

Analysis of Existing Condition and Direction of Low-carbon Economy from the standpoint of Green Trade

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Abstract. Global environmental awareness has increased, and green trade between countries is frequent. From the viewpoint of green trade, China's low-carbon economic development is showing a good trend, and low-carbon economy has evolved into a recognized economic development direction by countries across the globe. To establish a low-carbon economy, China has carried out a great deal of initiatives to decrease emissions of carbon, including the establishment of revocable energy, the promotion of energy structural transformation, and the pursuit of green and low-carbon growth via innovative technology and advancement in industry. China's green trade cooperation with the rest of the world is expanding, accelerating the growth of low-carbon sectors. Nowadays, influenced by various factors, China's low-carbon economy still faces practical problems such as lack of technological innovation, irrational energy structure adjustment, and insufficient relevant laws and regulations. The establishment of an economy with low carbon footprint requires the combined efforts of the country, the government, and the people to promote it. In the future development trends, technological innovation will become an important factor to facilitate the formation of a free of carbon economy. Under the scope of green trade, China's low-carbon society has broad development prospects. The creation of a low-carbon economy will contribute significantly to China's green and low-carbon transition, along with the nation's social and economic growth over time.

Keywords: Green trade; low-carbon economy; energy structure; environmental protection.

1. Introduction

The creation of a low-carbon economy founded on green trade has become a major source of international concern. As the global climate warms, carbon dioxide emissions rise, and natural disasters pose significant threats to the earth on which humans rely for survival, countries around the world are increasingly recognizing the vital role of developing a low-carbon economy [1]. The global population and economic scale continue to grow, energy consumption is massive, and environmental problems are becoming increasingly prominent, which has aroused great concern from people all over the world [2]. In September 2020, China adopted the dual carbon targets of "carbon peaking" and "carbon neutrality" for the initial time, and took active measures to cut the emission of greenhouse gases in an effort to address the issues faced by global warming. At exactly the same moment, with the expansion of financial globalization and frequent trade interactions between countries around the world, green trade has gradually been widely accepted and become increasingly important in international trade. Green commerce is of significance for decreasing the utilization of natural resources for energy such as natural gas, coal, and petroleum. reduce damage to the environment, and attain lasting financial growth [3].

With the advent of a succession of natural catastrophes and rising public awareness of environmental protection, establishing a low-carbon economy in green trade has progressively become an essential component of international commerce. Many countries and governments encourage the establishment of an economy with low carbon footprint [4]. As a result, an economy with minimal carbon emissions built on green trade may not only support long-term economic development, but also play a critical role in attaining efficient global resource usage. The organic combination of the two factors is not only conducive to promoting the expansion of ecological economy. and realizing the reuse and recycling of resources, but also conducive to strengthening international exchanges and cooperation and jointly coping with the obstacles posed by the global climate.

This study is informed by "the signing of the Kyoto Protocol in 1997, which established binding targets for greenhouse gas emissions at the international level" in an attempt to eliminate the production of greenhouse gases and alleviate energy shortages [5]. This study will look at the present circumstance of the environmental economy in multiple dimensions through the lens of green trade, clarify the definition of low-carbon economy, and how to better cultivate low-carbon economies through green trade. It will also look at the corresponding countermeasures and project future Progress trends in the low-carbon economy.

2. Current Status and Development Trend of Low-carbon Economy

2.1. The Concept of Low-carbon Economy

The term "low-carbon economy" originated in the United Kingdom's energy white paper "Our Future Energy -- Building a Carbon-Free Economy" in 2003 [6]. As the first country to propose this theory, the United Kingdom was the first to realize the significance of ecological environmental protection. The low-carbon economy reduces high-carbon use of energy and emissions of greenhouse gases through technological innovation, institutional innovation, shifts in industry, and new power production, all while promoting a win-win scenario for socioeconomic growth and environmental protection.

2.2. Theoretical Review

A series of guidelines to minimize carbon emissions were enacted in accordance with the United Nations Framework Treaty on Climate Change, which was announced in 1992. Many countries have controlled carbon emissions and implemented a low-carbon economy, which has turned into a universal consensus [7]. Entering the 21st century, humans are facing huge climate and energy challenges. The concentration of CO₂ in the atmosphere continues to climb. In order to mitigate natural disasters and energy consumption caused by global warming, reduce greenhouse gas emissions, establish a low-carbon economy and fulfill sustainable economic development. It has evolved into a serious problem that must be addressed by all countries [8]. In the past decades, many countries have vigorously developed low-carbon technologies and promoted emission reductions through mechanisms such as carbon reduction, zero-carbon, and decarbonization; Many countries have established low-carbon industrial systems, involving new energy vehicles, energy-saving building materials, environmental protection equipment, resource recovery and recycling, and other fields. In China, the administration has promulgated a set of laws and norms to create an ecologically friendly economy, such as the Energy Law, Petroleum and Natural Gas Law, and Energy Conservation Law. China's speedy growth in GDP has posed significant environmental issues. Therefore, it is imperative to develop a low-carbon economy and follow the pathway to green development [9]. These measures all show that as the global population and economic scale continue to grow, ecologically conscious economy has grown into a worldwide issue, requiring all countries to actively seek low-carbon development paths and jointly respond to the challenges of human society. Even though a series of measures promulgated by various countries have achieved some success, they have not achieved the most ideal results [10]. Many countries are restricted by industry, technology and other aspects. The speed of low-carbon economy is slow, the control of carbon emissions is weak, and the legal landscape for the low-carbon economy is not perfect enough, making it difficult to effectively regulate the country and individuals. In addition, China's economy is in a stage of fast development, and as an industrial power, China's energy system is still dominated by conventional power like coal. The percentage of new energy to clean energy is modest and there are a huge number of highly polluting industries, which restricts the development of a low-carbon economy under green trade.

In recent times, China's low-carbon economy has achieved reasonably good achievements in some areas of development. According to the National Energy Administration, by 2023, China's new capacity for solar power generation will be over 610 million kilowatts, up 55.2% from the previous

year; Installed capacity for wind power generation will be around 440 million kilowatts, a 20.7% increase (shown in Figure 1). The percentage of sustainable power generation, mainly solar energy, has increased year by year, while non-renewable energy power generation has shown a downward trend. At the same time, clean energy power generation will reach 3,190.6 billion kilowatt hours in 2023, a rise of 7.8% from the previous year; It is evident from the emergence of the electric power business that the power generation structure is constantly optimized and China is transitioning from traditional energy power generation to renewable energy power generation. In hopes of promoting the realization of the dual-carbon goals, various localities and departments have adopted powerful principles and measurements to encourage the establishment of ecological community and foster the extension of a low-carbon economy. Since the 18th CPC National Congress, China's Sustainable transport system has accelerated its development. It has actively promoted new energy vehicles, and for many years, its sales volume has been the highest in worldwide. China possesses some of the world's leading wind turbines, sunlight generation, and other machinery manufacturing and technological levels, and the new energy storage industrial chain is expanding, serving as a model for the worldwide changeover to a low-carbon economy.

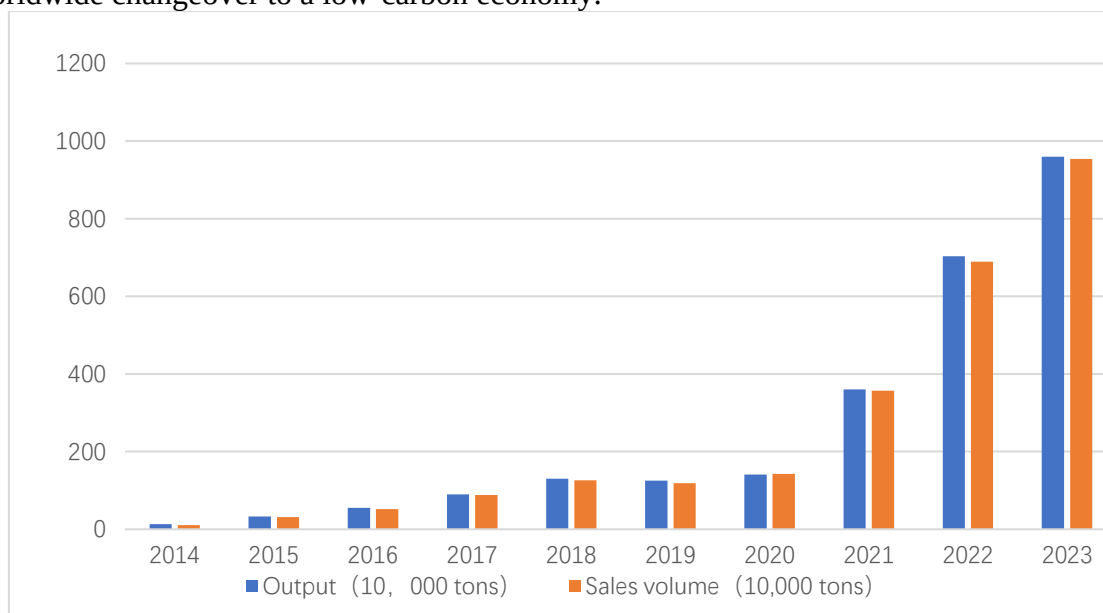


Fig. 1 China's new energy vehicle manufacturing and sales

Although China's low-carbon economic development has achieved certain results, it still needs improvement in many aspects. For example, developing an Environmentally- friendly Economy cannot be limited to energy structure. Low-carbon transformation is not the same as energy transformation. It should be thoroughly applied in a variety of industries, including farming, manufacturing, building, public transportation, and other facets of national growth. From the viewpoint of low-carbon technologies, the study and development and application of low-carbon technology still face many technical problems, such as energy conversion efficiency, energy storage technology, the capture and storage of carbon technology still require a lot of research and development investment, which has become the most difficult problem in the advancement of environmentally friendly methods.

In summary, due to the restrictions of energy structure, production efficiency, environmental awareness, policies and regulations, and technological applications, the evolution of a low-carbon economy is an arduous and long-term task that requires systematic breakthroughs in multiple dimensions. with synergy.

3. Green Trade and Its Low-carbon Economic Effect

3.1. The Concept of Green Trade

Green trade fully takes environmental protection factors into account in trade activities and promotes sustainable economic development [11]. It is no longer limited to traditional trade exchanges, but takes low-carbon and environmentally friendly measures in trading activities to ensure that trading activities do not cause harm to the environment.

3.2. The Development Trend of Green Trade

China's National Energy Administration issued an energy work guidance paper in 2021. With the intention of lowering carbon emissions, applying green trade policies to build a low-carbon economy, and being carbon neutral by 2060 [12]. The implementation of an economy that produces little carbon is inseparable from the support of green trade. The development of green trade itself also promotes the circulation of low-carbon products in the international market.

For many years, China's fiscal expansion strategy has been resource-driven, which has led to a series of environmental problems. In the past decade, the inclusive green growth plan and sustainable development goals have greatly increased China's green trade volume and developed a low-carbon economy. Green trade aligns with the larger goal of low-carbon economic development, and it could be better implemented under the green trade mechanism [13]. Therefore, the construction and improvement of the green trade mechanism should be further strengthened to better boost the growth of the carbon-neutral economy.

In 2003, the "Announcement on Matters Concerning China's Environmental Labeling Product Certification" mentioned green trade for the first time. After joining the WTO, my country has actively responded to green trade barriers, reduced and avoided the environmental impact of the export of resource-intensive and environment-intensive products through trade measures such as tariffs, and actively involved in the establishment of international green trade rules, making important contributions to promoting the development of green trade. Following that, the government and others put in place a series of methodical and exact legislation and regulations, ushering in a new era of green trade development. The "Notice of the State Council on Issuing the Overall Plan for the China (Tianjin) Pilot Free Trade Zone" was announced in 2015, and it advised boosting the development of green trade. Subsequently, the policy issued by the Ministry of Commerce also clearly stated the encouragement and support for green trade and provided guidance on how to carry out green trade. Pointed out the direction. After the "13th Five-Year Plan", China's green trade policies have covered more and more aspects and put forward more specific requirements for the development of green trade. The free trade agreements signed between China and many countries all involve clauses such as green trade and environmental protection, providing strong policy support for green trade. Although a series of progress has been made in green trade-related policies, there are still many defects and loopholes. With the continuous advancement of my country's ecological civilization construction, the formulation of policies is still difficult to match the actual implementation environment, and environmental protection policies and trade policies need to be more integrated. Therefore, China's green trade policy should be formulated in detail from multiple aspects, coordinate environmental policies and trade policies, actively engage in the crafting of rules for global trade, effectively deal with green trade barriers, and further improve the green trade system.

3.3. The Effect of Green Trade on Ecological Economy

Climate change has resulted in enormous problems to mankind around the planet, and developing green trade and protecting the environment have become the focus of attention of all countries. The increase in global environmental awareness has led to an increase in the volume of green trade. Countries are actively exploring low-carbon development paths, strengthening green development cooperation, and encouraging the transition of society to low-carbon within the context of green trade.

The reason why countries are vigorously developing low-carbon economy is that aside from the improvement of people's environmental awareness, the development of green trade provides a platform for support. Green trade plays a vital function in promoting pollution reduction and carbon reduction in key industries and developing low-carbon economy. Green trade runs through all aspects of production and consumption. It follows the concepts of energy conservation, water conservation, low pollution, low energy consumption during the manufacturing process, which contributes significantly to society's low-carbon transition. The Export-Import Bank of China places a high value on green trade, supports the evolution of my country's low-carbon economy, vigorously promotes the optimization and modification of energy balance, accelerates the intelligentization of the industrial field, promotes green and low-carbon development, and promotes resource recycling throughout society.

In a word, the low-carbon economy based on green trade is a crucial component in the transformation of the global economy into a green one. The two jointly promote the healthy development of the global finance.

Analyzing the current condition of the environmentally conscious economy, it appears that the upward trajectory of China's ecologically friendly society has yet to reach the intended goals, primarily because the development speed of green trade is insufficient, and there is some eagerness for the development of the low-carbon economy, resulting in a mismatch in the two development speeds. The growth of the carbon economy has been hampered. Research, expansion, and innovation in low-carbon technology are key forces in promoting the transformation of society to low-carbon, but determined by the development law of low-carbon technology itself, the current low-carbon technology still has plenty of space for enhancement, and there are many problems in the research, development, and implementation of low-carbon technologies. The development of a low-carbon economy includes the society's transition to a green and low-carbon future. It is necessary to comprehensively consider factors such as national policies, development costs, reasonable modification of energy structure, and the resource and environmental carrying capacity of society, so that the development of a low-carbon economy conforms to and adapts to the national conditions. Compared with advanced nations, the rise of China's low-carbon economy is restricted by green trade barriers, its ability to independently innovate low-carbon technologies is lacking, and its energy structure transformation is difficult. It has not yet established a complete low-carbon industry development policy, and needs to continue to adjust development.

China's continued openness to the rest of the world, as well as its overall national strength, will successfully foster the advancement of a low-carbon economy in the years to come. Economic globalization has brought countries closer and closer together. China's international status has improved, and its voice on the international stage has increased. It will further break down green trade barriers, take part in the formulation of global trade regulations, strengthen international cooperation and exchanges, and pave the way for the establishment of an economy that produces little carbon. At the same time, with the implementation of the talent-driven national strategy and the innovation-driven development strategy, China's independent innovation capabilities will continue to improve, low-carbon techniques will continue to be optimized and upgraded, and industrial upgrading will be promoted. In the near future, the low-carbon policy system will be further improved, such as green financial policies and carbon trading market mechanisms to encourage enterprises and individuals to minimize emissions of carbon. The expansion of China's ecologically conscious economy will achieve long-term development with support from policy promotion, technological innovation, market demand and international cooperation.

4. Conclusion

This study undertakes an in-depth examination of the present-day state and issues of low-carbon economic development from the perspective of green trade by examining the low-carbon economic field in connection with prior literature and chart data. In the context of the entire environment and

climate change, green trade exchanges between countries are frequent, carbon-free economy has attracted attention and emerged as a new economic development model, and it has grown considerably over the last few years.

However, in the face of practical challenges such as technological breakthroughs, policy adjustments, and green trade barriers, the evolution of the low-carbon economy has been severely restricted. Subsequently, in anticipation of advertising the further development of the low-carbon economy, it is essential to break trade barriers, increase technological investment, and improve market standards. Entry and related policies are particularly important. In view of the current development status of the low-carbon economy, a scientific and reasonable development plan should be formulated, combined with the actual national conditions, and implemented in a conditional and step-by-step manner; At the identical period, the breakthrough level of low-carbon technology should be improved, and expenditure in the investigation and development of low-carbon technology ought to be increased to strive for new progress in key industries and important fields. Accelerate the establishment of Chinese low-carbon industrial system, capitalize on the collective effect, increase energy saving and lower emissions, boost equipment manufacture and drive green development with ecological and environmental priority to create more effective and long-term low-carbon economy growth.

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