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CHIEF RESEARCH ON IMPROVING CHINESE LOW-CARBON ECONOMIC COMPETITIVENESS

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Abstract: As the world's environment getting worse, nations, developed or developing, all pay an increasing attention to the low-carbon economy which is now considered to be a method of improving their international status and competitiveness. China, one of the world's fastest developing countries, is fully aware about how the low-carbon economy could influence the industrial development, international trade and the domestic market. Taking it as an opportunity of transforming economic patterns, development on low carbon economy also improves the creativity and quality of the nation's market economy. In another aspect, China needs to reduce the factory pollution as the result of fast development, also, she has to keep the promises and take responsibility as one of the world's most powerful countries. Specify into certain strategy: China need to earn the carbon emission competitively, enhance the international cooperation; accelerate the transformation of economic development; increase the efficiency of energy utilization; improve low-carbon emission technology; popularize low-carbon idea on city scale and encourage low-carbon business that boosts the upgrade of industrial structure.

Keywords: Low-carbon economic competitiveness; Carbon emission reduction; strategy

INTRODUCTION

China has made international commitment to reduce carbon emission, and it should attach the great importance to development of low carbon economy. Low carbon competitiveness is related to industrial prosperity, national strength and international development prospects. Facing the complicate international competitive environment, China needs to break through its tradition development framework, grasp the trend of low economic development. Starting from the factors affecting low carbon economic competitiveness, following the characteristics and the laws governing the operations of low carbon economy, improving low carbon economy competitiveness should be considered as a comprehensive systems engineering project.

NEW SECTION - Earning carbon emissions and participating in international cooperation

Carbon emission is a region or a country of right to develop. Especially the developed counties, which have relatively high capacity to reduce carbon emissions, control the right to speak of the design of international carbon emission reduction

mechanism which would draw the mechanism favourite to the developed countries. China, as a fast developing country, inevitably takes energy driven develop model in the process of rapidly economic growing and improving of national living standards, resulting in substantial increase of carbon emissions. If China can't take the initiative to participate in the formulation process of carbon emission reduction mechanism, it would lose the right to speak, resulting in no room for carbon emissions and bearing huge obligations of carbon emission reduction as well. Furthermore, it would weaken its international competitiveness, and detrimental affect future development of China.

China has always committed to adhere to the United Nations Framework of Convention on Climate Change and Kyoto Protocol, strictly follow the Bali Roadmap authorization. In the future negotiations on addressing response to global climate change, it is necessary to take up the responsibility of one of the most powerful countries and participate constructively in the process of global response to climate change, more importantly, it should adhere to principle of

fairness and justice, safeguarding national interests and defending national development right. Regarding the responsibility, it should adhere to the principle of "common but differentiated responsibilities". Based on the historic accumulation, requires developed countries to take responsibility for their historic emissions. Taking the population into consideration, it is fair to allocate the carbon emissions based on per capita. The obligations of carbon emission reduction should be combined with level of economic development, co-coordinating the relationship among economic development, poverty eradication and climate protection. Adhere to the ability and obligation to the principle of reciprocal. In the process of addressing to response to climate change, developed countries should take the lead in reduction emissions in a large scale to free up room for developing countries to develop, and help developing countries to lower carbon emissions by providing funds and transfer of technology.

Strengthening strategic planning and promoting low carbon cities

The government should clearly states that promoting low carbon cities is included in the national development strategies. Combining low carbon economy with construction of ecological civilization and scientific development concept, establishing a resource saving, environment friendly and low carbon development society are our national strategic vision and objectives. In addition to target carbon reduction as binding index for economic and social development planning, cultivating long-term national competitiveness should be based on forward-looking, long-term and global perspective. Long-term developing planning for the development of low-carbon economy should be rooted in the country's "development plans" and converged with "energy planning", "energy savings and emission reduction planning, introduce programs to develop low-carbon economy. Develop low-carbon economic development system at the national strategic level, ensure scientific accounting "carbon footprint" of China, build "carbon budget" system, improve the carbon emission monitor, statistics, reporting system, and

carbon emission trade mechanism of China, and design low-carbon development evaluation system. In the process of urban development, the standards of energy saving materials should be established. Promoting the use of solar energy, taking full advantage of natural ventilation and lighting, developing standards for energy consumption for heating and cooling system, only suitable decoration, and promoting the use of energy saving lamps and energy efficient appliances are among the strategies to lower carbon emissions in cities. Improving transportation efficiency is another means to reduce carbon emissions. Developing public transportation system, and developing walking and cycling based slow transportation system to stop the linear upward trend of car production and sales in recent years. Avoid the excessive growth of private cars by limiting their traveling, fuel tax and crowded fee. Promote hybrid cars, electric vehicles and other new energy vehicles which consumer clean energy such as diesel, hydrogen fuel. Build a modern logistics information system, reduce transportation Kongshi rate and strengthen the construction of intelligent system to reduce transport carbon.

Enhancing the innovation ability of science and technology, increasing the levels of research and development of low-carbon technologies

The advancement of science and technology and systematical creation are essential means for fighting against the challenge of global climate changes. The leading and basic role of science and technology should be emphasized for the construction of scientific and technological supporting systems responding to the climate change. The key issues for increasing competitive ability of low-carbon are: expanding investment on innovation, prioritize some research areas, invent essential technologies, speeding up the research and development, introduction and innovation of low-carbon technologies. We should closely track domestic and international advancement in low-carbon technologies, actively introduce, assimilate and re-innovate those advanced, appropriate low-carbon technologies through the new system of international cooperation on climate, selectively introduce and assimilate foreign mature low-carbon technologies, extend the exchanges and cooperation with European and American

countries in low-carbon energy and related technologies, actively involve in the setting up international standardizations for industrial energy efficiencies and carbon intensity. According to the principles that are technical feasible and economic reasonable, we should propose the diagrams for the development of low-carbon technologies in China, enlarge the research and development, stimulate the research and utilization of technologies that are high energy efficiency and low-carbon emission, elevate the creative ability in technology. Step-by-step we should build up diverse low-carbon technology systems including energy saving, clean coal and clean energy, new energy and renewable energy, and forest carbon sink, accelerate the research and development on high efficiency coal-fired power generation, high capacity electricity storage, ultra high efficiency heat pump, carbon dioxide capture and storage, electricity transmission and storage, to form technology reserve, which will provide strong technical supporting system in the transformation of low-carbon and growth modes.

In order to increase our abilities of innovation and international competence, enterprise innovation should be predominant; national policies supporting innovation should be propagandized and fulfilled; financial support should be focused on enterprises by building up risk investment system, strengthening financial supports, introducing new financing management. To set up national and regional sharing and exchanging platforms for low-carbon technologies, those key issues of techniques need be solved, and the costs need to be greatly reduced, the technologies need to be improved, the development and extension of advanced and applicative products low-carbon need to be supported with higher priority.

We should make and fulfill the policies of governmental purchase of low-carbon products, giving higher priority to purchase products passed ecological design, clean producing process and satisfying the requirement of energy-saving. The privilege of purchasing low-carbon products will encourage the investment, benefit the development and increase the international compatibility of low-carbon products.

Changing the developing way of economy, increasing the efficiency of energy utilization

The development of Chinese economy is facing many issues including high investment, high consumption, high emission, non-synergic, un-circular, low efficiency. The consumption of enormous materials in current economic development and the huge wastage from repeating low-level constructions are the major causal factors of high-carbon emission. Although the per capita carbon emission in China is only one quarter of that in the United States, the overall carbon emission of China ranks No. 1, and the percentage in the world total carbon emission keeps increasing. The fast growing in the total amount of carbon emission may be avoided only if China increases the quality of its economic development through a proper way.

We should improve the way of current economic development, increase the efficiency of energy utilization, and reduce the consumption of energy and carbon emission. To achieve these goals, (1) facilitate the improvement of industrial structure, the economic development has to be switched from relying on secondary sector solely to relying on all primary, secondary and tertiary sectors, strategic new industry should be aggressively boosted. (2) Optimize the economic development, change the investment- and export- oriented economic structure, optimize investment structure, lean towards strategic new industry. (3) Optimize the input of the components of economic development, change the situation that the economic development mainly depends on the consumptions of resources and energy to relying on the input of technology, high-quality intelligence and higher efficiency of management.

Developing low-carbon industries to optimize the structure of industries

China is in the middle age of industrialization, dominated with heavy industry with high-carbon characteristics. We should develop low-carbon industries, reduce carbon emission, to optimize the structure of industry. In narrow sense, low-carbon industry refers to:

- (1.) renewable energy, including hydroelectric power, solar power, wind power, bio-power, geothermal power, energy generated from

ocean temperature difference, hydrogen fuel battery, etc.

- (2.) low-carbonize of fossil fuel, including recycling and storage of carbon dioxide, using clean coal and coal gas to generate electricity, liquidation of coal gas, using methane as fuel.
- (3.) energy efficiency and low carbon consumption, including energy transmission and storage, low-carbon consumption of energy.
- (4.) Low-carbon service field, including management of energy contracts, exchanging service of carbon emission, CDM consulting service, greening financial service, enterprise carbon management consulting service, carbon footprint, and carbon neutral service. The low-carbon industries could be enlarged to the industry development under low-carbon, especially carbon sink industry.

Research on forest carbon sink, ocean carbon storage, carbon fixation by marine organisms should be performed. Low carbonization should drive the improvement of industrial structure; increase the entrance threshold of marketing of high-carbon industry. The tax policies on high-carbon energy, industry and production need to be studied to restrict and eventually eliminate high-carbon industries and products. Administrative, tax, financial, and legal actions should be taken to encourage the development of low-carbon industry and support low-carbon products to make this industry more attractive.

The development of intelligence-intensive and technology-intensive industries should be accelerated. Advanced manufactures should be expanded by the promotion of informatization on industrialization. We should hatch and extend industrial clusters with primary low-carbon industries, build up low carbon industrial parks, expand the knowledge spillover effects among enterprises and accelerate the paces of technology innovation. We should develop the strategies for modern service industry, fully open the market, introduce capital from the society, set up fair market competition environment, and stimulate the development of service industries. The industries servicing the advanced manufacturing industries, including technology design, development of products, financial support, brand

management, logistics system and online sales, should be the crucial area for the future industrial development. Meanwhile, it needs to be speeded up for the development of education, culture, news press, travel and tour, medical care, employment, to enlarge room for the development of service industries.

NEW SECTION

At the same time, reduce carbon emission levels by optimizing energy production and consumption structures, in particular, developing clean energy, and optimizing energy structures. Increase investment in clean energy generation, encourage and support the development of new and renewable energy, improve the subsidies for clean energy investment and product sales to increase the proportion of clean energy consumption in the whole society. Optimize the layout of nuclear power plants. Accelerate the construction of nuclear power plants, speed up the research and development of advanced technology and equipment. Promote the development and industrialization of the fourth generation of nuclear energy technology. Strengthen the management of construction of hydropower stations, improve the hydropower management level, and enhance the ability of water and electricity supply. Strengthen terrestrial and marine wind energy surveys, design and demonstration.

Increase the capacity of the wind turbine and the level wind power outputs. Promote the use of solar energy and power generation technology, speed up the construction of photovoltaic, solar thermal power plant projects, implement the acquisition system for new energy power generations to ensure full protection, reform of the new energy price subsidies system, motivate enterprises to use new energy. Adhere to the market demand, and guide social capital, technology and human factor inputs, improve the new energy market competitiveness. Furthermore, integrate the roles of government, industry associations, enterprises and the publics to promote low-carbon economic development. Embedding the low-carbon development concept into the business, industry, regional and national development strategies, stimulate enterprises to participate in the actions of carbon emission

reduction positively and cooperatively, and promote the production, circulation, consumption, distribution and other aspects of low-carbon. Enhance the development, production, promotion of low-carbon energy-saving consumer products to meet demands of residents for low-carbon consumption. Create the material basis of the universal low-carbon consumption patterns. Actively promote the green low-carbon lifestyles and consumption models, cultivate universal awareness of low-carbon, and carry out education activities to increase the publicity of low-carbon science. Create the atmosphere of low-carbon consumption, low carbon concept of operations in the whole society, and cultivate green consumption styles. Encourage the use of recycled products, green products, energy-efficiency products, energy and water conservation certificated and environmental labeled products, and minimize the use of disposable supplies. Remind people to travel with green style in mind, motivate the whole society to participate and take action in low carbon economic development, and create a low-carbon consumption culture.

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