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Research on Green and Low-carbon Development Strategy of Chinese Circulation Industry

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Abstract. In recent years, with the continuous development of social economy, Chinese circulation industry has developed rapidly, and has become one of the important industries causing pollution in China. In order to build an ecologically civilized country, China needs to develop the circulation industry into a green and low-carbon industry. This paper analyses the problems in the development of green and low-carbon circulation industry in China. Based on the problems existing in the development of circulation industry, this paper puts forward some pertinent suggestions on the low-carbon development of circulation industry from two aspects of circulation enterprises and the Chinese government.

1. Introduction

The social economy of China has achieved sustained and high-speed development since the reform and opening-up, and the transportation infrastructure has been constantly improved. The circulation industry has achieved an unprecedented period of development, which has greatly promoted the continuous improvement of people's living standards. Correspondingly, the rapid development of circulation industry will inevitably consume more energy, and more energy consumption means more carbon emissions.

The rapid development of circulation industry, on the one hand, has brought convenience and prosperity to social life, on the other hand, it has also brought obvious impact on China's environmental pollution. In order to alleviate the pressure of environmental pollution, China has vigorously implemented a low-carbon development strategy. It plans to control the total amount of energy consumption in terms of controlling energy consumption and energy system revolution, so as to strive for the construction of ecological civilization.

Circulation industry is a large amount of carbon emissions. Under this background, the realization of green and low-carbon development of recycling industry is conducive to reducing total carbon emissions. It can also further promote other departments to implement energy-saving and emission reduction measures, so as to achieve the goal of ecological civilization.

2. Present situation and the problems of green and low-carbon development of circulation industry in China

2.1. The consciousness of green development in circulation industry is still weak

In recent years, the circulation industry of China has experienced rapid development. The circulation industry is very large, whether the number of enterprises or employees, In order to deal with the fierce competition, circulation enterprises should focus on controlling the operation cost. No matter the size



of enterprises, circulation enterprises are relatively lack of green development awareness, and the green development awareness still needs to be further strengthened. On the other hand, the large number of employees in the circulation industry which has made great contributions to China's employment, but the overall quality of employees is low, and employees generally lack of green and low-carbon Development Consciousness.

Chinese residents are not aware of green development and lack of energy-saving and environmental protection concept. In order to cope with fierce competition and cater to consumers' demand for convenience, the circulation industry actively or passively provides disposable goods such as toothbrushes, tableware, plastic bags, which further directly or indirectly increases carbon emissions.

2.2. The low concentration of the circulation industry is harmful for the full play of the scale effect

Although the circulation industry in China has achieved unprecedented development, it has a large number of enterprises and a low degree of industry concentration. Lack of large-scale circulation enterprises leads to the relatively extensive operation mode of circulation industry, which makes it difficult to bring into play the advantages of scale to improve operational efficiency, concentrate efforts on R&D, and make full use of the latest science and technology to reduce energy consumption. In addition, many circulation enterprises still adopt the traditional concept of internal self-sufficiency.

The lack of specialized division of labor in the circulation industry and the common operation mode of self-built logistics system in enterprises result in low comprehensive utilization efficiency of vehicles and logistics facilities. So there is duplication of labor in the circulation industry, which has increased carbon emissions.

2.3. Highway transportation is still the main mode of logistics transportation, and the means of transportation organization and management are relatively backward.

According to data from the Ministry of Transport, the proportion of highway transportation, waterway transportation, railway transportation and civil aviation transportation is 78.04%, 14.14%, 7.81% and 0.15. The statistical results show that China's goods are mainly transported by road, and less than 30% by water, rail and air. On the one hand, the data reflects that China's road transport is developed, but the cost of road transport is high and the transportation time is long. Road transport is also the most polluting mode of transportation, which is not conducive to energy conservation and emission reduction. On the other hand, the data also reflects that China's water, rail and civil aviation transport utilization rate is low. Compared with western developed countries, China should develop transport potential of waterways, railways and other transport modes with low comprehensive carbon emissions.

2.4. The level of intelligence and informatization in circulation industry is relatively backward

Limited by capital problems, Chinese circulation industry has a low concentration and relatively backward facilities. Especially for small and medium-sized circulation enterprises, forklift trucks, warehouses and other logistics equipment and facilities are still dominated by high energy-consuming and non-environmental protection equipment, such as diesel forklift trucks and traditional warehouses. Due to the self-construction, the whole circulation industry has the problem of repeated construction of circulation equipment and facilities, and the overall utilization rate is not high.

In addition, the Internet of Things and intelligent applications in Chinese circulation industry need to be improved, and the degree of industry sharing is low, which results in a higher vacancy rate of transportation vehicles, warehouses and other equipment and facilities, and a higher proportion of ineffective carbon emissions. The transport information sharing mechanism of the industry still needs to be further improved, and the standardization and intensive level of the industry is relatively low.

3. Green and low-carbon development strategy of Chinese circulation enterprises

3.1. Heightening the dissemination of green consciousness, improving staff's consciousness of energy conservation

Senior managers of circulation enterprises should have the concept of green and low-carbon development, attach great importance to energy saving and emission reduction, and influence all employees through the demonstration and driving role of senior leaders. In terms of grass-roots employees, circulation enterprises should actively carry out green and low-carbon related training projects, and increase two-way communication with employees from the aspects of national macro-policies, relevant laws and regulations, daily specific behavior requirements, etc. Circulation enterprises should strengthen the awareness of energy saving and emission reduction of all employees, make employees form the behavior habits of energy saving and emission reduction, and strive to train all employees to become high-quality employees with green low-carbon professional quality.

3.2. Win-win cooperation to optimize transportation mode and improve utilization ratio of equipment and facilities

Circulation enterprises should actively share and deepen cooperation with relevant enterprises in light of their actual situation. On the one hand, circulation enterprises should increase investment in enterprise training, improve the business level of logistics business planners, actively optimize the mode of transportation, shorten the transportation routes, improve transport efficiency, reduce transport costs and energy consumption. On the other hand, the circulation industry should develop the third-party logistics. Through information sharing with related enterprises, timely communication in logistics facilities and equipment, the circulation industry integrates the resources of related enterprises, shares related equipment and facilities, avoids uneven idle resources of equipment and facilities, and improves the utilization rate of vehicles, warehouses and other facilities. Circulation enterprises should improve circulation efficiency through intensive management, and then reduce carbon emissions.

3.3. Circulation industry should further improve the level of intelligence and informatization of enterprises

Circulation enterprises need to further increase investment in enterprise intelligence and informatization. Firstly, they need to make full use of the Internet of Things such as radio frequency equipment and global positioning of intelligent logistics to build the information processing and communication technology platform of enterprise logistics. By improving the level of automation in goods transmission, the efficiency of transportation, warehousing, distribution and other links in logistics can be improved. Secondly, they need to make full use of advanced technologies such as cloud computing and artificial intelligence, and find out potential rules and internal relevance by fully mining the existing logistics data of enterprises. Through the technology of Geographic Information System, the information of logistics orders, vehicles, networks, customers and so on can be summarized into the information map of enterprises. Through intelligent network planning, route optimization, vehicle and transportation route automatic optimization and other dispatching management activities, enterprise logistics activities can be intellectualized and informationized.

3.4. Actively using green packaging to reduce the waste of resources

Circulation enterprises should establish the green concept and implement green packaging activities, which can not only reduce the cost of enterprises, but also save resources and protect the environment. First, circulation enterprises can reduce the use of packaging without affecting the use and sales, and strive to achieve appropriate packaging. Second, circulation enterprises can reduce resource consumption by using reusable packaging. Third, circulation enterprises can establish a systematic packaging recycling system. Through the reuse of packaging, circulation enterprises can reduce the energy consumption of the whole society and achieve low-carbon circulation links.

4. Policy suggestions of the Chinese government on promoting green and low-carbon development in circulation industry

4.1. The government can issue preferential tax policies to support energy saving and emission reduction in circulation industry

The green and low-carbon development of circulation industry can't do without the initiative of enterprises. The Chinese government needs to further mobilize the enthusiasm of enterprises. The motive force for enterprises to implement green low-carbon stations is to reduce costs and increase profits. Therefore, the Chinese government needs to refine the supporting policies for energy conservation and emission reduction in the circulation industry. The government can gradually guide the circulation industry to carry out energy saving and emission reduction activities by providing tax relief, land acquisition and financial support.

4.2. Supporting enterprises in circulation industry to carry out information and intelligent technological innovation

Under the background of the rapid development of science and technology, the Chinese government needs to encourage large circulation enterprises to increase investment in information and intelligent scientific research, and encourage the development and innovation of low-carbon technology with a strategic perspective. Then, the circulation industry can achieve the goal of low-carbon emission reduction through technological innovation and application.

For circulation enterprises adopting low-carbon technology, the government may consider giving some special financial support, or giving corresponding tax relief concessions. The government should guide circulation enterprises to actively adopt environmental protection skills and facilities, encourage circulation enterprises to adopt environmentally friendly low-carbon products, and reduce the energy consumption of the whole circulation link.

4.3. Guiding industry mergers and acquisitions to improve industry concentration

Chinese circulation industry has a large number of small and medium-sized enterprises and low industry concentration, which is not conducive to giving full play to the scale advantages of enterprises. Under this background, the government should encourage large-scale circulation enterprises to increase the concentration of the circulation industry by merging small and medium-sized enterprises. By improving the concentration of the circulation industry, we can provide conditions for the application of large-scale modern equipment and facilities, and provide application basis for environmental protection and low-carbon technological innovation.

4.4. Accelerating the Construction of Green Circulation Operation Mechanism

In order to promote the green and low-carbon development of the circulation industry, the government needs to guide the construction of a green circulation system.

First, the government needs to encourage the active exchange and sharing of information among circulation enterprises, promote the construction of an open and shared industry information platform, encourage inter-enterprise innovation, joint development of logistics information technology, and establish an effective win-win cooperation mechanism within the industry.

Secondly, the government should carry out pilot construction activities of green circulation in large circulation enterprises, classify implementation and evaluation criteria of green enterprises, gradually establish the implementation process of low-carbon operation of circulation enterprises.

Thirdly, the government should scientifically plan the industrial layout of logistics industrial park, logistics distribution network, regional commercial network and resource recovery and utilization point. By optimizing the regional logistics turnover and distribution routes, it can improve the loading rate of transport vehicles, shorten the transportation mileage, improve the overall efficiency of the industry and reduce the consumption of energy.

4.5. Developing low-energy transportation modes such as waterway and railway transportation

The Chinese Government should give overall guidance from a macro perspective. On the one hand, the government should guide railway transport enterprises to coordinate and optimize railway transport routes, transform narrow sections and improve railway transport capacity. The government should guide railway transport enterprises to simplify the application process for cargo transportation, reasonably determine the cost of transport services, eliminate intermediate grey costs and create a good transport environment. Second, the government should coordinate regional waterway transport routes, coordinate regional waterway clean-up, encourage waterway and railway to develop joint transport, and further improve waterway transport capacity.

5. Conclusion

Adhering to green and low-carbon development has become an important development policy of the Chinese government. It is conducive to the conservation of social resources and environmental friendship, and is the only way to sustainable development. Chinese circulation industry has greatly promoted social and economic development and improved the living standards of residents, but it has gradually become one of the major industries causing environmental pollution in China. In order to implement the green low-carbon development policy, circulation enterprises should enhance their awareness of green low-carbon, improve the degree of information and automation of equipment and facilities, and reduce the carbon emissions of enterprises. On the other hand, the Chinese government should guide circulation enterprises to merge and gradually establish a green and low-carbon development system for circulation industry, in terms of policy support, construction of green circulation system, promotion of waterway and railway transport potential, etc.

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Reference:

- [1] Shuyou Liu, Jinshan Liu. (2016)Three-dimensional Spatial Distribution Model and Optimization of China's Commercial and Trade Circulation under the Background of Low Carbon. *Journal of Commercial Economics* , 16: 18-20.
- [2] Na Wang. (2014)Route Choice of Transition from Green Circulation Industry to Low Carbon Circulation Industry in China. *Logistics Technology*, 33 (19): 56-57+67.
- [3] Siwei Jiang, Jie Jiang . (2015)Study on Energy Consumption Level, Energy Efficiency and Low Carbon Development Path of China's Circulation Industry. *Journal of Commercial Economics*, 01: 15-16.
- [4] Hongjuan Wang, Yujie Hu. (2018)Realization of Green Value-added in Agricultural Products Circulation System under the Background of Ecological Civilization. *Productivity Research*, 11: 60-62.
- [5] Xia Zhao. (2018)Innovation and transformation of the development mode of China's circulation industry - based on the perspective of green circulation. *Journal of Commercial Economics*, 15: 15-17.
- [6] Zhenhua Zhong. (2017)Promoting mechanism of the transition from green circulation to low-carbon circulation. *Journal of Commercial Economics*, 13: 22-23.