



**To accelerate transition to a low-carbon economy and society,
To follow the path of sustainable development of economy and
society in China**

Mr. Shen Longhai

Senior Adviser of Energy Research Institute, NDRC

March, 2010

Hawaii

Contents

- A. The importance and urgency to accelerate transition the pattern of economic development in China.**
- B. China's efforts to address climate change and promote the development of low carbon economy and society.**
- C. China attaches great importance to the development and utilization of renewable energy .**
- D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.**



Climate Change has become the hot topic concerned by international community

----GHG emission resulting in global warming is an indisputable fact;

----Both natural and human factors have contributed to climate change.

The GHG emissions from human activities such as combustion of fossil fuel, deforestation, and land use change etc. have caused drastic rise of the greenhouse gas concentration in the atmosphere, and ultimately, global warming;

----Global warming has resulted in serious consequence on natural ecosystem, and the environment for human survival and development.



Climate Change has become the hot topic concerned by international community

-----Climate change is the common challenge to our human society and is the shared opportunity for all nations of the world, including Northeast Asia nations, to probe into approach a low-carbon economy and society from different angles, and to fulfill the sustainable development of economy and society.



Climate Change has become the hot topic concerned by international community

-----Chinese government attaches great importance to climate change and improve energy efficiency and vigorously develops and utilizes renewable energy, and has achieved satisfied results in the new century, especially in recent years.

Till the end of 2009, the energy consumption per unit of GDP in China has declined by 14.38% as compared with 2005, account for 72% of the target of the energy consumption per unit of GDP in the Eleven-Five Plan period. The total sulphur dioxide (SO₂) and chemical oxygen demand (COD) emission reduction in China has reached by 9.66% and by 13.14% respectively, and completed the target of the Eleven-Five Plan in advance.



A. The importance and urgency to accelerate transition the pattern of economic development in China.

1, China is a developing country with a low economic development level and per capita GDP only slightly higher than 3,000 US dollars, and a lot of poverty-stricken population. China is a developing country with a large population, relatively insufficient resources and a fragile ecological environment.



A. The importance and urgency to accelerate transition the pattern of economic development in China.

2, China is now in a crucial period in building up a moderately prosperous society in all aspects and also at an important stage for accelerating its industrialization and urbanization and modernization.

3, The energy demand will keep growing in the near future in China.



A. The importance and urgency to accelerate transition the pattern of economic development in China.

4, At the present stage of development in China, the energy mix is dominated by coal, the structure conflict of economy remains prominent, the pattern of economic development is still extensive, the efficiency of energy and resources utilization is rather low and so on.



A. The importance and urgency to accelerate transition the pattern of economic development in China.

In the word, all impose great pressure and special difficulties for the control of greenhouse gas emission, and constitute a major restraint to the sustainable development of China.

Meanwhile addressing actively climate change and controlling greenhouse gas emissions also presents the country with an important opportunity to promote scientific development and accelerate the transformation of economic development patterns, and accelerate transition to a low carbon economy and society.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

1, Strengthening the legal system,

---- Environmental Protection Law, Energy Conservation Law, Renewable Energy Law, Clean Production Promotion Law, Circular Economic Promotion Law, and so on;

----some special or auxiliary regulations, such as the Regulations on Energy Conservation for Buildings, and so on;

----China actively participated in cooperation on Clean Development Mechanism projects (CDM).



B. China's efforts to address climate change and promote the development of low carbon economy and society.

2, Integrate the addressing of climate change into the plan for economic and social development.

In a bid to realize the target that the energy consumption per unit of GDP will decline by about 20%, the share of renewable energy will rise to about 10%, and the rate of forest coverage will reach 20% in Eleven-Five Plan period.

Premier Wen Jiabao lead the nation's charge for real climate change progress at the Copenhagen summit. The target in China will be as follows:

- a hefty 40-45 percent cut in carbon intensity by 2020 from the 2005 level;
- Non-fossil energy can account for about 15% of the primary energy consumption in 2020;
- In 2020 the forest area can increase by 40 million hectares and the forest reserve can increase by 1.3 billion cubic meters compared with 2005;
- In the 12th Five-year plan period, the government will continue to perfect and implement and formulate the national climate change programme.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

3, Controlling Greenhouse Gas missions.

----Adjusting Industrial structure: Between 2006 and 2008, the country phased out of the backward production capacities of 60.59 million tons of iron, 43.47 million tons of steel, 140 million tons of cement, and 64.45 million tons of coke.

Till the early of last year, it had shut down small thermal power generation units of a total capacity of 54.07 GW, accomplishing ahead of schedule the task of shutting down such units of a total capacity of 50 GW. Since 2008, merely through “building big ones and shutting down small ones” in the thermal power industry, the country has in effect reduced CO₂emission by 50 million tons.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

----China adheres to giving priority to energy conservation and improving energy efficiency.

The country has issued the Decision of the State Council on Strengthening the Energy Conservation work and the Comprehensive Work Scheme on Energy Conservation and Pollution Reduction ;

Implemented 10 Key energy-saving projects;

Launched the activity of promoting energy conservation at 1,000 enterprises;

carried out the pilot programs of circular economy, and pursued energy conservation in key fields, and so on.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

For the first time, 20% reduction of energy consumption per unit of GDP was set to be the binding target regulated in China's 11th Five-Year Plan. The energy consumption per unit of GDP in China was declining annually since 2006 to 2008, 1.79% drop in 2006, 4.04% decrease in 2007 and 4.59% decrease in 2008, which accumulatively decreased by 10.1%, saving about 290 million tce

From 1980 to 2008, China's energy consumption per 10,000 Yuan GDP decreased from 3.39 tce to 1.10 tce, calculated by comparable prices, the annual average energy saving rate is 3.22%.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

China has implemented the “Program of Benefiting the People with Energy-Efficiency Products” through providing financial subsidies to the highly energy-efficiency products of 10 categories including air-conditioners, televisions, and refrigerators etc. China has also implemented the “ban on plastic bag use”, to the effect that 2.4 million to 3 million tons of petroleum has been saved per year, and accordingly, the emission of carbon dioxide has been cut by 7.2 million to 9 million tons a year.

China's reform and opening up started in 1979, and our energy consumption with 5.2% of annual average increase supports our national economy rising with 9.8% of annual average increase since last 30 years.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

----Develop Low-carbon Energy, and Optimizing Energy Mix.

The Chinese government attaches importance to the development of low-carbon energy ,such as new and renewable energy, and has actively promoted the optimization of Chinese energy mix.

China has expand the development and utilization of nuclear energy, natural gas, coal-bed methane, and new-type renewable energy such as wind power, solar and geothermal energy and biomass etc.

The total consumption of natural gas reached 78.9 billion cubic meters, amounting to 110 million tce, tacking up 3.8% of the total primary energy consumption.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

---vigorously develop green and low-carbon economy and society.
The government will step up the efforts to adjust the economic structure and upgrade the industries, and research and formulate the policies and measures for developing green and low-carbon economy and society.

It will expand green investment, advocate green consumption and facilitate green growth in order to create new growth points characterized by low carbon emission.

It will make greater efforts in the R&D and industrialization of low-carbon technologies, such as the technologies about clean coal, renewable energy and nuclear energy, and accelerate the development of industry, construction and transportation systems characterized by low-carbon emissions.



B. China's efforts to address climate change and promote the development of low carbon economy and society.

It will formulate the Guiding Options on the Development of Low-carbon Economy, conduct pilot and demonstrative programs of low-carbon economy in light of the national conditions and actual situation of the country, experiment the system of assessing carbon emission intensity, explore the institution and mechanism for controlling greenhouse gas emission, and organize experimental carbon emission transactions in selected regions or industries.



C. China attaches great importance to the development and utilization of renewable energy .

By the end of 2007, the amount of utilized renewable energy in China was about 220 million tce (excluding the biomass energy utilized in traditional model), equivalent to 500 million tons of CO₂ emission reduction, and it was up to 8.5% of the total amount of consumed primary energy.

Till the end of 2008, the annual utilization of renewable energy (including large hydropower) and nuclear power was about 250 million tce accounting for 9% of the total primary energy consumption.



C. China attaches great importance to the development and utilization of renewable energy .

The target set in <The 11th Five-year Renewable Energy Development Plan>:

	2010
Hydropower	190 million kw
Wind power	10 million kw
Biomass power generation	5.5 million tons
Fuel Ethanol	3 million tons
Bio-diesel	0.2 million tons
Solar energy power generation	0.3 million kw



C. China attaches great importance to the development and utilization of renewable energy .

China ranked first in the world in terms of hydropower installed capacity, nuclear power capacity under construction, heat-collecting solar water heaters, and accumulative capacity of photovoltaic solar power.



C. China attaches great importance to the development and utilization of renewable energy .

----In 2008, with another 27 GW being added in the current year, the total installed capacity of hydropower reached 172 GW, and corresponding annual power generation was 563.3 TWH, accounting for 16.3% of the national total power generation. For many years, China has stably ranked first in the world in both installed capacity and power generation of hydropower.



C. China attaches great importance to the development and utilization of renewable energy .

----In last three years, the size of wind power has been doubling increased, and in 2008 alone ,an installed capacity of 6.14 GW was added, ranking the second in the world .

In 2000, the installed capacity of wind power was 0.34 GW. Till the end of 2008, the total installed capacity of wind power reached 12.17 GW , which had accomplished the target of wind power development regulated in <the 11th Five-Year Renewable Energy Development Plan> in advance, and the scale of wind power installed capacity ranks fourth in the world.



C. China attaches great importance to the development and utilization of renewable energy .

----China has developed solar energy power generation and solar thermal utilization, and nuclear power etc. actively.

The photovoltaic solar industry developed rapidly. Till the end of 2008, China had an accumulative installed capacity of 150MW for solar power, of which 55% belonged to stand-alone PV power generation units.

The heat collecting area of solar water heaters had reached 125 million m², accounting for over 60% of the world total, and keeping China the world leader in this field for many years.

C. China attaches great importance to the development and utilization of renewable energy .

----China will focus on biomass power generation, methane, biomass solid forming fuel and liquid fuel, vigorously promoting the development and utilization of biomass energy. China made considerable progress in developing biomass energy.

By the end of 2008, household biogas digesters had been built at 30.5 million rural households , which produced about 12 billion cubic meters of methane a year, to the effect of reducing carbon dioxide emission by more than 49 million tons.

The national installed capacity of biomass power station was 3.15 GW; and the annual production capacity of bioethanol fuel exceeded 1.6 million tons.



C. China attaches great importance to the development and utilization of renewable energy .

---- Actively developing nuclear power .

In 2008, China had put in operation 11 nuclear reactors with a total installed capacity of 9.1 GW, accounting for 1.3% of the total installed capacity in the country.; 1.4 gigawatt-level nuclear power units were newly approved, 24 nuclear power units with a total installed capacity of 25.4 GW were under construction, making China a country with the largest scale of under-construction nuclear power capacity in the world.



C. China attaches great importance to the development and utilization of renewable energy .

----In 2008, China issued Emission Standard of Coal-bed Methane/Coal Mine Gas, and called for better utilization of coal-bed methane/coal mine gas and development of small-scale coal-bed methane/coal mine gas distributed power sources.

In 2008, China drained 5.3 billion cubic meters of coal mine gas, 130% more than in 2005.of which 1.6 billion cubic meters was recovered and utilized; had built surface coal-bed methane production capacity of 2 billion cubic meters, achieved an annual output of 500 million cubic meters, with more than 900,000 households being coalmine gas and coal-bed methane customers and the installed capacity fueled by coal-bed methane reaching 920 MW.

In 2008, total consumption of natural gas, coalmine gas and coal-bed methane increased by 10.15 over 2007.



C. China attaches great importance to the development and utilization of renewable energy .

Now China is studying to draw up its development planning for new energy, including renewable energy, nuclear energy, clean coal technology application, and is vigorously developing and utilizing green energy and promoting the development of cyclic economy and low-carbon economy.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

Global climate change is a major challenge facing all countries. To counter this challenge requires the whole-hearted cooperation and coordinated actions of the international community.

In the future we will step up effort to develop green economy, low-carbon economy and circular economy, and enhance research, development and dissemination of climate-friendly technologies. We should focus on the achieving environmentally friendly and low energy consumption society and promoting the sustainable economic and social development in China.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

In order to effectively promote the renewable energy development and energy conservation, low energy consumption, and to reduce greenhouse gas emission, many enterprises in China have actively developed clean development mechanism (CDM) projects.

Throughout the country, 28 provincial-level CDM technological service centers have been set up, about ten thousand people were trained.

The development of CDM projects has effectively advanced the enterprises participating in international cooperation on climate change, and encouraged them to act as vital players in mitigation efforts.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

Till now, the country had approved a total of 2,369 CDM projects, with an expected emission reductions of 2.1 billion tons of carbon dioxide equivalent by 2012.

Till September 18, 2009, the number of registered CDM projects hosted by China reached 632, with an expected annual emission reductions of 188 million tons of carbon dioxide equivalent, and about 150 million certified emission reductions (CERs) had been issued to Chinese CDM projects.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

1. • To strengthen the cooperation on energy conservation and energy efficiency and renewable energy cooperation among Northeast Asia nations.

China owns large market with tremendous energy saving potential and China will to conduct comprehensive cooperation with the nations in Northeast Asia in the aspects of EE technology and energy saving service to explore the energy saving potentials. The main energy in China is coal, therefore, the R&D and cooperation in the technology of clean coal is extremely significant.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

In recent years, China's ESCO industry got rapid growth. China expects to promote the ESCO cooperation among all nations in Northeast Asia, support and assist small and medium-size ESCOs in implementing more EE projects and achieving more CO2 emission reduction.

D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

2. . To strengthen the cooperation in R&D and utilization of new energy, renewable energy, clean energy, low carbon energy etc. such as wind, solar, biomass energy and clean energy technologies, such as coal gasification and conversion.

Chinese government would like to strengthen the cooperation in new energy, including wind energy, solar energy, geothermal energy, biomass and nuclear energy etc renewable energy、 clean energy、 green energy、 low carbon energy and so on R&D and utilization with all Northeast Asia nations.

D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

3. In order to cope with climate change and promote sustainable (green) growth, Northeast Asia nations should strengthen the technology cooperation in mitigation and adaptation, such as carbon capture and storage (CCS), a key climate change mitigation technology.

Technological progress plays decisive role in mitigating and adapting climate change. Developed nations should provide supports including finance, technology and capacity for developing countries in coping with climate change. All Northeast Asia nations should strengthen the R&D and innovative cooperation in energy saving and emission reduction and renewable energy technology, strengthen the technological promotion and application, especially Japan, who owns lots of technologies in energy saving and new energy, and we should strengthen the cooperation between China and Japan.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

Improving the energy efficiency of energy-intensity industries is the important and active measure for all nations to accomplish energy saving and emission reduction task. The nations in Northeast Asia should conduct the cooperation in this field and the key point is to promote energy saving environmental protection technology transfer in key industries.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

4. We should attach importance to talent training for the energy efficiency and new energy, and Low-carbon economy, and strengthen the communication and cooperation among enterprises and among NGOs.

Presently, developing nations lack of talents in the fields of energy saving and new energy. And all Northeast Asia nations should strengthen the talent training for these two fields, which will be conducive to further develop and promote new technologies in energy saving and new energy fields and reinforce the management on energy saving.



D. To strengthen the cooperation in the energy conservation, energy efficiency and new energy, and to promote the sustainable development of economy and society in Northeast Asia nations.

We should keep strengthening the capacity building of NGOs in energy saving and new energy fields, keep promoting the communication and cooperation among enterprises and among NGOs in all Northeast Asia nations, for the sake of future win-win and promoting the sustainable development of economy and society in all Northeast Asia nations.



Thank you!

Contact with me



Thank you !

ESCO Committee of China Energy Conservation Association (EMCA)
Address: Room 520 SINOCHEN Tower, Fuxingmenwai Street, Beijing P.R. China (100045)
Tel: +86(10)63600182 Fax+86(10)63600459
Email slh@emca.cn
Website www.emca.cn