

Special topic on dual carbon and critical mineral resources

International coordination of China's carbon neutral policy under green competition and cooperation*

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Abstract: As more and more countries and regions such as the European Union, China, the United States, and Japan have made carbon neutrality commitments, green and low-carbon development has increasingly become a global strategic trend. Major economies have focused on green economy and carbon neutrality. Competition and cooperation in relevant institutional rules, industrial systems, financial systems, technological innovation, etc. have increased. Generally speaking, major economies have actively responded to the carbon neutrality goal, established a carbon neutral strategic orientation based on their own development foundation, and focused on carbon neutrality, and technological innovation needs and promising industrial development opportunities, accelerating the shaping of industrial competitiveness. The development of clean energy has become an important direction and key action for countries to actively respond to climate change. It will also become the main battlefield of international competition. As a major global economy, It is also the world's largest emitter of greenhouse gases. It is crucial for China, the United States and the European Union to carry out constructive cooperation in global climate governance. China's "dual carbon" strategy and policy actions must be in line with international rules and serve domestic sustainable development. development and the construction of

a community with a shared future for mankind. **Keywords:** green competition, carbon neutrality, international collaboration, major economies. **About the author:** Zhuang Guiyang, Ph.D. in Economics, researcher at the Institute of Ecological Civilization, Chinese Academy of Social Sciences, Zhou Zheng, Ph.D. in Economics, Chinese Society Assistant researcher at the Institute of Ecological Civilization, Academy of Sciences Wang Sibo (corresponding author), PhD in Management, Lecturer at the School of Economics and Management, Beijing University of Technology, Assistant researcher at the Institute of Ecological Civilization at Beijing University of Technology, Chen Yinlan, PhD candidate at the School of Applied Economics, University of the Chinese Academy of Social Sciences

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The global carbon neutrality trend shows that the world economy has entered the era of low-carbon competition. Countries have begun to compete around climate change and green development. Under the goal of carbon neutrality, countries have entered the fast lane of energy transformation and have proposed solutions that meet their actual needs. Carbon neutrality goals and roadmap. With the introduction of the EU's carbon border adjustment mechanism, the trend of integrating trade issues and climate issues is becoming increasingly close. Carbon regulation has become a new field and a new battlefield for global regulation. Major economies revolve around and Competition and cooperation in green economy-related institutional rules, industrial systems, financial systems, technological innovation, etc. have intensified. After nearly ten years of development, China has become the leader in the global new energy industry and has first-mover advantages and advantages in the international market. Although it has a strong competitive advantage, it also faces the technical blockade of "small courtyards and high walls" and the market blockade of "decoupling and breaking links" in the world. It also faces regulatory locks in green development standards, rules, industries, technologies, markets, etc. From the perspective of coordinating development and security, China's carbon peaking and carbon neutrality policies should focus on the "dual cycle" development pattern, and work with major economies to maintain and build a fair and reasonable multilateral climate governance mechanism. Actively carry out green and low-carbon development cooperation in carbon investment and financing standards, carbon market construction and other aspects, and contribute replicable and standardized low-carbon development solutions to the world.

1. Challenges facing China's carbon peak and carbon neutral policy actions

Promoting carbon peak and carbon neutrality (referred to as "double carbon") is a major strategic decision made by the Party Central Committee after careful consideration. Its importance is self-evident. As an extensive and profound economic and social systemic change, China has achieved "double carbon". The time limit for the "carbon" target is tight and the tasks are heavy. It is necessary to coordinate development and security and prevent pains in the transformation process. It is also necessary to coordinate the domestic and international situations and promote the construction of a new "dual cycle" development pattern. In the global green competition and cooperation As the game continues to intensify, China's carbon peak and carbon neutrality policies and actions are facing multiple challenges.

(1) The relationship between balanced development and emission reduction requires

the trade-off and coordination of multiple goals. As the world's largest developing country, China still faces the problem of unbalanced and inadequate development. Promoting the goal of carbon neutrality faces the challenges of economic development, carbon reduction, and just transition. During the trade - off process, it is easy to focus on one and lose the other, leading to major conflicts. To alleviate these conflicts, we should

Wu Hao, Yang Chengyu: «The EU's "Global Gateway" Strategy and its Impact on the "One Belt and One Road" Initiative», published in «Research on International Issues», Issue 2, 2022,

pp. 58-77, UNEP Gap Report 2020 missions - gap - report - 2020 [2023 - 06 - 30] Zheng Xinye, Wu Shimei, Guo Bowei: «Intergenerational equalization of carbon

emission reduction costs: theory and evidence» Published in "Economic Research", 2023 Issue 2, 2016, pages 107-123.

Do a good job in coordinating multiple goals and grasping the intensity of policies. Carbon neutrality is an ambitious goal spanning nearly 40 years. It is necessary to achieve multiple dimensional reform goals at the same time. Balancing the relationship between economic development and emission reduction is extremely challenging, and it especially needs to be properly resolved. Only by facing multiple challenges brought by the "Impossible Triangle" of energy can we steadily advance the coordinated realization of the "double carbon" goal and the basic modernization goal. Under the carbon neutrality goal, China urgently needs to find a suitable optimal emission reduction path that takes into account both the long and short term. Goal: Under the goal of stabilizing the economy, promote the green and low-carbon transformation of the economy and society.

If the goals of green transformation and stabilizing the economy cannot be well balanced, it will cause problems such as weak economic growth and underemployment. Under the framework of Western economics, assuming that other conditions are consistent, there is a certain contradictory relationship between carbon emission reduction and economic growth. How to embed green and low-carbon transformation measures into economic and social development policies to promote the sustainable development of the social and economic system has become a key point that needs to be solved to achieve carbon neutrality, thereby taking into account macroeconomic stability goals and medium- and long-term green and low-carbon sustainable development requirements. In the post-epidemic era, green recovery is facing huge difficulties in China: many companies are facing survival pressure and have insufficient motivation to consciously promote green transformation. The cost of green transformation is too high, resulting in insufficient capacity for green transformation. Some high-emission companies are also under pressure to maintain employment. It will induce the growth of

local protectionism. (2) The United States and Western countries block China's industrial chain on the grounds of security. Global climate governance has become a general consensus among countries around the world. The Paris Agreement has pointed out the development direction of low-carbon transformation for the world. Countries have reached a consensus on cooperation in addressing climate change. However, in the specific practice process, the United States and Western developed countries have not adhered to multilateralism and the principle of common but differentiated responsibilities. They regard carbon emissions as a political tool and attempt to limit the development of developing countries. In particular, it has intensified its efforts to block China's regulations, mainly reflected in the localization of mining, processing and recycling of key mineral raw materials and carbon tariff legislation, etc.

First, European and American legislation jointly create a "de-Sinicized" critical minerals and clean energy supply chain alliance. In 2022, the United States announced the establishment of the Mineral Security Partnership (MSP) with the United Kingdom, the European Union, and others to build a "strong and responsible" supply of critical minerals. Chain. The U.S. "Inflation Reduction Act" officially takes effect in 2023. According to the provisions of the bill, electric vehicle subsidy funds can only be used for electric vehicles and electric vehicles assembled or purchased in the United States or in countries with free trade agreements with the United States (Canada and Mexico). Clean energy technology. More than 40% of the raw materials for electric vehicle batteries must come from North America. The part for China is

Zhuang Guiyang, Wang Sibao, Chen Yinlan: «The logic of green and low-carbon transformation under the goal of stabilizing the

economy», in "Reform", Issue 5, 2023, Pages 18-28, UNFCCC "The Paris Agreement // unfccc.int/sites/default/files/resources/parisagreement_publication.pdf [2023-06-30]

IRS "Inflation Reduction Act of 2022" June 29, 2023 <http://www.irs.gov/inflation-reduction-act-of-2022> [2023 - 06 - 30]

In the context of a new round of global scientific and technological revolution and industrial transformation, it is necessary to break the "research island" in the field of carbon neutrality, strengthen interdisciplinary, cross-field, and cross-school technological innovation cooperation, focusing on net-zero carbon emissions, negative impact Technical "bottlenecks" such as carbon emissions, promote the R&D and promotion of green and low-carbon technologies, overcome the inertia of zero-sum game thinking, and strengthen global collaboration and achievement sharing. Insufficient green technology development and industrial transformation will seriously limit the improvement of China's resource utilization efficiency. China All walks of life need to solve the problems of environmental pollution and ecological damage caused by the solidification of industrial structure and energy structure from a deep level. In the field of carbon neutrality, China's domestic scientific and technological support capacity is weak, the supply of key resources is highly dependent on imports, and human capital The gap is large

The security risks of the clean energy substitution process (energy transformation is established first and then broken) cannot be ignored. In the process of carbon neutrality, energy security issues remain the top priority in the short term. Under the current situation, China is coordinating economic development and transforming a safe energy system. A clear systematic solution has not yet been formed. The research and development and promotion model of multi-energy complementary technologies such as "wind, solar, water, and thermal storage" is still immature. The short-term energy supply and demand pattern is difficult to change. At the same time, seasonal fluctuations in energy demand and the normalization of extreme weather have an impact on energy. Supply security poses a big challenge

(4) It fully shows that the pricing mechanism for carbon emission reduction costs has not yet been perfected.

Under the goal of carbon neutrality, it is necessary to coordinate and balance the power of the government and the market. Since there are strong externalities in carbon reduction and emission reduction, governments of various countries must cooperate to build an international order for low-carbon development and Policy mechanism is a necessary prerequisite for achieving carbon neutrality. China's current policy mechanism for energy transformation and carbon reduction is mainly "control and command-based", resulting in high hidden carbon reduction costs. At the same time, the construction of the carbon market has slowed down, and the market mechanism has The role of carbon emission reduction cannot be fully exerted.

At present, the carbon market is the only explicit carbon pricing mechanism in China. However, the current national carbon emissions trading market only includes the power industry, and the scope of supervision is limited. At present, the EU only recognizes explicit carbon pricing. It is necessary to build and improve the national carbon market and expand the Chinese carbon market. The industry coverage and the use of explicit carbon prices to promote the transformation of high-carbon industries are necessary responses. The implicit costs of carbon emission reductions affect the competitiveness of Chinese export enterprises in the international market. Due to the difficulty of accounting for implicit carbon emission reduction costs, It is large and difficult to integrate into international carbon markets such as the European Emissions Trading System (ETS). Enterprises need to bear higher carbon emission reduction costs. The export of some high-carbon emission products will be greatly restricted.

2. The international dimension of China's carbon peak and carbon neutrality policy

The core of global climate governance is to effectively motivate major countries to act in concert. China's "double carbon" goal

Research team of the National Institute of Development Strategy of Wuhan University: « Choose the path for China to implement green and low-carbon transformation and achieve the goal of carbon Selection », Published in "China Soft Science", Issue 10, 2022, Pages 1-12. Zhu Tong:

“Thinking about the International Rules and Domestic Mechanisms of "Carbon Reduction"”, Published in "Wind Energy", Issue 3, 2023, Pages 8-14

It is not only an internal development strategy, but also an internationally oriented global action. In the context of economic globalization, international competition has intensified and cooperation has strengthened. In the process of promoting the carbon neutrality process, China is facing opportunities from domestic development paradigm transformation. As well as the challenges of reforming the energy system, it is also facing opportunities from the international community to catch up and the challenges of unilateralism. China must have the courage to assume the mission of a great power, clarify the clear direction of global climate governance, and be committed to global green and low-carbon development and fair multilateral international rules. In construction, we must not only pay attention to international cooperation in the frontier areas of green technology innovation, and untie the constraints of reduced carbon emission budgets on economic and social development, but also pay attention to international low-carbon trade rules, explicit carbon pricing, and carbon credit standards for investment and financing. international coordination to release the economic efficiency of spatial allocation of limited carbon emissions, help the global carbon neutrality goal be successfully achieved, and promote the common and sustainable prosperity and development of the world economy.

(1) Promote international cooperation in green and low-carbon

technologies In the process of global climate governance, all countries have strong demands for international cooperation in global green technologies. China's strengthening of scientific and technological cooperation in the field of "double carbon" with the United States and other Western developed countries has certain significance. Basis and feasibility: First of all, China and the United States and other Western countries have a common need for carbon reduction. Secondly, China and the United States and other Western countries have clearly proposed technical cooperation and joint research plans and intentions in their joint statements on climate change. Finally, Leaders of China and Western countries such as the United States have shown a strong willingness to promote climate cooperation, focusing on technical cooperation such as zero-carbon power, negative emissions, and long-term energy storage.

The United States and other Western developed countries have advantages in fields such as power grid operation and renewable energy technology innovation, but they lack international market competitiveness in key electricity substitute industries and product manufacturing fields such as zero-carbon wind and solar power equipment manufacturing, installed capacity and electric vehicles. China There is still a gap between renewable energy technology and the international advanced level, which is reflected in the lack of originality in some core technologies and the need to improve basic processing capabilities. As of the end of 2022, China's photovoltaic modules accounted for approximately 3/4 of the world's total, and its installed capacity exceeded 1/3. In 2021, China's offshore wind power installed capacity accounted for 80% of the world's newly installed capacity. In 2022, China's new energy vehicle production and sales accounted for 10% of the world's total. It has an absolute advantage of 60%. However, in terms of wind and solar power consumption, increasing the proportion of zero-carbon power, and energy storage, China needs to learn from Western developed countries and carry out in-depth technical cooperation.

In the process of promoting carbon neutrality, countries need disruptive technological revolutions as support, both in terms of energy system changes and changes in production and lifestyle. China's green technology research and development level is still low.

Zhuang Guiyang, Wang Sibao: «Chinese-style modernization under the "double carbon" goal: Characteristics, requirements and paths», published in «Ecological Economy» Issue 1, 2023, Pages 31-35.

«Joint Statement of the Presidents of China and the United States on Climate Change», China Government Website, September 25, 2015, http://www.gov.cn/xinwen/2015-09/26/content_2939222.html [2023-06-30]

Pan Jiahua: «Systematic changes in the net-zero carbon transition», published in «Economic Research», Issue 12, 2022, pp. 14-16.

In the large room for improvement, we should actively seek cooperation opportunities with Western developed countries on the basis of common interests, pay attention to strengthening disruptive technological innovations in carbon reduction and emission reduction, and continuously improve the contribution of cutting-edge technologies to carbon neutrality. At the same time, As the largest developing country, China should also actively seek green financial support from Western developed countries by strengthening green technical assistance to relatively backward countries, so that the funded developing countries can benefit from developing their economies, enhancing their resilience, and improving their people's livelihood. Fully unleash the carbon neutrality potential of relatively backward countries and accelerate the global carbon neutrality process.

(2) Shaping the competitive initiative of the low-carbon industrial

chain Under the global carbon neutrality process, the increase in climate clubs and the participation of major countries in the world have become important variables affecting international trade rules, and have also become the basis for the United States and other Western countries to suppress the development of developing countries. Important measures. To this end, China needs to focus on three aspects when solving the unfavorable international trade situation caused by the climate club. First, China must not only speed up the construction of green and low-carbon sustainable development capabilities, but also speed up the transformation of steel, non-ferrous metals and other industries as soon as possible. Metals and other industries should be included in the coverage of the national carbon market in order to increase the domestic emission reduction motivation in the areas covered by the carbon border adjustment mechanism. Second, from a global perspective, under the principle of common but differentiated responsibilities, gain insight into the relationship between China and other countries around the world. The intersection of interests of the Climate Club, seeking space for international cooperation, and safeguarding global climate justice. Third, contact developing countries. Under climate morality, initiate and lead a zero-carbon community that is growth-expanding, opportunity-amplifying, and welfare-improving. Countermeasures To control and gradually replace the exclusive and punitive unilateral climate club, promote global climate governance

with the overall idea of win-win cooperation and achieve common prosperity. Shaping the dominance of the industrial chain is also a counter-force move of the current Western "regulatory lock". Industrial competitiveness China, which continues to improve, has become a key "regulatory lock" target of Western countries. They are trying to reshape international regulations to restrain China, and ultimately achieve the goal of locking China in the middle and low end of the industrial chain for a long time. Under the new development pattern, China needs to gain a foothold. The construction of regional cooperation mechanisms and platforms builds an external space suitable for the development of an open economy and provides a stable geographical space for the industrial chain and supply chain. Regional synergy helps to enhance the collective bargaining power of international games and effectively balances the industrial chain of Western countries. Political pressure to reduce institutional transaction costs in different production links. At the same time, in response to the challenges and impacts of the EU's carbon border adjustment mechanism, it is particularly necessary to promote the flow of carbon-related revenues from imported products from importing countries to developing countries to cope with Global climate change, especially those developing countries with labor-intensive, energy-intensive and emission-intensive export industries as their main export industries, in order to reflect the compensation attributes for developing countries, prom

Y Zhuang Guiyang, Wang Sibo, Dou Xiaoming, Chen Yinlan: «Ecological Civilization Construction and "Double Carbon" Action Logic», published in «Qinghai Social Sciences», Issue 4, 2022, pp. 10-19. Hu

Y Wangyun: «Global Under the 'Paris Agreement' The Club Model of Climate Governance and Its Functions and Risks» Published in "Journal of the Pacific" Issue 2, 2023, pages 27-41.

All carbon-related revenue, such as domestic carbon tax, carbon market revenue or carbon border adjustment tax, should be used for emission reduction. Policy incentive mechanisms should be established to guide and invest more funds into domestic emission reduction activities relying on new research and development and new equipment.

(3) Promote the international integration of explicit carbon pricing In

addressing climate change, formulating a practical carbon pricing mechanism has become one of the key issues of concern to the international community. Carbon pricing can be divided into explicit carbon pricing and implicit carbon pricing. Carbon pricing. Explicit carbon pricing refers to the price of carbon emissions directly formed under the constraints of market-based climate policies such as carbon taxes and carbon markets. Implicit carbon pricing refers to units with policies other than explicit carbon pricing policies such as carbon markets and carbon taxes. Emission reduction costs. It is generally believed that explicit carbon pricing is an important underlying logic for the formation and development of climate clubs. That is, the national level needs to build an effective and feasible carbon market based on carbon pricing, so as to further form a consensus on carbon emissions trading rights rules among members through international negotiations. Recognized international alliance. Explicit carbon pricing is the basis for establishing a unified domestic and international market for carbon emission rights. It imposes additional carbon credit requirements on international trade. The United States and other Western countries rely on their advantages of leading green technology and high levels of economic development to lower their prices. The marginal cost of carbon emission reduction has formed a carbon emissions trading rules alliance with carbon emissions trading as the core and high entry barriers. Green trade barriers have been set up for countries outside the alliance. There is a risk of weakening the "common area" principle, and it has gradually become a developed country. This is a roundabout way for countries to evade climate responsibilities. After enjoying the material prosperity brought by high carbon emissions, they shift more emission reduction responsibilities to developing countries and raise the carbon emission reduction threshold for the economic and social development of developing countries. They are limited by hidden carbon emissions. The cost of pricing statistics and verification is high, and the feasibility is low. At present, implicit carbon pricing is difficult to be recognized by the international community and included in the international carbon offset mechanism. China can only accelerate the process of explicit carbon pricing and actively integrate into the mainstream of international carbon market construction.

Only by following the trend can we grasp the right to speak in international carbon politics in the future. China's promotion of explicit carbon pricing is in line with the international mainstream and its own interests, and will help to take the initiative in international trade. First of all, China is a country with public ownership as the main body, and has the ability to implement implicit policies. A good institutional environment for explicit carbon pricing. The current problem is that implicit carbon pricing costs are usually not recognized by international trade rules dominated by explicit carbon pricing. Therefore, China must accelerate the transition from system-driven mandatory carbon management to market-driven incentives. Transformation of carbon management. Secondly, carbon tax and carbon market are important means to promote the explicitness of carbon pricing. China has launched a national carbon market, but currently only companies in the power industry conduct transactions, which cannot fully reflect China's emission reduction costs. In summary On the basis of learning from world experience, it is necessary to establish and gradually improve China's carbon pricing mechanism. While the carbon market is expanding in an orderly manner, it is also necessary to establish an institutional mechanism for carbon tax and carbon market to coordinate with each other. Finally, it is necessary to unite developing countries

Xing Li, Fan Yixia, Li Mojie: «Concept, assessment methods and prospects of implicit carbon pricing», published in «Fiscal Science», 2022 Issue 3, pages 5-14.

Zhou Nan et al.: "Analysis of the Impact of the EU Carbon Border Regulation Mechanism", published in "China Finance", Issue 13, 2022, pp. 80-81.

It should be included in the international carbon offset mechanism. The hidden costs of carbon emission reduction should be taken into consideration, and developing countries should be given higher deduction multiples, promote carbon pricing justice, and urge developed countries to assume appropriate carbon reduction responsibilities. China should cooperate with all relevant international parties. Work together to promote the construction of global carbon trading and carbon markets, including the measurement standards of carbon credits, the formation of global carbon prices, and the interconnection of carbon markets.

(4) Explore the establishment of an international climate investment and financing cooperation mechanism. Climate investment and financing is a key component of green finance, which refers to investment and financing activities in the field of addressing climate change to help achieve low-carbon development goals. According to estimates, by 2050 Implementing the Paris Agreement requires hundreds of billions of dollars in climate investment and financing. The supply of climate investment and financing funds in developed and developing countries is respectively less than 1/8 and 1/4 of the demand. There is still a huge gap in global climate investment and financing, and there are still A considerable amount of capital continues to pour into high-carbon fields, seriously hindering the global carbon neutrality process.

In the process of exploring the establishment of an international climate investment and financing mechanism, China should focus on the formulation of fair carbon credit standards and sufficient sources of low-carbon investment and financing funds. On the one hand, China should establish international investment and financing carbon credit standards as soon as possible and strive to improve carbon credit standards. The degree of internationalization of evaluation, using carbon credit as a benchmark for international investment, mainly serving green bonds, green credit, trust insurance and other businesses, providing an important basis for green project evaluation, thereby guiding more investments to accurately flow into low-carbon fields, and By actively promoting the formulation of international carbon credit evaluation standards and breaking the rules in the field of climate change set by the United States and other Western countries, China will continue to enhance China's leadership in global response to climate change. On the other hand, China should, under the banner of climate morality, strive for its own and the Other developing countries are promoting the carbon neutrality process and seeking more financial support from the United States and other Western developed countries. They should pay particular attention to the carbon emission reduction demands of the "Belt and Road" co-construction countries, as well as the huge potential for cooperation in the field of wind, solar and clean energy. Explore the establishment of an international climate The investment and financing cooperation mechanism will not only effectively help China achieve its "double carbon" goal, but will also provide more low-carbon development opportunities for developing countries, and ultimately effectively promote the effective connection and synergy between the long- and short-term goals of carbon neutrality.

Three intersections of interests in green competition and cooperation between China, the United States and Europe

As the world's major economies and the world's largest emitters of greenhouse gases, China, the United States

Xing Li, Xu Wen, Hao Xiaojing: "The latest progress and related thoughts on international carbon pricing initiatives", published in "International Taxation", 2022 Issue 8, pages 29-36.

Xie Canyang, Guo Kaidi, Wang Can: "Global climate investment and financing progress and inspiration for China to achieve carbon neutrality goals", published in "Environmental Protection", Issue 15, 2022, pp. 25-31. Sun Qian:

"Establishing and An analysis of the path to improving the adjudication rules system for climate investment and financing cases—by adhering to and practicing the "Two Mountains" concept For perspective», published in "Applicable Law", Issue 11, 2022, pp. 69-80.

It is crucial for the three countries and the EU to carry out constructive cooperation in global climate governance. Although the three parties currently pursue the same goal of carbon neutrality, the specific measures and paths are completely different. Therefore, there is both competition and cooperation among the three parties. It is neither competition nor cooperation, but a state of competition and cooperation between the two. Whether we can find a balance between competition and cooperation depends on the level of diplomacy between China, the United States and Europe. In recent years, the climate and energy policies of Europe and the United States have trended. In recent years, multilateral containment of China has been continuously strengthened. In fact, the competition situation is far greater than the cooperation situation. Although the diplomatic situation between China and the United States and Europe is relatively serious, there are many convergences of interests in the green competition and cooperation between China, the United States and Europe, and the three parties should actively carry out climate change. Diplomacy, enhance consensus, and jointly address global climate challenges.

(1) Sino-US cooperation: Manage differences and set an example of carbon

neutrality. Under the goal of carbon neutrality, Sino-US green and low-carbon cooperation has a broad consensus and interest base. Green and low-carbon cooperation in areas such as climate change and clean energy is an important aspect of China-US cooperation. However, in the context of increasing competition and competition between China and the United States, green and low-carbon cooperation, as a secondary area in Sino-US relations, will inevitably be affected by China and the United States. The impact of the overall relationship. When Sino-US relations develop steadily, the two countries perform relatively smoothly in green cooperation. But when the development of bilateral relations encounters a crisis, it is difficult for the cooperation between the two parties in this field not to be affected. Green competition is the current trend between China and the United States. As the main theme of US-US relations, the US may intend to achieve the goal and effect of "regulatory locking" China with international rules through some cooperation.

The profound changes brought about by the promotion of carbon neutrality have shifted the focus of competition among countries (regions) in global climate governance to the issue of dominance in formulating global green economic rules. The trend of combining trade issues with climate issues has become increasingly apparent. The United States is increasingly concerned about cleanliness and environmental protection. Restrictions continue to be imposed on the energy-related Sino-US economic and trade fields. The extremely important policy bills introduced by the Biden administration during the administration, such as the "Inflation Reduction Act" and the "Chip and Science Act", are intended to "de-China" and enhance its global industrial chain hegemony, and localization of some important industrial chains. Chips, new energy vehicles, clean energy, digital technology, industrial production, etc. have become the targets of the United States' focus on strengthening supply chain control this time. The United States has adopted a policy of breaking chains and localizing China, decoupling and other policies, exacerbating the crisis in Sino-US relations.

As the world's top two economies, major energy consumers, and major carbon emitters, China and the United States are facing common challenges on energy and environmental issues. At this important juncture, Cooperation between China and the United States in green and low-carbon fields such as climate change and clean energy development will not only help achieve their respective emission reduction goals, but also help them achieve their goals as soon as possible.

IRS "Inflation Reduction Act of 2022" June 29, 2023 <http://www.irs.gov/inflation-reduction-act-of-2022> [2023-06-30]

U S Senate "CHIPS and Science Act of 2022" January 22, 2021 <https://www.commerce.senate.gov/service/s/files> [2023-06-30]

Achieving carbon neutrality will also help strengthen exchanges and cooperation between China and the United States in the economic, trade and technological fields, and alleviate or hedge some negative factors in the relationship between the two parties to a certain extent. As the world's top two economies and major powers, China and the United States have strong financial ties. , technology, talents, industry, development, research and other aspects have their own advantages. The complementarity and huge economic interests in energy structure and economic development give China and the United States strong motivation and ability to cooperate in the green field.

It is true that climate change has become an important part of the geopolitical game and is easily affected by the zero-sum game of great power competition. The progress of Sino-US green and low-carbon cooperation is largely affected by the general environment of the relationship between the two countries. China and the United States should strengthen cooperation and jointly manage differences and jointly address challenges such as environmental degradation and climate change on the basis of mutual benefit. This will not only help the two countries achieve the goal of carbon neutrality at an early date, but also help promote the healthy development of Sino-US relations.

China needs to grasp the important differences between China and the United States on climate issues, open channels for dialogue on climate issues, further study and judge the intersection of interests in China-US climate cooperation, play an active role in channels such as China-US climate change dialogue, and constantly explore and broaden global climate governance. space for cooperation, improve the level of climate cooperation between the two countries, and carry out pragmatic cooperation around the policies of achieving their respective carbon neutral scenarios, goals, paths and nationally determined contribution goals.

(2) China-EU cooperation: Injecting positive energy into the global carbon neutrality process.

Cooperation in the fields of energy and climate has always been a highlight of China-EU relations. At the level of bilateral and multilateral relations, China and the EU have shown great achievements in the field of carbon neutrality. Huge potential for shared interests and cooperation. As important countries participating in global climate governance, China and EU members have the responsibility, willingness and ability to become leaders in global climate governance. It is the common long-cherished wish of both parties to achieve the goal of carbon neutrality. China-EU Deepening cooperation in the field of carbon neutrality will also help accelerate the process of systemic changes in the global economy and society under the goal of carbon neutrality, multilateral cooperation in climate governance, and green recovery of the international community. In the complex international situation, China and the EU must safeguard The historic achievements of the Paris Agreement promote the establishment of a fair and just new international climate order. At the same time, China's growing global influence will also bring more opportunities for China and the EU to strengthen cooperation in the field of carbon neutrality.

Under the goal of carbon neutrality, China and the EU have broad space for cooperation in new energy technology innovation, carbon-negative technology research and development and promotion, and the formulation of international rules for low-carbon development. On the one hand, China and the EU are improving the high-level dialogue mechanism on climate governance. A positive attitude to "seek common ground while reserving differences" in international climate negotiations and deepen

Li Kunze, Qi Kai, Xu Qinhua: «"Green Race": Performance, Causes and Responses of Sino-US Climate Competition», Published in «Global Energy Internet», Issue 4, 2022, Pages 409-415. Tian Huifang:

«Carbon Neutrality The potential and challenges of China-EU climate cooperation in this context», published in "Eurasian Economy", Issue 5, 2022, pp. 78-101.

Cooperation, coordination, exchanges and consultations in relevant fields, jointly safeguarding and building a fair and reasonable multilateral mechanism for climate governance, and striving to form more consensus. On the other hand, China and the EU can promote global carbon neutrality by signing agreements or issuing joint statements. Ambition and firm promotion of the carbon neutrality process will give full play to the example and influence of a major country.

Under the combined effect of the carbon neutrality goal and the game of great powers, the competitive and cooperative relationship between China and the EU in the global carbon neutrality process has become more prominent, which is reflected in the following two aspects. First, China and the EU are competing in the fields of low-carbon technology and renewable energy markets. Main competitors, coupled with the continued tension between China and the United States, multiple factors have jointly intensified the competition between the two sides in related fields. Secondly, the rapid development of China's renewable energy industry has also given China's manufacturing industry significant development advantages, which has relatively weakened the international competitiveness of European industries. Competitiveness. The launch of the EU carbon border adjustment mechanism breeds potential competition and contradictions between China and Europe.

In the process of promoting global carbon neutrality, the importance of market tools represented by carbon pricing has begun to emerge. China and the EU should strengthen consultation and cooperation in the formulation of international carbon pricing trade rules. Only when it is clear that the purpose of formulating carbon pricing rules is to cooperate to improve global carbon emissions. Only by taking a just stance on emission efficiency and being resolutely wary of trade protectionism and opposing it as a tool to set up trade barriers and divide the world economy can we formulate reasonable carbon pricing rules and give full play to the positive role of carbon pricing in global climate governance. In addition, the EU has in the process of promoting a series of green rules, standards, norms and policies around the world, China needs strong support, which will lead it to adopt a different China policy from the United States in its strategic autonomy. China and Europe will cooperate on issues in the field of carbon neutrality. It will accelerate the process of global clean energy transformation and the realization of carbon neutrality goals. Promote cooperation in international climate investment and financing mechanisms. It will provide supporting financial support and policy guarantees for global clean energy transformation and the realization of carbon neutrality goals. It will help traditional industries avoid "Carbon lock-in" will then guide more investments to accurately flow into low-carbon fields, effectively promote the effective connection and coordination of long- and short-term goals of carbon neutrality, and provide more low-carbon development opportunities for developing countries.

4. Promote international coordination of China's carbon neutral policy

Promoting the realization of the strategic goals of carbon peaking and carbon neutrality is an inherent requirement for China to achieve high-quality development of the national economy and society, and to continue to create a new form of human civilization with a new path of Chinese-style modernization and new development. It is also an inherent requirement for China and the vast number of developing countries and Areas beyond the United States and other Western developed countries and regions "pollute first,

ÿ Jiang Siyu: "EU Energy and Climate Policy and China-EU Cooperation under the Carbon Neutrality Goal", published in "International Economic Review", No. 2022 Issue 1, pages 134-154.

ÿ Li Xinlei, Hao Junyi: "China-EU clean energy green competition and China's response under the carbon neutral situation", published in "International Outlook", Issue 2, 2023, pp. 116-136.

"post-governance" or "taking advantage of other countries" to divert emissions from the traditional modernization path and create new choices and new opportunities for jointly building a "clean and beautiful" world. Generally speaking, China has actively and steadily promoted carbon peaking and carbon neutrality, and has made great contributions to the construction of ecological civilization, and provide strong support for the green and low-carbon transformation of development methods.

First, the Chinese government is very firm in its will to address climate change. The Party Central Committee and the State Council issued the "Opinions on Completely, Accurately and Comprehensively Implementing the New Development Concept and Doing a Good Job in Carbon Neutralization at the Peak of Carbon", and the State Council issued the "Opinions on Carbon Neutrality before 2030". Action Plan to Peak Carbon». Relevant departments have formulated implementation plans and supporting policies for specific fields and industries. Each province (autonomous region, municipality) has also formulated an implementation plan for carbon peaking in the region. Carbon peaking and carbon neutrality are "1 + N" "The policy system has been established. Although China has not promised to reduce total carbon emissions immediately, it has promised to achieve it in the shortest time in global history. This means that China will undergo an extensive and profound economic and social change, which will require arduous efforts. Only through hard work can it be achieved.

Second, China has achieved certain results in addressing climate change. During the "13th Five-Year Plan" period, it effectively curbed the rapid growth of carbon China's carbon emission intensity has dropped by nearly 19% dioxide emissions. The proportion of non-fossil energy in China's total energy consumption increased to nearly 16%. In addition, China not only ranks first in the world in terms of photovoltaic market development, but also has the largest afforestation area in the world.

Third, China has achieved remarkable results in the transformation of its energy structure. Based on the actual situation of its energy endowment, China adheres to overall planning and establishes before breaking. On the basis of continuously enhancing its energy supply security capabilities, China accelerates the construction of a new energy system. China's clean energy system in 2021 The proportion of energy consumption reached 25%, an increase of 11 percentage points from 2012. The proportion of coal consumption was 560%. The installed capacity of renewable energy power generation exceeded 1 A decrease of 125% compared with 2012 billion kilowatts, accounting for about 45% of the total installed power generation capacity. Among them, water, wind, The installed photovoltaic power generation capacity exceeds 300 million kilowatts, and the green and low-carbon transformation of the energy structure has achieved remarkable results.

Fourth, China has had a huge impact on the global carbon neutrality process. The international community spoke highly of China's carbon neutrality commitment, and rated this commitment as the biggest climate news in the past 10 years, considering emissions and the actual impact of future warming. China insists on promoting the implementation of the "Paris Agreement" package of results based on multilateralism, continues to promote the establishment of a fair, reasonable, cooperative and win-win global environmental governance system, and actively implements the "Belt and Road" South-South cooperation plan to address climate change together with other countries. Help other developing countries improve their ability to cope with climate change. At the same time, actively strengthen cooperation and dialogue with the United States and other Western developed countries, learn from each other's strengths, and continuously promote the transformation of carbon neutrality from global consensus to global action.

State Council Information Office: «China's policies and actions in response to climate change», China Government Website, October 27, 2021 https://www.gov.cn/zhengce/2021-10/27/content_5646697.html [2023-06-30]

«China's Green Development in the New Era», website of the State Council Information Office of the People's Republic of China, January 19, 2023. <http://www.sciogov.cn/zfbps/32832/Document/1735706/1735706.html> [2023-06-30]

For China, which has entered a new era and a new stage of development, in order to achieve the strategic goal of carbon peaking before 2030 as scheduled during the "14th Five-Year Plan" and the 2035 long-term goal planning period, it is necessary to coordinate the overall domestic and international situations and adhere to "balance". The concept of coordinated development of "coordination", "integration" and "smooth flow" will expand the convergence of interests with various countries and regions in the field of green and low-carbon development, and promote global climate governance to develop in a fair, reasonable, cooperative and win-win

direction. (1) Strengthen the interactive and comprehensive management of policy stability

expectations and domestic and foreign policies. Global climate governance is an effective, progressive, policy-driven new modernization development process based on the best and good existing scientific knowledge. At the global level, the Paris Agreement on climate change is a multilateral contract that aims to continuously strengthen the implementation of nationally determined contribution goals and ultimately achieve global climate governance goals. Under the weak sustainable recovery of the global economy and the risk of even occasional technical recession in some developed countries, it is necessary to consider how to actively, steadily and effectively and promote the realization of the strategic goals of carbon peaking and carbon neutrality as scheduled. China needs to adhere to the concept of problem-oriented and "balanced" development, based on the "Paris Agreement", across the green and low-carbon development systems, development stages and developments of various countries and regions. Due to differences in capabilities, we must make good use of a work promotion strategy that takes into account the stability of carbon neutrality policy goals and the interactivity of domestic and foreign policies. Advocate and form collective coordinated actions driven by different interests and non-zero cooperation driven by common interests for developed countries and regions in Europe and the United States. Two carbon neutral action concerns and dynamic consultation management mechanisms: and joint action.

At the same time, China needs to strengthen communication and docking with the vast number of developing countries and regions on carbon neutrality strategies. On the one hand, it needs to face the needs of Chinese-style modernization practices and the high-quality and sustainable supply of global public goods such as the "One Belt, One Road" initiative, and promote the world's green and low-carbon technologies. The innovation frontier is combined with the country's major strategic needs and economic and social development goals to enhance the pertinence of carbon neutral policies and the comprehensive effectiveness of joint actions. On the other hand, it is necessary to break through the blocking and pain points in the implementation of green and low-carbon development policies in key areas and key departments. Effectively enhance the gold content and green content of newly formulated policies and optimized and updated policies, promote the green and low-carbon development vitality of enterprises (especially small and micro enterprises) and other ubiquitous micro entities in the market, so that they can enjoy real green and low-carbon development. It will further optimize the business environment for green and low-carbon development, enrich the "1 + N" policy system and its policy toolbox, and become a strategic "new carrier" and "stabilizer" to jointly promote the level of global green and low-carbon development to a new level.

(2) Coordinate and optimize the regional layout of international and domestic green and low-carbon development.

Carbon peaking and carbon neutrality strategic actions have put forward higher requirements for regional complementary advantages and coordinated development. Adhere to the concept of goal-led and coordinated development, take the initiative to build a new development pattern and promote the integrated policy system and capacity building to achieve carbon peak and carbon neutrality as important starting points, and promote the optimization of international and domestic green and low-carbon development regional layout. It is necessary to give full play to the national long-term development planning, land spatial planning, special planning in various fields (departments), regional comprehensive planning and local planning at all levels to achieve carbon emissions before 2030.

The second is the need to integrate regional economic development opportunities and social development realities into an integrated low-carbon emission development strategic blueprint for a green and low-carbon future from a regional perspective. Third, we need to adhere to the "nationwide chess game" and combine major regional strategies, regional coordinated development strategies and main functional area strategies to promote the formation of a comprehensive green transformation of economic and social development in the eastern region based on regional realities, and actively cultivate green development momentum in the central, western and northeastern regions. Key regions such as the Yangtze River Economic Belt and the Yellow River Basin are at the forefront of the country's carbon peak action sequence and new situation in green and low-carbon development, and this will drive the improvement of the level of green and low-carbon development in opening up to the outside world and help accelerate the establishment of a green trade system.

Under the guidance of carbon neutral actions, we will promote the improvement of the level of green and low-carbon development in opening up to the outside world and help accelerate the establishment of a green trade system. First, we need to strengthen the efficient docking of the national development strategy of the "Belt and Road" and the "Belt and Road" initiative, and deepen the "Belt and Road" initiative. "One Belt and One Road" jointly builds the country's green and low-carbon production capacity and development potential, works with regional countries to build an innovative and inclusive open world economy, and helps create a more resilient and growing regional and global green and low-carbon industrial chain and supply chain. The second is the need Further develop and strengthen the "Belt and Road" Green Development International Alliance initiated by President Xi Jinping, and support this alliance to play a more important role in the new stage of global climate governance. In order to effectively implement the global development initiative and global civilization initiative, promote the "Belt and Road" cooperation We will make greater contributions to the country's green development transformation, and timely include the creation of a carbon reduction partnership in the industrial chain and supply chain into the alliance's work list.

(3) Strengthen the design of carbon neutrality-oriented policy mechanisms and technological innovation,

taking the initiative to build a new development pattern and promote the integrated policy system and capacity building to achieve carbon peaking and carbon neutrality as important starting points, and promote the realization of carbon peaking In line with the changes in development quality, efficiency and momentum brought about by the carbon neutrality goal, it is necessary to adhere to the concept of action-oriented and integrated development, and on the basis of giving full play to the strengths of the market economy and the superiority of the socialist system, and to connect with the global carbon neutrality trend and In order to meet practical needs, we must continue to strengthen the design and innovation of domestic carbon neutrality-oriented development policy mechanisms. First, we must accelerate the construction and improvement of government-guided, market-led carbon neutrality incentive-compatible action mechanisms through market creation, and further develop the national carbon market. In the carbon neutrality strategic action, the advantages and special functions of the mechanism include price discovery and signal transmission, technological innovation and factor resource (re)allocation. At the same time, we must also focus on improving the construction of the domestic carbon market and promote the establishment of an explicit carbon pricing mechanism. Focus on key industries such as steel, electrolytic aluminum, cement, etc., promote the expansion of the national carbon emissions market in an orderly manner, and focus on the regulatory role of institutional investors and forward contracts in stabilizing the carbon trading market and increasing market liquidity to cope with the EU carbon border. The impact of the adjustment mechanism on China's economy. The second is to continuously improve the carbon-neutral oriented technology research and development deployment, system integration innovation and commercial application. Under the new trend of global green and low-carbon innovation and development, on the one hand, carbon-neutral technological innovation has gained the world's Countries generally attach great importance to it and strive to occupy the commanding heights of industrial competition. On the other hand, existing technologies

It is not enough to support the realization of carbon neutrality goals in developing countries. The pursuit of "local manufacturing" in developed countries and regions such as Europe and the United States is not conducive to reducing the cost of new carbon neutral technologies, but also exacerbates the risk of green inflation on an international scale. While strengthening the research and promotion of green and low-carbon major science and technology, and accelerating the research and development and promotion of advanced and applicable technologies, we must also actively respond to the unilateralism of the new energy industry chain and supply chain and the artificial "decoupling and chain breaking" and "risk removal". risks and challenges such as market segmentation and stranded innovation resources. By building carbon-neutral technology partnerships and networks and other organizational advantages, we can promote the joint research, creation and sharing of the technological progress dividends brought by the green and low-carbon technological revolution by all countries.

(4) Strengthen independent climate governance and modernization of resilience capabilities. As

global climate governance enters a new stage, there is a new situation in coordinating the external struggle and cooperation to deal with climate change and steadily expanding rules, regulations, management, standards and other institutional openings. Next, it is important to strengthen the initiative to build a new development pattern and promote the integrated policy system and capacity building to achieve carbon peaking and carbon neutrality. To strengthen independent climate governance and modernization of resilience capabilities, we need to adhere to the orientation of people's welfare and smooth communication. The concept of development, by strengthening strategic investment and financing for green and low-carbon development, as well as effective directional docking and cooperative guidance of international standards and institutional norms for green and low-carbon development, actively seeks to reshape the comparative advantages of green and low-carbon development of developing countries, and jointly build An innovative and inclusive open world economic system enhances the sense of gain and happiness of people in all countries and regions towards a green, low-carbon and beautiful life.

However, in the field of global climate governance and economic cooperation and development, the impact of unilateralism, hegemonism and other national behaviors on the international climate governance system is mainly reflected in the United States' reliance on its alliance system and the so-called "risk-removing" small circle to achieve its goal of maintaining global hegemony. and the strategic purpose of taking the lead in green and low-carbon development. We should strengthen research and comprehensively respond to the impact of some countries' unilateralism on the international climate governance system from the following two aspects: First, we must create a system with research institutions, enterprises, local governments, etc. as the main body. The informal "International Carbon Neutrality Research and Concerns Consultation (Alliance) Organization" accelerates the creation of an industrial chain supply chain "firewall" for key integrated products related to carbon neutrality and enterprise industry entry-exit under bilateral and multilateral mechanisms. "Sandbox". The second is to adhere to the international governance system with the United Nations as the core, promote the evolution of carbon peak and carbon-neutral development forms to a higher level, and overcome the unilateral rules caused by international cooperation and competition in green and low-carbon development. The "Nash equilibrium" of low efficiency and undesirable steady state, participate in and promote the change of the global environmental (climate) governance system.

(Editor Gao Han)