

# The Feasibility of Combining Dual Control of Energy Consumption With Carbon Emission Trading Policy in Current Environmental Theory

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## Abstract

In order to achieve the goals of "carbon peak" and "carbon neutrality" on schedule, China has introduced a series of policies such as "dual energy consumption control" and "carbon emissions trading". As the country has a large energy demand, a large population base and a large number of people and enterprises participating in carbon emissions, the national carbon emission reduction measures need to give policy directions and guide the whole people to participate. Through analysis, we find that although the current facts show that the dual control policies of energy consumption or carbon emissions trading have their own advantages and disadvantages, the combination of these two policies can complement each other. Therefore, this paper has carried out a series of analysis on the feasibility of the combination of the two carbon emission reduction policies, and made plans and assumptions on the direction that can be improved after the combination of the policies, hoping to make contributions to carbon emission reduction and achieve the "double carbon" goal.

## Keywords

Carbon emission trading policy; Dual control of energy consumption; Combination of policies; Double carbon target.

## 1. Introduction

According to the 2021 World Energy Statistical Yearbook, China's total primary energy consumption in 2020 will be 145.46eJ, accounting for 26.13% of the world's total, but its GDP will only account for 17.38%. In 2021, the use of fossil energy in China will account for 74.7% of China's energy consumption structure. It can be seen that China is overly dependent on energy, which not only results in a large amount of carbon emissions, but also shows that China's economic development model is extensive, which seriously hinders the high-quality development of China's economy. At the same time, China's energy dilemma caused by low energy utilization rate, insufficient exploration and exploitation to keep up with the national economic demand, rising international oil prices and China's lack of oil reserve system further aggravates the reform and standardization demand of China's energy production and use.

With the large-scale development of market players, the continuous optimization of the structure and the increasing improvement of the environment, China is accelerating the construction of a national unified market, which will lead to an increase in the demand for resource allocation and thus increase carbon emissions, which is an inevitable trend of development in recent years and even in the next few years. At the same time, a series of global environmental problems caused by excessive carbon emissions, such as sea level rise, have intensified the weakening of the carrying capacity of the environment to carbon emissions. In addition, China's population base is large, regional development is difficult to coordinate, and

carbon emissions are huge. The resulting management problems are also extremely difficult, so timely intervention and guidance of policies are extremely urgent.

## **2. Feasibility Analysis of Policy Mix.**

The Paris Agreement 6.4 adopted by COP26 marks the establishment of the future global carbon market mechanism. Once the mechanism is launched, carbon asset trading can become a commodity trading, which will lead to a large number of funds, technologies, investors and practitioners being attracted and involved. As a participant of the international community, China needs to shoulder the responsibility of a major country and face the supervision of all countries in the world, so we must take carbon emissions seriously. In addition, controlling carbon emissions can give China more initiative in international trade. And because China is currently a major exporter of global trade, many export products cannot find substitutes in a short time. This has the advantage that: on the one hand, we can increase the price in international trade; on the other hand, we have the potential to use RMB as the settlement currency, establish bilateral and multilateral trade relations with other economies, and further promote the internationalization of RMB. Therefore, in today's international environment, in the face of the increasingly high requirements of the international community for China, China's response measures also need to be further improved, and policy implementation also needs further in-depth planning.

Through the comparative analysis of the status quo of policy implementation, combined with the needs of carbon emission control, we believe that the dual control energy consumption and carbon emission trading policies will be combined to further complement each other, give play to their respective advantages, and maximize the effect of policy implementation. In addition, the combination of policies can also avoid the waste of early investment resources to a certain extent. Based on the above views, we conduct a feasibility analysis of the policy mix.

### **2.1. Consistent policy objectives**

At the time of this policy, Chinese leaders have promised the world to reach the peak of carbon emissions by 2030, so we urgently need more policies to guide enterprises to voluntarily reduce carbon emissions. At present, the dual control policy of energy consumption and carbon emission trading policy are the most active. The general provisions of the carbon trading policy stipulate: "Implement the Central Committee of the Party and the State Council... give full play to the role of the market mechanism in coping with climate change, promoting green and low-carbon development, and promoting greenhouse gas emission reduction... Formulate these measures." In the introduction of the "Improving the dual control of energy intensity and total amount", it also wrote: "Implementing the dual control degree of energy consumption intensity and total amount is an important institutional arrangement to meet the requirements of ecological civilization construction, promote energy conservation and consumption reduction, and promote high-quality development." It can be seen that these two policies have the common goal of promoting low-carbon development, that is, their goals are consistent. Since there is no fundamental conflict between the two policies, further analysis can be made according to this goal.

### **2.2. The demand for coordinated development of various regions**

The policy of dual control of energy consumption and carbon emissions trading is a policy of all countries, and is being implemented in all provinces, cities and regions of China. From 2005 to 2020, China's contribution to global carbon emission reduction will basically account for 30% to 50% of the global total, and some carbon emission management achievements have played a certain role. It is worth noting that China has a vast territory and unbalanced regional development conditions, which also puts forward higher requirements for the implementation

of China's policies. Therefore, the implementation and coordination of the two policies are more conducive to the overall development of China.

The effect of these two policies can reduce the inequality caused by regional differences. After the combination of the two policies, the implementation proportion of the two policies can be adjusted according to the regional industrial situation and demand, so as to achieve the purpose of policy tightness, meet the needs of regional governance, and achieve the carbon emission reduction goal as efficiently as possible. For example, in China, the distribution and development of major regional industries directly reflect the demand proportion of regional policies. Therefore, the adjustment measures based on local conditions are reasonable, which can effectively reduce some adverse consequences caused by the one size fits all policy, more conducive to avoiding redundant sectoral actions and improving carbon emission reduction efficiency. At the same time, from the perspective of people and enterprises, effective combination policies give people and enterprises time and space to respond to policies, which is conducive to improving people's quality of life, facilitating enterprises' production and development policies, and trying to avoid enterprises and residents' resistance to some policies and public opinion conflicts that do not conform to regional characteristics.

### **2.3. Benefits of the combination of these two policies**

The dual control of energy consumption focuses on energy management, while carbon emissions trading focuses on capacity management. The combination of the two can form a new situation of "combination of control, use and production". Among them, the dual control policy of energy consumption emphasizes reducing the total amount and intensity of energy consumption, and focuses on energy consumption. The purpose of reducing energy supply can be achieved by reducing energy consumption. The main mechanism of carbon emission trading policy is to reduce the production of fossil energy from the source, and control the carbon emissions in the production process by giving enterprises a certain carbon quota, thus forcing enterprises to develop clean energy. If these two policies are combined, they can play a role in both energy consumption and production, achieve production capacity and energy use, and achieve cleaner production and cleaner emissions to a greater extent. Each table is complementary.

## **3. Combination of Dual Control of Energy Consumption and Carbon Emission Trading Policy**

After the combination of the two policies, the scope of management objects is large and the supervision is more accurate. The dual control of energy consumption mainly depends on the macro-control of the government, and sets the overall goal from the direction, which is applicable to different provinces, different types of enterprises, and even individual residents. On the other hand, carbon emission trading policy can be seen as a market regulation means, mainly applicable to enterprises in key industries. If the two are combined, the coverage of policy management objects can be further expanded, the omission of a single policy object can be effectively remedied, and carbon emissions can be better regulated from both macro and micro perspectives. Carbon emissions trading depends on market regulation, while dual control of energy consumption depends more on macro-control. After clarifying the direction of dual control of energy consumption to dual control of carbon emissions, the degree of policy integration may be further deepened due to the unity of "objects".

In order to effectively prove the advantages and feasibility of the combination of the two policies, we take the power rationing in Sichuan in the summer of 2022 as an example, and put forward an example to solve the "snowball" problem of dual control of energy consumption. The main power supply of Sichuan Province depends on hydropower. The power of Sichuan

Province not only needs to supply local needs, but also needs to be transmitted to the east. However, due to the high temperature this summer, the climate is dry with little rain. With the rising temperature, dual control of energy consumption, lack of hydropower generation and the increasing demand of residents for air conditioning, the power supply in Sichuan is difficult to meet the daily demand. The double control "snowball" of energy consumption refers to the double control under the control of energy consumption. High carbon power generation mainly represented by thermal power gradually stops, but under special circumstances, such as high demand, plateau hydropower cannot meet the demand, and thermal power cannot be recovered immediately. However, as the total energy consumption target of the dual control system remains unchanged, the dual control policy of energy consumption still needs to be further tightened to achieve the target in the case of power overload, resulting in more strict dual control of energy consumption. However, if the dual control of energy consumption and carbon emissions trading policy can be combined with the implementation of enterprises in Sichuan Province, the remaining carbon credits can be resold to the provinces around the power plant through carbon emissions trading, so that the power can be supported by Sichuan, or the power plant with annual capacity can be restarted in a short period of time to alleviate immediate concerns and avoid the occurrence of "snowball" phenomenon.

By comparing the two policies and the "snowball" sample list of power rationing in Sichuan, we can see that the carbon emission control trading policy and energy consumption can largely complement each other, effectively play their respective advantages, maintain people's needs as much as possible, and create a new situation and new path for China to achieve the "double carbon" goal. Of course, these two policies have two sides. Only by further solving their respective difficulties can we further improve the combination of policies and give better play to their respective advantages.

In order to achieve a high degree of policy integration, it is also necessary for us to solve the difficulty of transforming the dual control of energy consumption into the dual control of carbon emissions. As we all know, the difficulty of a series of carbon emission measures mainly lies in the accounting of carbon emission statistics. At present, carbon emission accounting and monitoring have many deficiencies in the further refinement of standard formulation, technical means, management countermeasures, etc. Therefore, it is necessary to accelerate the establishment of a unified carbon emission statistics and accounting system, define standards, lay a solid foundation for technology, and make policy integration more realistic. In addition, as a short-term goal, China can further expand the coverage of the carbon market. At present, the national carbon market only includes the power generation industry, with a high degree of homogeneity and small difference in emission reduction costs, so there is limited space for reducing carbon emission reduction costs. Therefore, after further expanding the coverage of the carbon market, we can effectively distinguish the industries involved, explore ways and means to further reduce emission reduction costs, and expand the space for reducing emission reduction costs. In addition, according to the relevant experience and lessons of the "dual energy consumption control" system, the current total energy consumption control indicators are based on the conversion of the total economic output of each part. However, due to the relatively underdeveloped economy, the western region of China is generally faced with an embarrassing situation of insufficient energy consumption indicators. How to further expand the energy consumption index in the western region to meet the needs of the people is also an important problem we are facing.

Carbon emissions trading also faces many problems that need to be improved. From the domestic situation, "carbon quota" is mainly free distribution, while paid distribution is a supplementary form. The common ways of paid quota trading are auction and pricing trading. From the perspective of the whole carbon emission trading market, free distribution accounts for a large proportion, which is not conducive to mobilizing the enthusiasm of enterprises for

emission reduction and energy-saving transformation, nor to activating carbon assets. Considering the dual control of national market demand and energy consumption, free quotas are difficult to realize the trans provincial and trans regional circulation of trade rights. Therefore, in addition to improving the measurement of carbon emissions, the marketization of voluntary emission reduction in the future needs to play a more active role. How to mobilize the enthusiasm of emission reduction and give play to the market initiative is the primary issue facing carbon emissions trading.

#### 4. Conclusion

Only by improving the deficiencies of their policies, establishing and improving the perfect management system of policies, strengthening the supervision of policy implementation, and giving play to the "1+1>2" effect under the conditions of complementation and integration, can we effectively prevent temporary problems caused by policy implementation, and jointly help to achieve the dual carbon goals at an early date. In the environment where these two policies work together, with the development and maturity of the economy of the times, the dual control of energy consumption gradually turns into the dual control of carbon emissions. In addition, the dual control of energy consumption and carbon emissions trading complement each other, which is more conducive to the joint action of the two policies to achieve the initial goal of the portfolio. We expect that with the maturity and progress of the policy, as well as new opportunities and challenges that may arise in the future, our Congress will propose ways to make these two mechanisms more in-depth.

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