

# **Analysis on Low Carbon Development Countermeasures of Resource based Industries in Shaanxi Province**

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## **Abstract**

To study the low-carbon transformation of resource-based industries, we can construct the "driving hindrance" mechanism model of low-carbon transformation of resource-based industries, and then put forward the corresponding countermeasures to promote the low-carbon development of resource-based industries. It is of great significance to explore the low-carbon transformation of resource-based industries in Shaanxi Province, promote China to achieve the goal of carbon emission reduction in 2030, actively respond to the new normal of China's economy, and accelerate the low-carbon transformation of industries.

## **Keywords**

resource based industry, low carbon development, mechanism of action, Shaanxi.

## **1. Introduction**

The 19th National Congress of the Communist Party of China clearly proposed to "promote green development, establish and improve the economic system of green and low-carbon circular development", and stressed the need to "vigorously support the transformation and development of resource-based areas". At the same time, China has taken the 2030 low-carbon development goal as a rigid development indicator and integrated into the national medium and long-term planning. Resource based industry is the pillar industry of resource-based areas in China, and also the main source of carbon emissions in China. Therefore, promoting the low-carbon transformation of resource-based industries is not only the key to realize the low-carbon transformation of resource-based areas in China and the low-carbon action goal in 2030, but also an important way to accelerate the reform of China's ecological civilization system and build a beautiful China. How to effectively promote the low-carbon transformation of resource-based industries is an extremely important practical topic in the field of China's economic transformation and development in the new era. Shaanxi Province is an important resource-based Province in the western region of China. The local resource development has provided great support for the industrialization construction of new China. However, for a long time, the single industrial structure not only makes the regional economic development produce serious path dependence, but also marginalizes other industries, and industrial transformation becomes the primary task.

## **2. Literature Review**

Most of the views of foreign scholars are to promote the development of low-carbon economy through the use of scientific and technological innovation, market regulation, and the development of new energy. Some scholars also put forward specific development models from the perspective of technology. For example, the soecd report points out that Europe should also adjust its own development strategy to promote the transformation of low-carbon economy, and promote the process of economic transformation through the adjustment of energy policies and strategic guidelines. Parrish pointed out that sustainable development oriented strategic

design by entrepreneurs will support and promote the transformation of low-carbon economy. At the same time, Morrison and Yoshida compare and study the development status of China, the United States and South Korea, and believe that the establishment of corresponding public funds in the above countries is conducive to supporting the development of clean energy and the construction of low-carbon emission model. Liu HENGWEI & Kelly Sims Gallagher believes that the development of carbon capture and storage technology (CCS) is conducive to the transformation of China's current high-carbon economic model to a low-carbon economy. Nie Hualin et al. (2010) believed that based on the existing development foundation, Western resource-based cities should orientate the transformation of resource-based industries, and develop the industries to ecological, brand, industrialization, characteristics and modernization. Chen Ying (2012) systematically studied the dynamic mechanism, restrictive factors and overall concept of the transformation and upgrading of resource-based industries in Inner Mongolia, and put forward suggestions on promoting independent innovation, improving enterprise organization system, deepening opening-up, policy guarantee system, and coordinated development of resource-based industry and non resource-based industry. Yi kaigang and Lin Xiaoxiao (2013) believe that in order to realize the transformation and upgrading of resource-based industries, it is necessary to increase investment in technology research and development.

### **3. The Significance of Low Carbon Development of Resource-based Industries in Shaanxi Province**

#### **3.1. Theoretical Significance**

The 19th National Congress of the Communist Party of China clearly proposed to "promote green development, establish and improve the economic system of green and low-carbon circular development", and stressed the need to "vigorously support the transformation and development of resource-based areas". At the same time, China has taken the 2030 low-carbon development goal as a rigid development indicator and integrated into the national medium and long-term planning. Resource based industry is the pillar industry of resource-based areas in China, and also the main source of carbon emissions in China. Therefore, this paper, by promoting the low-carbon transformation of resource-based industries in Shaanxi Province, reveals the industrial heterogeneity of carbon emission driving factors in resource-based industries and the comparative advantages of low-carbon development path, which can not only enrich the theoretical content of low-carbon development research of resource-based industries, but also enrich the theoretical content of low-carbon development of resource-based industries It can also provide a theoretical basis for the practice of low-carbon development of resource-based industries.

#### **3.2. Practical Significance**

Shaanxi Province is an important resource-based Province in the western region of China. The local resource development has provided great support for the industrialization construction of new China. However, for a long time, the single industrial structure not only makes the regional economic development produce serious path dependence, but also marginalizes other industries, and industrial transformation becomes the primary task. At present, among the four types of cities classified by the State Council, most of the resource-based cities in Shaanxi Province belong to growth type cities and mature cities. These two types of cities are the reserve base of energy resources and the core area of security guarantee in China at the present stage, with strong resource guarantee ability, great development potential and good transformation foundation. In this context, under the constraint of carbon emission reduction,

the construction of resource-based industries in Shaanxi Province and the choice of low-carbon development path have important practical significance.

#### **4. The Mechanism Model of "Driving Hindrance" Factors of Low Carbon Transformation of Resource-based Industries in Shaanxi Province**

Since China has officially entered the new normal of economic development, it is urgent to change the mode of economic development and objectively require continuous industrial optimization and upgrading; at the same time, the slowdown of economic growth will objectively alleviate the damage of economic development on resources and environment, which brings new opportunities for low-carbon transformation of resource-based industries. China should be low in 2030.

Taking carbon action target as an opportunity, we should seize the opportunity period of low-carbon industrial transformation brought by economic slowdown since the new normal of China's economy, make full use of the driving factors of low-carbon transformation of resource-based industries, overcome the obstacles of low-carbon transformation of resource-based industries, accelerate the low-carbon transformation of resource-based industries, and embark on the road of sustainable development. Because the low-carbon transformation of resource-based industries is a long-term systematic project. Therefore, it is necessary to construct the mechanism model of "driving hindrance" factors in the low-carbon transformation of resource-based industries from the perspective of system theory (Fig. 1, see the right).

As shown in Figure 1, the resource-based industry has gone from the traditional development mode to the low-carbon development path through low-carbon transformation. In the process of low-carbon transformation, the five obstacles in the upper left are constantly restraining and delaying the progress and pace of low-carbon transformation of resource-based industries, while the five driving factors at the bottom right are positively promoting the development of low-carbon transformation of resource-based industries. Resource based industries are undergoing low-carbon transformation in the interaction of various factors.

#### **5. Low Carbon Development Strategy Analysis of Resource-based Industries in Shaanxi Province**

##### **5.1. Accelerate Top-level Design and Policy Support**

The government should make every effort to promote the top-level system design of the transformation and upgrading of resource-based industries, deepen the reform of property rights system, reduce government intervention, and strengthen the government's function in the field of market failure; establish more scientific performance evaluation standards for government officials; improve the investment environment to attract foreign investment and talents. We will encourage all kinds of enterprises, especially small and medium-sized private enterprises, to enter resource-based service industries and emerging resource-based industries and develop into intelligent and high-tech production. We should pay attention to the market policy tools in the field of resources and environment, introduce climate change tax and carbon tax in a timely manner, and improve the construction of carbon trading market mechanism. We should consider a game of chess in the whole country, change the former principle of "polluter pays" to the principle of "resource developers and resource beneficiaries jointly pay", and change the situation that the main source of resources bears the carbon responsibility and the resource consumption area evades the carbon responsibility as soon as possible Carbon emission gains and losses deviate from the status quo to ensure the fair and coordinated development of regional economy.

## **5.2. Relying on One Belt, One Road Strategy to Strengthen International Low Carbon Cooperation**

On the one hand, by means of institutionalization, actively integrate and utilize international resources, and with the help of some international organizations and institutions (such as the United Nations Environment Programme and development programme, the International Commission on environment and development, OECD, the world bank, as well as non-governmental organizations and research institutions with important international influence, etc.) to promote low-carbon technology transfer from developed countries to developing countries So as to promote the international cooperation process of low-carbon transformation of resource-based industries. On the other hand, Shaanxi should give full play to its regional advantages as the core area of the Silk Road Economic Belt, open up trade with Central Asia and European countries, open to a higher level and level, seize the opportunity to cultivate new comparative advantages, and promote the global layout of low-carbon transformation of resource-based industries and the unity of balanced and coordinated development of Eastern, central and western regions in China.

## **5.3. Build a Complete Legal System of Low Carbon Industrial Transformation**

First of all, we should take the opportunity of comprehensively promoting the rule of law as an opportunity to establish and improve the basic legal system of low-carbon transformation of resource-based industries, so as to clarify the obligations and responsibilities of the government, enterprises and the public in the implementation of low-carbon transformation of resource-based industries, and gradually bring the low-carbon transformation of resource-based industries into the legal track; secondly, gradually release a series of implementation offices that are in line with regional reality and have strong operability Thirdly, we should establish a reasonable political and democratic system, improve the democratic and legal order, restrain power disputes, enhance law enforcement, punishment and supervision, and severely crack down on the power corruption of power and money trading, especially for Party members and leading cadres, we should greatly increase the cost of illegal activities and curb the maximum extent We should control and reduce the "Rent-seeking" space of enterprises for government officials, and provide a solid guarantee and legal weapon for the low-carbon transformation of resource-based industries.

## **5.4. Improve Innovation Incentive Mechanism and Promote Technological Innovation**

We should give full play to the government's macro-control role, encourage small and medium-sized enterprises to improve their R & D capabilities, enhance their internal innovation motivation by accelerating the transfer of technological achievements property rights and solving the ownership of technological property rights; gradually establish and improve the scientific and technological innovation system with enterprises as the core and the combination of production, teaching, research and application, so as to promote the transformation of scientific research achievements into enterprise productivity, and establish a public scientific research achievement sharing platform to enhance the internal innovation power of enterprises Knowledge spillover effect; encourage the construction of circular economy group of resource-based industries, and promote the industrial application of major environmental protection technology and equipment products and clean recycling technology.

## **5.5. Strengthen the Intellectual Support Foundation for Low Carbon Transformation of Resource-based Industries**

Strengthen the cooperation between resource-based enterprises, universities and scientific research institutes, regularly carry out training for enterprise employees, improve business skills through training, and gradually flow to the resource-based midstream and downstream

industries, so as to increase the accumulation of human capital in the higher end of the resource-based industrial chain. We should make full use of the technology spillover effect of different industries to optimize the matching structure of human capital in resource-based industries. We should promote resource-based enterprises to go abroad, actively embed into the global innovation industry chain, and make use of the human capital in foreign resources to serve the innovation driven transformation and upgrading development of resource-based industries.

### **5.6. Establishment of Resource Development Benefit Sharing Mechanism**

The government and enterprises, the main body of low-carbon transformation of resource-based industries, should work together to deal with the relationship between resource development and ecological protection, as well as the relationship between enterprises and local governments. Through the establishment of market mechanism for economic benefit adjustment, legal mechanism for enforcement and multi-party coordination of government supervision mechanism, a special fund for low-carbon transformation of resource-based industries should be established to repair and restore capital. The external diseconomic problems such as air pollution, geological damage and ecological damage caused by the process of source development can actively improve the living environment of local people. The government of resource-based areas should strengthen the welfare construction in education, medical treatment, transportation and housing. Resource based enterprises should jointly improve the quality of life and social welfare of local people through recruitment, participation in local infrastructure construction and spiritual civilization construction (funding education and enriching cultural and entertainment life), so as to promote regional prosperity, stability, harmonious progress and maintain society. Stabilize the overall situation.

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