

The Enlightenment of low-carbon economic system in Europe to the development of low-carbon economy in China

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ABSTRACT. *The current situation of global warming is grim, which brings a series of challenges for the mankind. As the largest developing country in the world, China plays a pivotal role in dealing with global warming. Global warming, sea level rise and frequent extreme weather are all related with carbon emissions. How to develop low-carbon economy is an important issue concerning China's economic development as well as the existence of all mankind on earth. Therefore, starting from the low-carbon economic system in European countries, this paper studies the excellent experience that China can use for reference with a view to providing more ideas for the development of China's low-carbon economy and the response to global climate change.*

KEYWORDS: *European countries; Low-carbon economy; Enlightenment*

1. Introduction

Human production activities results in global warming and eco-environment deterioration[1]. Automobile and industrial exhaust are the problems that restrict the development of low-carbon economy. Therefore, taking road of low-carbon economy and developing low-carbon economy have become the unified goal of all countries in the world. China is a country with a large population as well as a large resource consumption and carbon dioxide emissions[2]. If we do not reverse the trend of climate warming tendency as soon as possible, it will bring great disaster to our country. Combining with China's conditions and drawing on the useful experience of Europe to find a low-carbon road suitable for China's development is crucial[3].

2. Current Situation of Low Carbon Economic Development in Europe

European countries have basically established a complete system for the development of low-carbon economy. European countries are early consciousness of that the use of coal and chemical fuels will emit a large amount of carbon dioxide, which will cause environmental pollution, leading to the destruction of the

ecological environment. Therefore, introducing advanced low-carbon technology to get rid of dependence on oil has become one of the important means to develop low-carbon economy[4].

2.1 Low-carbon Economic Model in Europe

Britain is a pioneer in developing a low-carbon economy in the world. In 2003, Britain first writes the concept of "low carbon economy" into government documents. In October 2006, the British government called for a global transition to a low-carbon economy in Stern review : the economics of climate change to focus on solving the problem of carbon dioxide emissions. In November 2008, Britain passed the Climate Change Bill, which aims to transform the UK into a low-carbon country by 2050, reducing greenhouse gas emissions by 80% compared with 1990. So far, Britain has established a relatively complete legal system of low-carbon economy and has begun to gradually explore effective measures suitable for its economic development.

First, Britain promulgated a climate change tax on energy use. The UK began collecting taxes based on the energy contained in the coal, natural gas and electricity used on April 1, 2011, and has detailed regulations on the tax targets. And the government will return climate change tax to businesses, which alone will reduce the emissions in UK by 250 tons per year.

Second, the British government has set up a Carbon Trust standard. It mainly provides advice and suggestions for enterprises to save energy and reduce emissions through tax collection and development and research of low-carbon technology to encourage enterprises to use clean energy such as solar energy. This will help more small and medium-sized enterprises to improve energy efficiency and reduce carbon emissions.

2.2 Low Carbon Economic Model in Germany

Since April 1994, Germany began to implement the eco-low-carbon development model. The German government clearly pointed out that the low-carbon economy is the most important part of the future economic revitalization. Germany focuses on the development of eco-industry, including formulating relevant environmental protection policies, promoting environmental protection education, expanding the scope of renewable energy use, and promoting the reform and innovation of the automotive industry. In recent years, Germany has vigorously developed new energy vehicles. Germans have long realized that automobile exhaust is the main source of carbon dioxide. The dependence of automobiles on oil has led to the vigorous development of the German social electric vehicle industry. Germany launched its Electric Vehicle Development Plan in 2009, which plans to have 1 million electric vehicles by 2020, and the German government has invested 500 million euros in this industry to promote the development of new energy vehicles. The famous German automobile brands Audi and Mercedes-Benz have

responded positively to the national policy by launching new vehicles with less energy consumption which promoted a new economic growth point for the German renewable energy industry, becoming the leaders in low-carbon automobiles around the world. At the same time, the German government encourages the development of renewable energy. By 2020, the proportion of clean energy such as solar energy, biogas and geothermal energy used for heating will be increased from 6% in 2004 to 14%.

2.3 Low Carbon Economic Model in Denmark

Denmark attaches great importance to the development of new energy and the recycling of energy. Denmark aims at "no carbon" and advocates the development of low carbon economy with green energy. Denmark only has abundant oil and natural gas resources in some areas. Before 1970, Danish resources were mostly obtained by importing. After two energy crises, Denmark tried to break its original resource dependence and gradually changed to energy self-sufficiency. The Danish government first focuses on the development of oil and gas resources in the North Sea, followed by the non-fossil energy. Denmark develops renewable green energy with wind energy as its core based on its geographical advantages. And the Danish government has launched a series of preferential policies to encourage enterprises to develop wind energy and provide advanced technical support to overcome the weaknesses of wind power itself. In addition, the Danish government has established a cogeneration model with an efficient regional heating system to provide electricity for residents through the burning of domestic waste, which is in the leading position in the world. In Denmark, the idea of low carbon has been deeply rooted in people's hearts. Denmark is also a famous "kingdom of bicycles". More than 20% of people in Copenhagen choose to travel by bicycle in response to the call of the state to actively develop low carbon.

3. Enlightenment of European Low-carbon Economic system on China's Low-carbon Economic Development

China's geographic environment and demographic factors determine that China needs to formulate a low-carbon economic development model in keeping with the trend of their own conditions. Blindly copy the advanced experience of Europe is not feasible[5].

3.1 Enlightenment of British Low-carbon Economy to China

The British low-carbon economic policy of "government investment, enterprise operation" has played the role of the government to the greatest extent, which is of great significance for China. The Chinese government needs to strengthen the leading position of the government, formulate a complete legal system of low-carbon economy, protect the interests of enterprises with international compulsory law, and promote the transformation of enterprises to low-carbon technology. At the

same time, the government needs to encourage backward enterprises, provide preferential policies, increase investment, encourage enterprises to improve backward technology, encourage enterprises to constantly explore and innovate, and develop low-carbon industries.

At the same time, the British Carbon Trust Standard is also an advisable method. China can draw relevant lessons and set up a carbon trust to provide advice for enterprises and help them innovate and reform.

3.2 Enlightenment of German Low Carbon Economy to China

Germany has developed industry, has certain advantages in hardware facilities and personnel technology, and the idea of low-carbon environmental protection in Germany has penetrated into the hearts of every citizen, which has a certain reference significance for the development of low-carbon economy in China.

The cultivation of environmental awareness is a long-term process. First of all, we should improve the awareness of energy saving and emission reduction by improving quality education. Publicity of environmental awareness should start with pupils, and then improve the overall quality of the people, so that the idea of energy conservation and environmental protection is deeply rooted in the hearts of the people. Secondly, China can't copy the low-carbon industrial form of Germany. China's low-carbon economy starts late and its industrial base is backward. The transformation to low-carbon countries also requires industrial transformation, research and development of low-carbon technology, vigorous cultivation of scientific and technological personnel, and elimination of bottlenecks restricting the development of low-carbon economy. Finally, China can learn from Germany's valuable experience in developing electric vehicles to drive China's new economic growth point. Based on China's huge population base, automobile exhaust has become the main source of carbon dioxide. Improving public transport services, developing green transportation, increasing the popularity of new energy vehicles, and encouraging green travel is imperative.

3.3 Enlightenment of Denmark's Low Carbon Economy to China

Denmark has a superior geographical environment for developing wind energy. Denmark has a restricted surface area, a small population and a strong awareness of environmental protection. All these have laid a good foundation for the development of low-carbon economy in Denmark. To develop a low-carbon economy, China also needs to develop new energy sources, reduce the dependence on imported energy sources, and gradually shift from dependence to self-sufficiency. China can draw lessons from Denmark's core idea of developing low-carbon economy with green energy and make use of the geographical conditions of the eastern region to develop wind energy, increase wind-generated electricity, reduce carbon emissions from coal generation, develop wind electricity power technology, and vigorously improve the utilization ratio of solar energy and bio-energy.

4. Conclusion

At present, China is at the critical stage of building a moderately prosperous society in all respects. To realize the great rejuvenation of the Chinese nation, we must adhere to the plan to promote coordinated economic, political, cultural, social and ecological advancement and establish environmental awareness. Promote energy conservation and emission reduction is the key link that can not be ignored in promoting economic development. It is necessary for the government and citizens to work together to explore a low-carbon economic path suitable for China's national conditions, to handle the relationship between economic development and ecological protection, and to develop a low-carbon economy in combination with European low-carbon economic policies. To cultivate and build up low-carbon awareness, everyone should start from the trivial, such as taking public transport or bicycle to work instead of driving a private car, using energy-saving lamps, recycling water for household use, reducing the use of disposable chopsticks and so on, which are all the manifestations of the development of low-carbon economy. The government should implement preferential policies, increase investment, encourage enterprises to reduce carbon emissions, develop new energy sources such as wind, tidal and solar energy, strengthen talents training, actively integrates into the international tide of developing low-carbon economy to realize a coordinated development of economy and ecology and devote efforts to China's sustainable development.

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