

Research on the Innovative Financial Support System for Low Carbon Economy

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Abstract

Today's world, caused by human activities, global warming and climate change has become the largest threat to human survival and development. In this respect, Effective change of economic restructure, reduce pollution and greenhouse gas emissions, develop low-carbon economy is an inevitable choice for sustainable development. But the low-carbon economy Compared with the traditional mode of economic growth, it needs higher capital investment in the new technology and the new institutional arrangements, This need to build an innovative financial support system to effective solve the finance bottlenecks of the low-carbon economic development and achieve sustainable development.

Keywords: Low carbon economy, Sustainable development, Innovative financial system

1. The concept and development trend of low carbon economy

The so called low carbon economy is a kind of state of economy development, in which, based on the market mechanism, meatheads like technical and system innovation, industrial transformation, development of new energy have been used to reduce the emission of greenhouse gases to the maximum extent. It will benefit both the socioeconomic development and the protection of eco-environment.

The low carbon economy comes into being against the background of global warming and frequent disasters. As early as 1896, Swedish chemist and Nobel winner, Arrhenius, predicted that burning fossil fuels like petroleum and coal would increase the atmospheric concentrations of carbon dioxide, which will lead to the temperature increase in the whole world.

The latest study further indicated that, in the past one hundred years, the emission of carbon dioxide and methane was responsible for the rise of 0.3-0.6 of average surface temperature all the world. What's more, global warming is becoming increasingly worse.

According to the prediction of IPCC affiliated to UN, by the end of this century, the temperature will increase at least 4.8 degree. The following results of melting glacier, rising sea level, spread of new pathogens, frequent natural disasters will bring human beings catastrophic consequence. As a result, reducing the discharge of greenhouse gases and promoting low carbon economy an inevitable choice of realizing sustainable development.

In 2003, Britain first put forward the idea of low carbon economy and put it into practice. Blair, then prime minister, released the white book titled Our Future Energy—Create Low Carbon Economy based on the

framework of international climate change system. The book first came up with the concept of low carbon economy and nail downed the goal and timetable of realizing low carbon economy in Britain.

In 2006, as is pointed out in the seven hundred paged special report—Viewing the Climate Change from a Economic Perspective written by World Bank ex-chief economist Nicholas Stern, global warming will consume five percent to twenty percent gross national product of every nation annually. If no immediate control-method is taken, the global temperature will have increased five degree till next century.

That means an awful lot of glaciers will melt, one sixth worldwide population will suffer from water shortage and twenty million people will become environment refugees. The report appealed all the nations to adopt practical action immediately and transform into low carbon economy as early as possible.

At present, developed countries like Britain, America, European Union and Japan have incorporated low carbon economy into their policies.

In 2008, Britain's passing the Climate Change Bill made it the first nation in the world to set up a long-term framework with legal restraint in order to cut down on the emission of greenhouse gases and adapt to the climate changes. According to the bill, present and next government must work on reducing the discharge of carbon dioxide and other greenhouse gases and reach the goal of reducing eighty percent of the gases by 2050.

Although America has not joined Kyoto protocol, it pays equal attention to energy-saving and emission-reducing. For example, America passed the Energy Policy Act in 2005 and the American senate put forwarded the Low Carbon Economy Bill, making the development of low carbon economy likely to become the main future strategic choice for America. After coming into power, President Obama combined the tasks of dealing with financial crisis with stimulating economy and handling the changing environment.

He took an active part in promoting new energy and energy saving policies. A series of methods have been put forward including developing renewable energy and clean alternative energy, reducing greenhouse gases.

Japan, a pacific island country, is in lack of resource and has always emphasized the climate change, sea level rise and energy saving. In may 2008, a research group of Environment of Japan released a article named Twelve Actions towards Low Carbon Society, which has set expected goals for departments such as housing department, industrial department, transportation department and energy department and came up with proper technology and system.

In June 2008, Japanese government Fukuda brought forth the counter plan to the global warming that is the famous "Fukuda blueprint", which formed the formal symbol of Japan's low carbon strategy. The blueprint covered the creative technique of reducing carbon system reform and change of life style. The long term goal of reducing greenhouse emission mentioned in the blueprint is to reduce the greenhouse emission by 60% and 80% by 2050.

2. The Current Situation and the Financing Gap of China's low carbon economy

Currently, the strategic decision of China influences the process of the global low carbon economy and the pace of sustainable development of human society. 20-30 years in the future is the important climbing stage for Chinese society and economic development. During these years, the Environmental Kuznets curve will be in the raising state; Consumption of resources, the pollution of the environment and the emission of carbon will be rising exponentially. Therefore, carrying out the international responsibility continually on the condition that the economic development is not affected is the challenge faced by our country currently.

As a big responsible country end of rising which has the trend of rising exponentially, China attaches great importance to the climate change and adopted measures and related policies to deal with the climate change. China has made great effort to reduce the pace of climate change and adapt to it. Our country signed The UN Framework Convention on Climate Change In 1998 and gave approval to The Kyoto Protocol in 2002. In the end of 2006, the first State Climate Change Assessment Report was co-issued by the Ministry of Science and Technology, National Development and Reform Committee and National Environmental Protection Administration. It assessed comprehensively the observing facts and their effects of the climate change in the recent 100 years under the backdrop of the global climate change. It also brought up with China's standing points, principles and related strategies.

China officially issued China's National Plan to Climate Change. It is China's first policy documents to respond to the o reduce the emission of climate change and also the first national plan for the developing country. According to the plan, China will adopt a series of laws, economic executive and technological methods to reduce the emission of greenhouse gasses and improve the abilities to adapt to the climate change. In July, 2007,

Premier Wen Jiabao hosted fist session and State Council Session in two days for China to respond to the climate change and the leading group to achieve energy conservation and emission reduction. It studied and deployed the work to deal with climate change and implement the work of conserving energy and reduce the emission.

In September 2007, China's President Hu Jintao brought up with 4 suggestions officially in APEC's 15th leaders' meeting. He claimed to develop the low carbon economy. In September 2009, Hu Jintao promised in the UN Climate Change Summit "China will bring responding to the climate change into the economic and social development plans and try our best to adopt strong measures to develop vigorously the green economy and develop actively the low carbon and recycling economy." in December 2009, The Chinese government promised that the emission of carbon would be reduced by 40-45% by 2020.

Of course, as a completely new economic growth mode, the low carbon economy has a long way to go. Due to the need of a large amount of money to sponsor the reduction project and construct the related infrastructure, the low carbon economic development needs a large amount of fund. According to the latest report-the World Development Report: Development and Climate Change, currently developing countries have great gap to adapt to the climate change and reduction of emission. Currently, the fund of developing countries for climate change is only 10 billion and the report predicts that the fund needed by 2030 is 70 billion and the fund for the reduction of gasses is 75 billion. If the research and development is considered, extras 100-700 billion is needed. As the biggest developing country, China also faces the problem of a large amount of money.

According to the Steren Report, we can avoid the damage of 5-20% of GDP each year if the investment for the low carbon economy is 1% of GDP each year. The investment needed for the transform of the economy pattern 49.1 billion, 300 billion if we count under the base of 491000 billion. The gap of the fund is large now. According to the principle of sharing the common but different responsibility, developed countries should provide funds and technology support to the developing countries. But from the perspective of long term, developing countries should construct the new innovative financial system which supports the low carbon economy.

3. The inspection of financial support system for low carbon economy in foreign countries

To achieve their strategic goal of low carbon economy, the governments of Britain, America and other developed countries formulate a series of bills and provide policy support and financial investment. Based on these, they make full use of market mechanism for financing and mobilize the passion of banks, funds and other financial institutions to participate in low carbon economy. Meanwhile, as financial institutions themselves, their enthusiasm of participating in low economy grows quickly and becomes higher and higher through the lever and interest transmission mechanism. Brazil, India and other developing countries focus on strengthening the cooperation with developed countries and they achieve their industrial restructuring and low-carbon economy by introducing foreign capital and low carbon technology.

Britain is the advocate of low-carbon economy. For this reason, Britain has introduced the Carbon Trust, climate change levy, emissions trading mechanism and many other innovative measures. Among these, the Carbon Trust is an independent company whose goal is to help enterprises and public sectors reduce Carbon dioxide emissions and find business opportunities for low carbon technologies, for Britain to effectively promote energy conservation and enter into low-carbon economy. The investment of Carbon Trust mainly concentrates in low-carbon technology research, the industrialization of low carbon technologies, the incubator of low carbon projects and other areas. In addition, London is the birthplace of "Climate Change Capital". There has the first bank which only deals with the carbon-related business. "Carbon Trust" also originated in London. There are more than 60 enterprises in companies listed on GEM of the London Stock Exchange committed to help enterprises develop new technologies to reduce carbon emissions. The positive results of Britain which are achieved in the financial supports of energy saving measures have been significant power for the development of low carbon economy.

U.S. government actively encourages and guides financial institutions to fund projects of low carbon economy. Established in 2003, the Chicago Climate Exchange, is the world's first organization and financial markets trading platform to voluntarily participate in greenhouse gas emission reduction transactions and bear the legal binding for the reduction amount. Lots of financial giants in Wall Street actively participate in carbon emissions, sulfur dioxide, and tax credit of reproducible energies and weather derivatives product development, make equity investment in various types of climate-related trading markets. With the gradual expansion of carbon trading market scale, Bank of America, National City Bank of New York and other banking institutions have started to invest and develop in financial products and services relating to carbon emission permits.

In recent years, by introducing foreign capital, Brazil supported the development of energy saving and emission

reduction and low-carbon economy. By the cooperation with America, Brazil will make use of America's financial support and develop new energy sources in the next 30 years. In addition, Brazil also achieves excellent results in energy saving by the support of power fund. Indian government also attaches great importance to the development of low carbon economy and makes use of foreign capital actively and encourage financial institutions to invest in the low carbon field.

4. Construction of low-carbon economy innovative financial support system

The development of Low-carbon economy is both an opportunity and a challenge. By combining low-carbon economy and the financial support to promote the development of low carbon economy, using the low carbon economy as an opportunity to fully develop low-carbon finance, low carbon economy and finance can get win-win development. From the experience of foreign countries' low-carbon economy development experience and the reality of our country, our country's innovative low-carbon economy system of financial support are mainly in the following areas:

Improving bank's "low-carbon indirect financing" system. As early as 2007, the State Environmental Protection Administration, People's Bank, China Banking Regulatory Commission jointly issued a notification requiring credit control on the business and projects which do not meet industrial policy and the environment law. Currently, most policy banks and commercial banks have established some environmental access requirements in the field of credit. By cutting off funding sources of the high energy consumption and blind development of high pollution industries and increasing loans to the key energy-saving and emission-reduction enterprises, the development of low-carbon economy has been promoted.

However, since the low-carbon industry investment cycle is longer, and it is of slow economic benefit, they hinder the banks' enthusiasm to supply credit to low-carbon credit projects. Therefore, to establish and improve banks' "low-carbon indirect financing" system, on the one hand, government should establish corresponding policies such as tax credit, financial discount to promote carbon credit and incentive mechanism to mobilize commercial banks' enthusiasm to supply loan to low-carbon industry; On the other hand, commercial banks should take the opportunities brought by the development of low-carbon economy, be the "practitioner" of low-carbon economy, give priority support to the low carbon enterprises and low carbon projects to ease the resource bottlenecks, improve the polluted environment and reduce greenhouse gas emissions. While vigorously promoting mortgages to supply credit to low-carbon, energy-saving, environment-protecting projects, actively organizing "Syndicated Loan", developing credit guarantee financing, giving necessary concessions to low-carbon economy audits loan, repayment period and interest rates of the key low-carbon projects, improving financing service level, and establishing a long-term indirect cooperating financing mechanism with government, the banks can promote low-carbon economy and achieve its own development.

Promoting the building of "low-carbon capital markets". Low-carbon economy is a new model of economy development, the basic role of market mechanism in allocating resources, that is the role of invisible hand should be fully played. During the development of the low carbon economy, we must actively promote low-carbon capital markets' support to the development of low-carbon industry and technology innovation. Priority should also be given to the enterprises that give priority support to the development of low-carbon technology and low-carbon economy to get financing in the main board. "Low-carbon venture board" should be actively developed to promote the development of SMEs in financing low-carbon economy. While giving priority to the enterprises whose development of low-carbon economy consistent with the approved requirements and construction projects issued the "low-carbon bonds, banks should actively support the "low-carbon bonds" Issued by financial institutions to raise funds to invest in long period, large-scale low-carbon industry, strengthen the cultivation and development of Low Carbon Trust Fund, encourage private equity funds, social donations and international aid funds and increase the capital investment in emission reduction and low carbon projects to promote the low-carbon capital market investors' market-oriented and large-scale development.

Develop low carbon derivative products vigorously. With the growth of the International carbon trading market and the gradually increasing of the degree of the carbon monetization, the emission right of carbon has become a financial asset with mobility and investment value, and an important financial innovation in the recent international financial field. Because of the need of the reduction of carbon emission and the rapid growth of the scale of carbon trading market, and based on the emergence of the derivative products including long-term products, futures products, options products and swap products. Therefore, meanwhile with the improvement of the low-carbon indirect investment financial system and the construction of the low-carbon capital market, we should take the international experience, focus on the cultivation and development of the Chinese carbon emission right trading market, speed up the development of all kinds of derivative tools and products, such as

carbon swap, options, futures, which support the low-carbon economy development, and help the rapid growth of low-carbon financing and low-carbon economy.

Give full play to the role of venture. IT, biotechnology, new energy and so forth have always been the favored areas of venture. But the new international trend shows that more and more ventures pay attention to the "low-carbon stage", energy saving and new energy development have become the new hot spots of the international agency investors and venture capital fund. At present, most of the energy saving technological entrepreneurs takes advantage of the national preferential policies to get microfinance, financial subsidy and so on, so as to commercialize technology, while few truly make use of the popular international ventures, and one of the reasons is venture is a Imported good, the traditional concept hold a suspicious attitude to it. But view from the long-term point, venture is the important way of low-carbon technology development and commercialization, and the means of operation which actually make use of the market discipline. Therefore, China should make out the corresponding policies and regulations, support and regulate the development of the venture system, establish and improve the entry and exit mechanisms, guide the ventures to invest the low-carbon economy strongly, make due contributions to low-carbon technology and low-carbon economy development.

Use of foreign capital actively. Since the open-up, our country actively absorbs the foreign investment, promote the Industrial upgrading, technological progress and economic development, therefore in the low-carbon market we should further expand the areas open to foreign investors, encourage foreign investment high technology, new energy and energy saving entrepreneurs. At the same time with supporting and encouraging the foreign investors in ways of wholly-owned, equity participation, and M & A to invest the domestic low-carbon entrepreneurs and projects, assist and support Chinese low-carbon entrepreneurs' listing in the overseas market, and get the capital which the low-carbon economy development needed from the international financial market.

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