiency labeling for household appliances, and eight implementing directives in terms of product energy efficiency.

It is worth noting that in the legislation of many countries, greenhouse gas emission reduction is considered to be the most important content of energy conservation and emission reduction laws and policies.

First, the government will set statutory greenhouse gas emission reduction targets. For example, on November 26, 2008, the UK enacted the Climate Change Act, which made the UK the first country to legally reduce greenhouse gas emissions by 80 % by 2050 compared to 1990 levels. On June 26, 2009, the U.S. House of Representatives passed the Clean Energy and Security Act, which stipulates that by 2020 the U.S. will reduce greenhouse gas emissions by 17 % from 2005 levels and by 83 % by 2050.

Second, support the advancement of clean energy through legislation to make clean energy an important alternative source for addressing climate change. For example, Japan's legislation to promote nuclear energy is the "Basic Law of Atomic Energy" (1955); in 1997, Japan enacted the "Law on Special Measures for Promoting the Utilization of New Energy" and its supporting regulations, "Law on Special Measures for Promoting the Utilization of New Energy", which vigorously promotes the development of wind and solar energy, geothermal, waste-to-energy and fuel cell power generation and other new and renewable energy sources.

Thirdly, countries actively promote the extensive participation of the international community in greenhouse gas reduction actions. The "Kyoto Protocol" established three mechanisms, one is emissions trading (ET) between developed countries, which is a mechanism for cooperation between developed countries that undertake quantitative emission reduction obligations; the other is developing countries and developed countries. The Clean Progress Mechanism (CPM), which allows developed countries to invest in GHG reduction projects in developing countries, and the resulting Certified Emission Reductions (CERs) can be credited against their own emission reduction obligations. The third is the Joint Implementation (JI) between transition countries and developed countries, which is a project-based cooperation mechanism between transition countries and developed countries in the Soviet Union and Eastern Europe. It is similar to CDPM, but has its own independent management agency, registration procedures, methodologies, etc.

#### Improve the carbon trading market

Regarding the improvement of the market-oriented mechanism of carbon neutrality, countries have also adopted different approaches, and the carbon tax system is one of them.

A carbon tax is a tax levied on fossil fuels based on their carbon content or carbon emissions for the purpose of reducing carbon dioxide emissions. From 2019 to 2020, countries such as the Northwest Territories of Canada, Singapore, and South Africa began to implement carbon taxes [11]. As of May 2020, there were 24 countries that implemented carbon taxes (fees).

In comparison, Europe is the most mature region for carbon taxation in the world. Carbon tax has played a positive role in reducing carbon emissions, reducing energy consumption and changing energy consumption structure in European countries, especially in Nordic countries [2]. In March

2021, the European Parliament passed a motion to establish a Carbon Border Adjustment Mechanism (CBAM), and decided that from 2023, if countries that have trade with the EU do not comply with the relevant regulations on carbon emissions, their exports will face the carbon tariff.

Countries have common but differentiated responsibilities for climate change according to their national strengths and historical responsibilities. This principle has long been an important part of international climate cooperation. Developing countries generally believe that if developed countries unilaterally implement carbon border price adjustment strategies on commodities imported by developing countries, it violates the long-established principles of international climate agreements. At the same time, some countries call on developed countries to be responsible for the carbon footprint of their consumption.

Take the European Union as an example. In the EU carbon border price adjustment mechanism, some people propose that the mechanism should exempt exports from least developed countries, but some people think that such a proposal will reduce the effectiveness of the mechanism [5]. The compromise proposal is to take part of the revenue from the carbon border price adjustment mechanism and use it to compensate developing countries for losses in the process of carbon reduction.

### Eco-plan

All countries have the same choice in ecological planning, whether developed or developing countries have their own ecological plans.

In 2016, China set a time limit of five years, and proposed to adjust and optimize the energy structure before 2022, and build a safe and stable modern energy industry system [12]. In April 2020, the French government released a new multi-year energy plan (PPE), which aims to achieve 20.1 GW of renewable power generation capacity by 2023 and 44 GW of renewable power generation capacity by 2028. In December 2020, Germany adopted a draft amendment to the Renewable Energy Act (EEG), officially setting the target for German offshore wind power: 20 GW by 2030 and 40 GW by 2040. In the same month, the Japanese government announced that by 2050, Japan's renewable energy supply will nearly triple from the current basis, accounting for 50 % to 60 % of the country's electricity. In March 2021, the UK announced plans to switch 20 terawatt-hours of energy from fossil fuels to low-carbon energy by 2030, equivalent to 17 % of all renewable energy in the UK in 2019. The United States established ARPA-C, an inter-agency advanced research organization focused on climate, to help the United States achieve the goal of a 100 % clean energy economy. In 2021, the Biden administration pursues a "green energy revolution", vigorously promoting solar power, onshore and offshore wind power, and deploying nuclear power and hydropower.

**Table 3** – Green policies and Eco-plans introduced by some countries/regions [1, 2, 4, 5, 7, 9, 10]

Countries/Regions	Policies
Germany	Invest 9 billion euros as an investment in the field of hydrogen energy; the German people will give financial subsidies when purchasing electric vehicles
Japan	Launch a green growth strategy involving energy, transportation and other fields; strengthen international cooperation; the government actively provides financial support and subsidies
China	Incorporate emission reduction targets into the "12th Five-Year Plan"; Shenzhen has become the first national low-carbon ecological demonstration city; set up special institutions to guide "low-carbon economy"; do a good job in publicity and education
India	Set up a special fund (about 1.3 billion US dollars) to support the development of renewable energy and related manufacturing industries, adjust taxes and fees for imported renewable energy, and set up a basic tariff of 15 %.
Turkey	Renewable energy power generation companies that have won the tender quota before June 30, 2021 will receive a 10-year fixed-price power purchase guarantee
Korea	By 2025, the cumulative installed capacity of clean energy will reach 42.7 million kilowatts; about 20.3 billion US dollars will be invested to build a smart grid.
France	Proposes a 100 billion euro stimulus package, plans to spend 30 billion euros on greener energy policies
EU	A quarter of the "Next Generation EU" economic stimulus package of up to 750 billion euros has been passed, and a quarter of the funds have been clearly used for the EU's green recovery plan and fair transition fund.

### Findings

As the birthplace of the industrial revolution and the founder of the existing high-carbon economic model, the United Kingdom deeply recognizes its historical responsibility in the process of climate change. The most active advocate and practitioner of low-carbon economy.

As a developed industrialized country, the German government is at the forefront of the world in energy development and environmental protection technology. The German government has implemented a high-tech strategy for climate protection, including climate protection and reduction of greenhouse gas emissions into its sustainable development strategy, and has formulated specific goals and objectives for climate protection in energy conservation and emission reduction through legislation and a highly binding executive mechanism.

Since 2009, France has attached great importance to and committed to reducing the emission of carbon dioxide and other greenhouse gases, and vigorously developed renewable and clean energy with the theme of nuclear energy. France has achieved remarkable results in saving energy and reducing carbon emissions in the fields of industry, construction and transportation.

Denmark has created a unique economy in terms of renewable energy and clean and efficient energy technologies such as wind power and straw power generation. Denmark has become one of the best countries in the world to reduce carbon dioxide and solve the energy problem, embarking on a path of sustainable energy development.

In 2008, the Canadian government refined the specific categories of the four major scientific and technological development areas of the national science and technology development strategy of "making science and technology an advantage of Canada", especially in the fields of environmental science and technology and energy.

Although the United States has not joined the "Kyoto Agreement", in the past 20 years, the United States has attached great importance to energy conservation and carbon reduction. The United States implemented the Clean Air Act in 1990, passed the Energy Policy Act in 2005, and in July 2007 the US Senate proposed the Low-Carbon Economy Act.

Japan is a resource-poor country, and it is also a country that is wreaking havoc on the world's environment and global climate change. In 1997, as the initiator and sponsor of the Kyoto Protocol, Japan invested heavily in the development and utilization of alternative and renewable energy sources such as solar energy, wind energy, light energy, hydrogen energy, and fuel cells, and actively developed research on tidal energy and geothermal energy.

Table 4 shows the proportion of renewable energy in final energy consumption in each country from 2010 to 2019.

Table 4 – Renewable share in final energy consumption of different countries [6]

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
China	5	5	5.9	6.5	7.3	7.7	8.4	9.1	9.8	10.6
Belarus	7.3	7.5	7.2	7	6.7	6.8	6.7	7.3	7.2	7.8
the United States	7.4	8.4	8.7	9.1	9.2	9	9.5	9.9	10.1	10.4
the United Kingdom	3.7	4.4	4.8	6	7.4	8.6	8.6	9.7	11	12.2
Japan	4.7	4.8	4.7	5.1	5.6	6.2	6.4	6.9	7.2	7.7
Denmark	21.2	23.8	26.9	27.1	30.2	32.9	32.2	35.2	34.7	37.5
Russian Federation	3.3	3.2	3.2	3.6	3.3	3.2	3.4	3.2	3.1	3.2
India	12.0	11.7	12.0	13	13.1	13.5	13.9	14.4	15.4	15.9
Germany	11.6	12.5	13.6	13.6	14.0	14.6	14.2	15.2	16.1	17.2
Turkey	14.2	12.7	13.0	13.8	11.5	13.3	13.2	11.4	11.8	14.1
Canada	21.9	21.8	22.2	22.4	22.5	22.7	22.1	22.5	22.0	22.1
France	12.0	10.7	12.3	13.4	13.2	13.3	14.2	14.1	15.2	15.5
Brazil	42.8	41.8	40.2	39.4	38.7	40.4	42.4	42.1	43.3	44.1
South Korea	1.3	1.3	1.6	1.9	2.9	2.7	2.5	2.8	3.2	3.4
European Union	13.4	13.5	14.7	15.4	15.9	16.4	16.5	16.6	17.3	18.1

From Table 4, we can see that, except for Russia and Canada, where the data are relatively flat, the proportion of renewable energy in final energy consumption in other countries has fluctuated somewhat over the past 20 years, but the overall trend is rising. This shows that the energy conservation and emission reduction policies of various countries have achieved very good results, and it also shows that the energy conservation and emission reduction policies of various countries are being seriously implemented.

#### Conclusions

The purpose of the research is achieved – we understand how different countries formulate low-carbon economic strategies according to national conditions and social conditions. Countries are actively developing a low-carbon economy and issuing policies. On the one hand, they are actively taking responsibility for environmental protection and fulfilling the requirements of the national energy conservation and consumption reduction targets. On the other hand, they are adjusting the economic structure, improving the efficiency of energy utilization, developing new industries, and building an ecological civilization.

Due to different national conditions, the methods of choice are also different: countries with land resources or natural resources will choose to vigorously develop emerging industries, countries with relatively scarce resources will encourage people to adjust their consumption structure through financial subsidies and financial support; developed countries will directly industrial development is promoted through financial investment (such as the establishment of special funds), while developing countries are more likely to adjust taxes and fees.

Therefore, we can try to make some suggestions for the energy transition of the Republic of Belarus: First, actively develop renewable energy technologies: such as researching more reliable battery energy storage technologies, and actively developing clean energy such as solar energy and wind energy. Second, the government should create a level playing field for renewable energy technologies: even though Belarus currently has certain technologies, production capacity and funds for clean energy transformation, it still needs policies to reduce market risks. That is, the government should provide financial support for energy technology training, research and innovation, and pass legislation to protect the energy ecosystem. Third, it is necessary to stimulate investment in energy by public and private financial institutions. With sufficient funds in the energy industry, the government needs to have a clear system of accountability and commitment, including but not limited to adjustments to loan portfolios, bonuses for investment companies, and strict punishment standards.

#### References

- Cao, Y. L. Renewable energy policies are frequently favorable wind power photovoltaic windward / Y. L. Cao // China industry news. – 2022. – No. 4. – P. 3–6.
- Aune, F. R. Are Carbon Prices Redundant in the 2030 EU Climate and Energy Policy Package? / F. R. Aune, R. Golombek // The Energy Journal. – 2021. – P. 3–7.
- United Nations Framework Convention on Climate Change [Electronic resource]. – Access mode: <https://unfccc.int/resource/docs/convkp/conveng.pdf>. – Date of access: 03.04.2023.
- Song, Y. L. The Evolution of British Energy Policy System / Y. L. Song, Y. L. Song // China Finance. – 2022. – No. 8. – P. 86–87.
- Luo, Z. X. Energy shortage changes European and American energy policies / Z. X. Luo // PetroChina. – 2022. – Vol. 03. – P. 29.
- Data and statistics [Electronic resource]. – Access mode: <https://www.iea.org/data-and-statistics>. – Date of access: 03.04.2023.
- Ma, H. K. Research on the Green Ecological Transformation of my country's Agricultural Support Policies – Based on the Comparative Analysis of China, Japan and South Korea / H. K. Ma, S. H. Mao // Economic System Reform. – 2020. – No. 221. – P. 157–165.
- Ntom, U. E. Performance and sustainability of environment under entrepreneurial activities, urbanization and renewable energy policies: A dual study of Malaysian climate goal / U. E. Ntom, P. L. Davou, E. Firat // Renewable energy. – 2022. – Vol.189, No. 3. – P. 734–743.
- Sun, Yanhong. A Comparison of Green Finance Practices between the Policy Banks of Germany and the UK and Its Implications / Y. H. Sun // Chinese Journal of European Studies. – 2018. – Vol. 36, No.1. – P. 5–6, 26–40.
- Gilbert, M. Special issue on renewable energy policy and economics for climate action / M. Gilbert // Solar Energy. – 2021. – P. 1–2.
- Tracey, G. Russian Foreign Energy Policy: An Analytical Compendium by Kevin Rosner (review) / G. Tracey // The Slavonic and East European Review. – 2022. – Vol. 87, No. 1. – P. 194–195.
- The situations and policies to the energy of China [Electronic resource]. – Access mode: [https://policy.asiapacificenergy.org/sites/default/files/White Paper-China's Energy Situation and Policy \(EN\).pdf](https://policy.asiapacificenergy.org/sites/default/files/White Paper-China's Energy Situation and Policy (EN).pdf). – Date of access: 03.04.2023.

Material received 29/11/2022, approved 23/03/2023, accepted for publication 03/04/2023