# FDI Analysis of China's Low-carbon Economy Based on the 2010 WIR Report

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### **Abstract**

This article makes a brief analysis of the FDI situation of China's low-carbon economy based on "Using Foreign Investment to Develop a Low-Carbon Economy" in Chapter 3 of the 2010 WIR Report. The first part is an overview of the analysis of the FDI trend of the low-carbon economy in the WIR report. It is intended to show that the FDI of the low-carbon economy has formed a considerable scale. As the world economy transitions to a low-carbon economy, its potential will be unlimited. It is a brief analysis of the FDI situation of China's low-carbon economy based on the global economic background and global FDI trends in the 2013 WIR report and WTO report. The third part is to study the current status of FDI and low-carbon economic development from China's introduction of FDI, and analyzes the fact that China's low-carbon economy development is still in the research stage; the fourth part is to study the positive and negative factors of the impact of China's introduction of FDI on the development of low-carbon economy, so the fifth part is the introduction of FDI to promote our low-carbon economy. Development policy recommendations.

### Keywords

China's low-carbon economy, FDI, WIR report.

### 1. WIR REPORT ANALYSIS OF FDI IN LOW-CARBON ECONOMY

The theme of the 2010 World Investment Report is "investment in a low-carbon economy." The so-called low-carbon economy is an economic development model based on low energy consumption, low emissions, and low pollution. This year's Report focuses on climate change, especially the role of multinational companies. As a company with solid knowledge and cutting-edge technology and a global presence, multinational corporations will inevitably play a major role in global efforts to reduce greenhouse gas emissions and transition to a low-carbon economy. The Report emphasizes that with appropriate policy initiatives, incentives and management frameworks, transnational corporations can and must make a significant contribution to mitigation and adaptation. The Report also recommends a global partnership to promote low-carbon investment and advocates for practical steps, such as the establishment of new technical assistance centers to support developing countries in formulating and implementing policies. It can be seen that the theme of the 2010 World Investment Report is "Investing in a Low-Carbon Economy".

This 2010 report analyzes the latest trends in global foreign direct investment and focuses on the role and impact of multinational companies in investing in a low-carbon economy. This report mainly describes the following contents. First, the trends and prospects of FDI; second, recent policy developments; third, the use of foreign investment to develop a low-carbon economy; fourth, investment for development: future challenges. Among them, the third

chapter is the use of foreign investment to develop a low-carbon economy, which is the focus of this article.

UNCTAD estimates that in 2009, low-carbon FDI inflows into only three major low-carbon industries (renewable energy, recycling, and environmental technology-related product manufacturing) reached \$ 90 billion. Moreover, the analysis of the above three industries shows the following trends: low-carbon direct foreign investment has increased rapidly in recent years, although these investments declined in 2009 due to the financial crisis; in 2003-2009, identifiable low-carbon About 40% of FDI projects are implemented in developing countries, including Algeria, Argentina, Brazil, China, India, Indonesia, Morocco, Mozambique, Peru, Philippines, South Africa, Turkey, United Republic of Tanzania and Vietnam Well-known multinational companies are the main investors, but new investors are emerging, including southern investors, and multinational companies in other industries are also expanding into this field; from 2003 to 2009, about 10% of identifiable low-carbon direct Foreign investment projects are implemented by multinational companies in developing and transition economies. Most of these are investments in other developing countries. This shows that transnational low-carbon investment has formed a considerable scale. As the world economy shifts to a low-carbon economy, its potential will be unlimited.

### 2. GLOBAL ECONOMIC SITUATION AND FDI TRENDS

#### 2.1. Global Economic Situation

According to a press release on the official website of the WTO that briefly outlines its annual world trade report, global merchandise exports actually increased by 14.5% in 2010, setting a record for the WTO's multilateral trading system since the beginning of trade statistics in 1950. This is much higher than the 3.6% global GDP growth rate in the same year (four times the latter). At the same time, this growth rate far exceeds the forecast made by the WTO in early 2010. Among them, in 2010, the GDP of Asian developing economies grew faster than other developing countries and regions, reaching 8.8%, of which China and India had growth rates of 10.3% and 9.7%, respectively.

#### 2.2. Global FDI Trend

Global foreign direct investment (FDI) flows fell to the bottom in the second half of 2009, and a slow recovery occurred in the first half of 2010, which means that the prospects for FDI are bright in the short term. In the long run, the growth of FDI flows will gradually resume. UNCTAD estimates that global FDI inflows are expected to rise to more than US \$ 1.2 trillion in 2010, further increase to US \$ 1.3 trillion to US \$ 1.5 trillion in 2011, and increase to US \$ 1.6 trillion to US \$ 2 trillion in 2012. However, the brighter FDI outlook is still accompanied by risks and uncertainties, especially the global economic recovery is still relatively fragile.

After the sharp decline in FDI traffic in 2009, it is still recovering. Global FDI inflows fell by 16% in 2008 and a further 37% in 2009, reaching US \$ 1.114 trillion, while FDI outflows fell by 43% to US \$ 1.101 trillion.

Since 2008, the pattern of global FDI flows has changed significantly. These changes are expected to continue in the short to medium term. First, in 2009, half of global FDI flowed into developing countries and transition economies, and a quarter of global FDI outflows came from developing countries and transition economies. As the destination and source of FDI, the relative role of developing countries and economies in transition will be further strengthened, because global FDI is recovering under the leadership of these economies. Secondly, the proportion of FDI absorbed by the service industry and the primary industry has been increasing, and the proportion of manufacturing has been declining. Third, despite the decline

in sales and added value of multinational companies caused by the crisis, the stock and assets of FDI are still increasing.

In general, after the global crisis, global foreign direct investment (FDI) flows began to bottom out in the second half of 2009, and then rebounded slightly in the first half of 2010; and a large proportion of FDI flows to developing countries and transition economies body.

# 3. STATUS OF CHINA'S INTRODUCTION OF FDI AND DEVELOPMENT OF LOW-CARBON ECONOMY

#### 3.1. Status of China's Introduction of FDI

First, in terms of scale. According to UNCTAD estimates, China's FDI inflows in 2009 were about 95 billion U.S. dollars, ranking second in the world after the United States; FDI outflows reached about 48 billion U.S. dollars, ranking sixth in the world. By the end of 2009, China's inward FDI stock was approximately US \$ 470 billion, and outward FDI stock was approximately US \$ 300 billion. Since the reform and opening up, China has made great progress in utilizing foreign capital. Especially in the late 1990s, as well-known multinational companies successively invested and built factories in China, the scale of China's use of foreign capital has been expanding. As of the end of 2009, China had approved a total of 434,248 foreign-invested enterprises with a contractual foreign investment of US \$ 68,918 billion, and an actual use of foreign investment of US \$ 11,416.22 billion, with an average annual investment scale of US \$ 40 billion. As the world's largest importer of foreign direct investment, the investment of transnational corporations in China brings economic benefits to China, and also has a huge impact on China's low-carbon economy. Therefore, China's use of foreign capital has experienced a development process from scratch to small and large, and has achieved remarkable results. Statistics show that China 's actual use of foreign direct investment increased from US \$ 6.333 billion in 1985 to US \$ 105.735 billion in 2010, and foreign investment projects increased from 3724 to 27406. In 2010, China was the largest developing country in the world that attracted foreign direct investment, and it was the second-largest foreign investment country after the United States.

Then, look from foreign sources. From the source of foreign investment, from January to December 2010, the top countries / regions investing in China were mainly concentrated in Asian countries / regions such as Hong Kong, Taiwan, Singapore, Japan, South Korea, and the United States, United Kingdom, France, the Netherlands, and Germany. Europe and the United States, many of them have invested in China through tax havens, such as the Virgin Islands, the Cayman Islands, and Samoa. The sources of foreign investment in China are relatively concentrated. The proportion of foreign investment from tax havens (land) is too large, while the proportion of foreign investment from developed countries is too small.

At the same time, from the perspective of investment structure, foreign investment in China has a clear industrial tendency. Prior to the outbreak of the financial crisis in 2008, China's attraction of foreign investment had maintained a high level and growth rate, and only slightly declined in 2009. With the increase in the scale of multinational companies' investment in China, the investment structure is also changing, which has affected the evolution of China's industrial structure. The massive investment of multinational companies in China's secondary industry directly promotes the accelerated development of the secondary industry. The actual use of foreign investment in the secondary industry accounted for about 60% of the total foreign investment in the country, and the highest year even reached 74.98%. Foreign investment in the tertiary industry has developed rapidly since 2006, rising from 23.22% of the total foreign capital used to 42.79%.

Most of these investments go to the manufacturing sector in the secondary industry, accounting for about 95% of the secondary industry. Among these manufacturing sectors, more than 70% are polluting industries, some of which are pollution-intensive industries such as chemical raw materials and chemical products manufacturing, non-ferrous metal smelting and rolling processing industry, ferrous metal mining and dressing industry, petroleum Processing and coking, oil and gas extraction, etc. This will inevitably bring about energy consumption and carbon dioxide emissions, and at the same time make China bear unnecessary environmental costs.

Therefore, the outbreak of the financial crisis has accelerated the process of economic transformation in China, and the main direction of economic transformation is to develop a low-carbon economy. In 2008, China's total energy consumption reached 2.914 billion tons of standard coal, accounting for 12% of the world's total energy consumption. Coal is the most important form of primary energy in China. The coal-based energy structure and fast-growing energy demand make China's low-carbon economic development face very serious challenges.

### 3.2. Status of China's Low-Carbon Economy Development

In the current context of global climate change, the development of a low-carbon economy has become the consensus of the international community. China is in a period of rapid industrialization and urbanization, and economic development is still very dependent on the supply of resources and energy. In 2008, China has surpassed the United States to become the world's largest carbon dioxide emitter. The state of energy and environment has brought a severe test to the development of China's economy: China must adhere to the path of sustainable development, abandon the development model of pollution first, and then governance adopted by western developed countries. Relationship, we must follow the energy-saving, environmental protection, efficient and low-carbon economic model. However, the policy guarantee, science and technology, capital cost, and market prospects of the low-carbon economic model have not yet formed a stable and mature framework. Therefore, the development of China's low-carbon economy is still at the exploratory stage.

# 4. IMPACT OF THE INTRODUCTION OF FDI ON CHINA'S LOW-CARBON ECONOMY

# 4.1. Positive Impact of the Introduction of FDI on The Development of China's Low-Carbon Economy

First, the introduction of FDI can effectively reduce carbon intensity (that is, carbon dioxide emissions per unit of GDP) and energy consumption per unit of GDP, improve the efficiency of China's carbon resource utilization, and have a positive effect on the overall level of China's lowcarbon technology. First, FDI provided financial support for the improvement of low-carbon technologies. Low-carbon technologies are mostly technologies that are in the innovation stage and face huge technical risks, requiring a large amount of capital investment as material guarantee. Therefore, the introduction of FDI has eliminated the lack of funding for the development of green and low-carbon technologies, and provided more opportunities for the introduction of low-carbon technologies and R & D activities. Second, FDI has promoted the introduction of low-carbon technologies. Technology introduction here includes the direct introduction of low-carbon technology, the introduction of complete sets of equipment or key equipment, and the introduction of relevant scientific and technical personnel. As foreign companies, especially large multinational companies, will have more advanced low-carbon technologies and higher independent research and development capabilities than domestic companies, coupled with the fact that foreign companies from developed countries are forced to tighten their environmental regulations, they will pay more attention to improving clean

energy technologies. , Increase investment in environmental protection, so these foreign-invested enterprises will help China to introduce advanced low-carbon technologies, reduce the gap between China and the world's low-carbon technology level, and lay the foundation for domestic low-carbon technology research and development, and continue to improve China's R&D level.

Second, the introduction of FDI can optimize the industrial structure. According to statistics from the Foreign Investment Department of the Ministry of Commerce of China, as of 2010, the industrial structure of China's foreign direct investment has been extremely unbalanced: from the number of projects, the proportion of the primary, secondary and tertiary industries was 2.85%, 69.19%, 27.96 In terms of the amount of contracted foreign investment, the proportions of the primary, secondary and tertiary industries were 2.05%, 62.08% and 35.87%. It can be seen that FDI mainly enters the secondary industry with fast investment returns and high returns, followed by investment in the tertiary industry, and FDI invests the least in the primary industry with a long investment cycle.

Third, the introduction of FDI is conducive to the establishment of an effective low-carbon energy system. This is mainly manifested in two aspects: On the one hand, FDI helps to develop and utilize renewable energy and new energy. China's low-carbon economic development level is still in a relatively low-level stage. In the development and utilization of clean energy such as solar energy, wind energy, hydropower resources, biomass energy, and nuclear energy, there are still insufficient research and development investment, lack of advanced low-carbon technologies, and scientific and technical personnel. Problems such as shortages require capital investment from foreign-invested enterprises, technical support, and the participation of lowcarbon scientific and technological personnel to promote the development of clean energy to replace fossil energy such as coal, oil, and natural gas, and reduce greenhouse gas emissions. The inflow of foreign direct investment and the promotion of clean energy use. On the other hand, FDI is conducive to the establishment of a cleaner production system and improved energy efficiency. China's energy endowment is not abundant, which makes FDI have very limited space for adjusting the energy structure by improving the level of low-carbon technology and optimizing the industrial structure. Therefore, to achieve the effective operation of a low-carbon energy system, it is also necessary to encourage the establishment of energy saving, reduce consumption and reduce pollution. Most of the foreign-funded enterprises from developed countries have established ISO14000 environmental management systems, strive to internalize environmental costs, and implement clean production in an all-round way, effectively improving energy efficiency. At the same time, in order to improve economic efficiency and enhance competitiveness, domestic-funded enterprises will also learn to imitate and even innovate this clean production management method, thereby promoting the establishment of a clean production system. In this way, under the limited resource conditions, the introduction of FDI has improved energy efficiency, saved resources and reduced energy consumption, and will help solve the bottleneck of China's resource endowment to a certain extent.

Fourth, the introduction of FDI can promote low-carbon consumption. FDI has penetrated into various industries in China's three major industries, which not only affects China's production activities, but also has a positive effect on low-carbon consumption. The first is that foreign-funded enterprises provide more low-carbon and environmentally-friendly products and services in the market, which will guide consumers' preferences and promote consumers to reduce carbon emissions in the process of consumption. For example, Volkswagen (China) announced the implementation of the "Powertrain Strategy" in 2007, improved traditional processes and technologies, and enhanced the power of small-displacement engines. The introduction of automotive products can reduce energy consumption, improve energy efficiency, and Meet the delightful driving experience of consumers. General Electric (GE China) launched

the "Emagination" program in 2005. In the past few years, it has researched renewable energy, advanced gasification and clean coal technologies, and developed energy-saving and environmentally friendly products and solutions. In terms of sales, Ecomagination products are both environmentally friendly and economical, bringing clean and innovative technologies to consumers. Second, in the process of organization and management, foreign-funded enterprises will spread the concept of low-carbon consumption to consumers and enhance public environmental awareness. Wal-Mart (China) launched the "Earth Month" in April 2011, calling for the reduction of plastic bags, the promotion of shopping bags, and the use of green shopping initiatives to contribute to the protection of the planet. At the same time, Wal-Mart and the Unileverx brand cooperated in various shopping malls across the country to promote the "purchasing environmental protection-old bottles for new equipment, low-carbon and more environmentally friendly" promotional activities to encourage consumers to recycle used shower gel bottles Reuse and exchange for more environmentally friendly Lux supplement fluid [side. Through the development of such activities, foreign-funded enterprises use low-carbon marketing to attract consumers to shift to a low-carbon direction, spreading the company's concept of low-carbon environmental protection, and generally help raise public awareness of environmental protection. Therefore, from the perspective of consumption, the introduction of FDI will reduce carbon emissions and promote the formation of low-carbon consumption patterns.

### 4.2. The Negative Impact of the Introduction of Fdi on the Development of China's Low-Carbon Economy

First, carbon emissions will increase in the short term. In the long run, technological spillover effects and structural effects of FDI are conducive to saving energy and reducing greenhouse gas emissions such as carbon dioxide, but in the short term, the introduction of FDI will increase China's carbon emissions. The reason why multinational corporations set up branches worldwide is to find the production factors they need to optimize the allocation of resources, thereby maximizing the profits of the enterprise. China's huge market demand, relatively abundant and cheap labor, relatively low-cost raw materials, and immature environmental regulations are the main factors that attract foreign investment in China. With the expansion of the scale of investment, foreign-invested enterprises in China must invest more resources, consume more energy, and bring more pollutants in their production and operation activities in China, thereby increasing China's carbon emissions, The climate is under greater pressure. Although foreign-owned enterprises have advanced low-carbon technologies, in order to maintain their own competitive advantages, foreign companies usually do not transfer cuttingedge technologies to China, but instead transfer those mature technologies or eliminate technologies, so the technology spillover effect of FDI is not obvious It is difficult for our country to obtain and master advanced technology, and it is difficult to ease the pressure of carbon emissions. In addition, even if China uses FDI to introduce advanced low-carbon technology and high-end equipment, if China only introduces non-absorption, then the development of a lowcarbon economy can only rely on external forces, and eventually it will stagnate or even reduce emissions from FDI The effect will be offset by the carbon emissions generated by other domestic economic activities in China, which will increase our carbon emissions.

Second, the introduction of FDI will hinder the development of domestic low-carbon enterprises. Foreign companies have cutting-edge low-carbon technologies to form a monopoly advantage, while Chinese domestic enterprises are in a relatively inferior position in the development and utilization of low-carbon technologies. Once a foreign company monopolizes a key technology, it is very easy to monopolize the market, which will have an impact on China. Serious threats from local companies make it difficult for local companies to build their own competitiveness, and the potential advantages of developing low-carbon technologies cannot

be realized. For example, the solar thermal power generation industry, as a new energy industry, has great potential for promoting the development of a low-carbon economy. However, China's solar thermal power generation is still in its infancy, and most domestic companies entering the industry use traditional technologies. Manufacturing and production, and key technologies are mainly monopolized by the United States and Spain. Without support for China's CSP industry, it will be difficult for domestic-funded enterprises to break through technological bottlenecks and monopoly for foreign-funded enterprises, which will be at a disadvantage in market competition.

Third, it has caused uneven development of China's regional low-carbon economy. China's introduction of FDI in the eastern, central, and western regions is seriously unevenly distributed. The eastern region is owing to its unique geographical advantages, the first economic advantage of opening up, the growing talent advantage, and the increasingly perfect policy advantages. Much favored by FD workers. The absolute advantage of the eastern region in attracting foreign investment has further promoted its economic growth and economic strength, and its level of economic development is far higher than that of the central and western regions. Because of the strong economic strength of the eastern region, the introduction of FDI has paid more attention to the quality of foreign investment. It has emphasized that the entry of foreign investment can bring sustainable development of the regional economy. Promotion. However, the central and western regions are compelled to meet the needs of economic development. When using foreign capital, it is easy to have the tendency to prioritize the quantity and scale of foreign investment. This will not be conducive to the technological progress of the central and western regions, the establishment of low-carbon production systems, and energy The optimization of the structure is also not conducive to the formation of a low-carbon consumption model. Various low-carbon policies will not play the expected role or even become empty. The economic development of the central and western regions may achieve extensive growth, but the development process of the low-carbon economy But it will slow down, much lower than the eastern region. Therefore, the uneven distribution of FDI in geospatial regions will lead to the uneven development of China's regional low-carbon economy.

# 5. POLICY RECOMMENDATIONS FOR THE IMPACT OF THE INTRODUCTION OF FDI ON THE DEVELOPMENT OF A LOW-CARBON ECONOMY IN CHINA

#### 5.1. Creating A Low-Carbon Investment Environment

Multinational corporations are the main body of technological innovation in the world, and they possess a large number of advanced technologies. However, multinational corporations do not easily transfer core technologies during their investment in China. Whether technology transfer is a company's competitive strategy depends on the multinational corporations' own interests. Competition with multinational companies in our market. For a long time, in order to promote the technology transfer of multinational companies, China has adopted various preferential policies, such as encouraging the establishment of R & D centers and regional headquarters, but they have not achieved the expected results. In fact, the promotion of technology transfer by multinational companies does not depend on how many preferential policies are provided to them. The key is to create an orderly competitive market. Through competition, multinational companies are forced to relax their control over advanced technologies, so that they can gain market competitive advantages only by increasing the intensity of technology transfer. In the post-crisis era, with the overall pace of China's economic transformation, it is necessary to raise the threshold for multinational companies to invest in China and encourage low-carbon technology-oriented competitive investment by multinational companies.

## 5.2. Adjusting the Industrial Foreign Investment Policy of Multinational Corporations' Investment in China

Since China's accession to the WTO, restrictions on the investment fields of multinational companies have been gradually relaxed, and some local governments have blindly attracted investment for the sake of performance, causing a large number of repeated introductions and environmental damage. This requires the central government to change the performance evaluation mechanism for local governments, implement the environmental protection concept of sustainable development, improve the efficiency of foreign capital utilization, and actively guide multinational companies to invest in the primary and tertiary industries, especially hightech industries, in order to make full use of transnational The company's advantages and leading role in equipment, technology, capital and other aspects. On the one hand, based on the market mechanism, according to the specific environmental status quo that China currently faces, through a series of administrative, legal, economic, and social policies to conduct macrocontrols, and promote the establishment of environmental protection that can gradually reflect the level of environmental scarcity and real costs. Price system, establish a fiscal and tax system that is conducive to the rapid development of low-carbon industries, and actively promote the reform of resource product prices to guide the industrial tendency of multinational companies to invest in China. Increase the participation of multinational companies in the areas of energy conservation, environmental protection, medical care, rural development and professional services. On the other hand, the government should increase the barriers to entry for multinational corporations by raising taxes and other methods to limit multinational corporations' investment in heavily polluting secondary industries. For example, the energy industry has a large amount of carbon emissions, but this industry is often regarded as a sector of "strategic" significance, and foreign capital's access is more restricted, which hinders China's development of a low-carbon economy. Therefore, our government can appropriately reduce the entry barriers for foreign investment in the energy sector, use preferential policies to attract investment from multinational companies, bring advanced low-carbon technologies, and improve energy efficiency.

### 5.3. Increase Government R&D Investment in Low-Carbon Technologies

Facing the huge negative impact brought by the financial crisis, ensuring sustainable and safe energy supply is the prerequisite for China's economic and social development. To achieve greenhouse gas reduction, not only the joint efforts of all enterprises, but also the government's policy funding support is more important. In 2008, the governments of the United States, Japan, the United Kingdom, and Germany further increased energy-related R & D investment. In contrast, China's investment in low-carbon technology research and development is seriously insufficient. Data show that China's energy R & D investment is only 1.8% of Japan, accounting for 6.43% of national R & D investment, and 0.0068% of GDP, while Japan accounts for 15.73% and 0.088% respectively. Of the energy R & D investment, the energy-saving R & D investment accounts for only 2% of the company's total energy R & D investment. Therefore, in order to realize the sustainable development of China's low-carbon economy, the government must increase R & D investment in the energy field and significantly increase the proportion of energy R&D investment. Including good infrastructure, high-quality labor, and supporting technologies. On this basis, promote the contact and exchange between multinational companies and local enterprises. Encourage the establishment of joint ventures to promote the dissemination of low-carbon technologies and production processes, and learn from advanced technologies and experiences from developed countries. At the same time, it can also create more social benefits.

### 5.4. Focus on Cooperation with Multinational Companies in Developing Countries

Generally speaking, most of the multinational companies that we call are concentrated in western developed countries. They have advanced science and technology and huge economic strength. Our government has always attached great importance to cooperation with these large multinational companies. However, in the process of moving towards a low-carbon economy, we should also broaden our horizons and pay equal attention to multinational companies in developing countries. For example, India has developed rapidly in the low-carbon economy and has accumulated a lot of useful experience. Strengthening cooperation with multinational companies in developing countries such as India can more conveniently learn the beneficial experience of developing countries in energy conservation and environmental protection. Since these countries have similar development experiences and economic levels with China, they are closer to China's actual situation. This is conducive to accelerating the speed of China's low-carbon technology innovation and promoting the improvement of environmental protection and clean energy technology.

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