

China's Policies and Actions on Climate Change (2014)

The National Development and Reform Commission

November 2014

Contents

- Foreword..... 1**

- I. Mitigating climate change 3**
 - (I) Adjusting industrial structure / 3
 - (II) Energy conservation and improving energy efficiency / 8
 - (III) Optimizing the energy structure / 16
 - (IV) Controlling emission from non-energy activity / 22
 - (V) Increasing carbon sink / 23

- II. Climate Change Adaptation 25**
 - (I) Infrastructure / 25
 - (II) Agriculture / 27
 - (III) Water Resources / 29
 - (IV) Coastal Areas / 31
 - (V) Ecosystem / 32
 - (VI) Public Health / 33

- III. Developing Low-carbon Pilot Projects 36**
 - (I) Promoting Low-carbon Pilot Projects in Provinces and Cities / 36

(II) Pushing Forward Carbon Emissions Trading Pilot Programs / 37

(III) Carrying out Pilot Programs in Low-carbon Industrial Parks and Communities / 39

IV. Capability Building..... 42

(I) Promoting Relevant Legislation on Climate Change / 42

(II) Strengthening Major Strategic Studies and Plan Formulation / 43

(III) Improving Relevant Policy Systems for Climate Change / 45

(IV) Strengthening Scientific Support for Addressing Climate Change / 46

(V) Steadily setting up Relevant Statistics and Accounting Systems / 48

V. Participation of the Whole Society..... 52

(I) Enhancing Government Guidance / 52

(II) Social Organization Initiatives / 54

(III) Participation of the Public / 56

VI. International Exchanges and Cooperation 57

(I). Furthering Communication and Cooperation with International Organizations / 57

(II) Strengthening Communication and Cooperation with Developed Countries / 58

(III) Deepening South-South Cooperation / 61

VII. Proactive Promotion of the Multilateral Process of Addressing Climate Change..... 63

(I) Proactive Participation in International Negotiations within the Treaty Framework / 63

(II) Proactive Participation in Other Multilateral Negotiations / 64

(III) Basic Positions and Stand on Participation in the Lima UN Climate Change Conference / 66

Conclusion 68

Foreword

Chinese society and the Chinese economy have entered a new epoch. The country faces a grave ecological situation and must undertake the arduous task of addressing climate change. Wide spread and continuous smog continued to afflict many parts of China in 2013, arousing public concern and underlining the need to switch from our current extensive model of development to a green, low-carbon economy. Pursuing green, low-carbon development and actively addressing climate change is not only necessary to advance our ecological progress and put our development on a sustainable path, but will also demonstrate to the world that China is a responsible country committed to making an active contribution to protecting the global environment. The Chinese government is acutely aware of the problem of climate change. In May this year, the Chinese government issued the *2014-2015 Action Plan for Energy Conservation, Emissions Reduction and Low Carbon Development*, which committed China to cutting carbon dioxide emissions per unit of GDP by 4 percent this year and 3.5 percent next year. China's National Plan on Climate Change for 2014-2020 was issued in September, and identified the guiding principles, main goals, roadmap, key targets, and policy directions necessary to

address climate change. At the United Nations climate change summit in September, vice premier Zhang Gaoli, the special envoy of President Xi Jinping, presented China's policies and actions already taken for dealing with climate change. He said that China would soon publish its post-2020 objectives for addressing climate change, cutting carbon intensity, increasing the proportion of non-fossil energy in energy consumption, increasing its forested area, and reaching peak carbon dioxide emissions as soon as possible.

Since 2013, China has been pursuing the targets for addressing climate change set out in the Twelfth Five-Year Plan; implementing the action plan for controlling greenhouse gas emissions, adjusting the country's industrial structure, saving energy, increasing energy efficiency, optimizing the energy structure, increasing carbon sinks, adapting to climate change and intensifying the capability building. China has made significant progress in addressing climate change. Carbon dioxide emissions per unit of GDP in 2013 were 4.3 percent lower than in 2012, and 28.56 percent lower than in 2005, equivalent to a cumulative reduction of 2.5 billion tons of carbon dioxide. China is also playing an active and constructive role in international negotiations on climate change, is promoting the outcomes earned at the Warsaw Climate Change Conference, improving international communication and cooperation, and,

through all these initiatives, is making a major contribution to addressing climate change.

This annual report has been compiled to help the various interested parties understand the policies and actions undertaken by China to address climate change, and the achievements registered since 2013.

I. Mitigating climate change

Since 2013, the Chinese government has followed the goals and targets of addressing climate change during the Twelfth Five-Year Plan, and adopted such measures as adjusting industrial structure, saving energy, increasing energy efficiency, optimizing energy structure, controlling the emission of greenhouse gas induced by non-energy activity, and increasing carbon sinks. China has made significant headways in mitigating climate change.

(I) Adjusting industrial structure

Promoting the transformation and upgrading of traditional industry. The National Development and Reform Commission and the Ministry of Industry and Information Technology issued the Instruction Opinions on the Layout Adjustment and Industrial

Transfer of Key Industries, which outlines the guiding thought, general principles, main targets and policies and measures on changing the layout of key industries and industry transfer. Regarding the specific industries, the State Council issued the *Implementation Plan on Accelerating Structural Adjustment and Promoting Reform and Upgrading of the Shipbuilding Industry (2013-2015)*. The National Development and Reform Commission and the Ministry of Industry and Information Technology compiled the *Layout Plan for Petrochemical Industries* and carried out the mid-stage assessment of the *Twelfth Five-Year Plan for Paper Making Industries* and the *Twelfth Five-Year Plan for Food Industry*.

Accelerating the elimination of backward production capacity. Based on the requirement of the *Instruction Opinions on Solving the Problem in Overcapacity* issued by the State Council, the government controls the growth of production capacity, closes down backward ones, increases quality and efficiency, carries out transformation and upgrading, undertakes low-carbon development, and makes further efforts to resolve overcapacity. In October 2013, the General Office of the State Council issued the *Opinion on Further Strengthening Coal Mine Safety*, proposing to close more than 2,000 small coal mines nationwide by the end of 2015. The Ministry of Industry and Information Technology implements the

Notice on Eliminating Backward Production Capacity in 19 Industries in 2013, and published the first and second batch of enterprises in the industries of iron, steel, coal respectively in July 2013 and August 2014. In March this year, the National Energy Administration and the State Administration of Coal Mine Safety released the *Notice on Eliminating Backward Production Capacity in Coal Industry in 2014*. In June, 12 departments, including the State Administration of Work Safety, the State Administration of Coal Mine Safety, and the National Development and Reform Commission, issued the *Notice on Accelerating the Closing of Small, Backward Coal Mines*. Nine departments, including the General Administration of Quality Supervision, Inspection and Quarantine and the National Development and Reform Commission deploy specific rectification work on construction material, strength enforcement according to the requirement of national standard on steel, glass, cement and pottery, closely combine the three phases of production, distribution and usage, and severely punish illegal production or sales of products that do not meet standard requirement. In 2013, China closed 4.47 GW of small thermal power units, 6.18 million tons of iron smelting, 8.84 million tons of steel production, 270,000 tons of electrolytic aluminum, 105.78 million tons of cement (clinker and mill), 28 million cases of plate glass, involving more than 1,500 firms.

Boosting the development of strategic emerging industries. The environment for the development of strategic emerging industries is improving; innovation is accelerating and the deployment of resources is being optimized. The National Development and Reform Commission and other authorities have compiled an implementation plan for 20 major projects set in the *Twelfth Five-Year Development Plan on National Strategic Emerging Industries*, and have initiated projects in intelligent manufacturing, plant breeding and biotechnology, and the development of the Beidou satellite navigation system. The National Development and Reform Commission is also pursuing the National Low Carbon Technology Innovation and Model Industries Project, and has allocated 1.06 billion yuan from the central industrial technology R&D fund to 54 model projects. In August 2013, the State Council issued its *Opinion on Accelerating the Development of Energy-Saving, Environment-Protecting Industries*, to promote the development of energy conservation and environmental protection technologies. The Ministry of Industry and Information Technology and other ministries released a series of documents including the *Notice on Further Promoting the Use of New Energy Automobiles* to support the development of energy-saving and new energy automobiles. The growth of new energy sector rebounded, as the photovoltaic and wind power equipment industries saw their revenues from main operations grow by 13 percent and 21.5 percent

in 2013, in contrast to the negative growth they experienced in 2012. Since 2013, China has established 190 emerging industry investment funds managing a total of 51.6 billion yuan and investing in more than 500 innovative small and medium enterprises. Forty-four of these funds, managing 12.6 billion yuan, are used in the field of energy conservation, environmental protection and new energy.

Vigorously developing the service industry. The State Council issued the *Instruction Opinions on Speeding up the Producer Services to Promote the Reform and Upgrading of Industrial Structure* in August 2014, making overall arrangement for the production-related service industry for the first time. The Opinion points out that accelerating the development of production-related services should be an important task of national industrial adjustment, and mandates that companies should be encouraged to develop towards the high end of the value chain, promote the modernization of agricultural production and industrial manufacturing, and speed up production-related service sector merging production, manufacturing and information technology service. The Opinion also outlines main targets in eleven key areas including R&D and design, third-party logistics, financing lease, information technology service, energy conservation and environmental protection service, inspection, detection and

certification, and electronic business.

Thanks to the work of all sides, China's industrial structure keeps optimizing. By the end of June this year, the primary, the second and tertiary industry takes up 7.4 percent, 46.0 percent, and 46.6 percent of the entire economy respectively. The proportion of the added value from the service sector in the entire GDP increased by 1.3 percent year on year, overtaking the second industry for six quarters straight, and playing an increasingly important role in supporting economic growth.

(II) Energy conservation and improving energy efficiency

Strengthening the management and appraisal work regarding energy conservation. Various regions and departments regard energy conservation and consumption reduction as the prop of adjusting industrial structure, transforming development means, advancing scientific development, and boosting ecological progress, and has adopted a series of vigorous policies and measures. The State Council issued the *Action Plan for Energy Saving, Emission Reduction and Low Carbon Development (2014-2015)* and made overall arrangement and deployment for the energy conservation, emission reduction and carbon reduction work for the last two years of the Twelfth Five-Year Plan period. In order to strengthen the

management of energy conservation in key enterprises, the Ministry of Industry and Information Technology formulated and released instruction opinions on the energy conservation and emission reduction in nonferrous metals, petrochemical and chemical industries, and advanced the construction of an energy management center for energy-intensive industries and enterprises. The work in the appraisal of energy-saving goals and responsibilities is further strengthened. In 2013, the National Development and Reform Commission and eight other departments carried out the appraisal of energy-saving goals and responsibilities of provincial governments for the year 2012.

Enhancing energy-saving assessments and inspections.

Energy-saving assessments are independent and compulsory licensing procedures that must be completed before projects are launched, for which the authorities determine what regulations, mechanisms, standards and procedures must be met, and issue the results. The procedures for carrying out energy-saving assessments have been improved, standards have been clarified, supervision has been tightened, and inspections focused on major problem areas. Effort is being concentrated on assessing all new projects in six high-energy-intensive industries, on the construction industry and industries with over-capacity problems. The examination and approval process for low-energy-consumption projects has been

streamlined. The system for carrying out energy-saving assessments has been improved, and a nationwide assessment plan for new projects during the Twelfth Five-Year Plan has been formulated. Systems for controlling energy consumption per unit of added-value and total energy consumption have been established, and assessments and examinations are being carried out. A total of 554 energy-saving assessments were carried out in 2013 on projects with a total energy consumption of 102 million tons of coal equivalent. As a result of these assessments, unnecessary energy consumption was cut by 3.61 million tons of coal equivalent.

Accelerating the implementation of key energy conservative projects. Central government budget continues to be arranged to support energy conservation projects and the related management is improved. A total of 2.56 billion yuan of budget was appropriated in 2013 to support 438 energy-saving technology transformation and industrialization projects that can save 5.6 million tons of coal equivalent annually. A total of 372 million yuan of budget was allocated to support 445 capacity-building projects for energy-saving monitoring institutions. A total of 1.844 billion yuan of energy-saving reward was appropriated to support 272 energy-saving technology transformation projects that can save 6.42 million tons of coal equivalent. A total of 280 million yuan of reward was allocated to support 443 contracted energy performance

projects which can save 1.16 million tons of coal equivalent.

Further improving energy efficiency standard and labeling scheme. The “One Hundred Energy Efficiency Standard Promotion Program” is carried out and streamlined by the National Development and Reform Commission, the Standardization Administration, and the Ministry of Industry and Information Technology. Up to 48 national energy-saving standards were published in 2013, which altogether rounded up to 105 standards by the end of 2013. The Ministry of Industry and Information Technology published the energy-efficiency benchmarking indicators and businesses for products (working procedures) in the steel, nonferrous metals and light industries, and compiled energy auditing guidelines for the steel and chemical industries. The Ministry of Housing and Urban-Rural Development and the Ministry of Industry and Information Technology advocated the use of environment-friendly construction material and released the *Management Method for Assessing and Labeling Green Construction Material*.

Promoting energy conservative technologies and products. The National Development and Reform Commission released the *Interim Measure for the Promotion and Management of Energy-Saving, Low Carbon Technologies* in January 2014,

promoted the progress and popularization of energy-saving, low-carbon technologies, and led various businesses to adopt advanced, energy-saving technology, equipment and skill. It also published the sixth batch of the *Catalogue on the Promotion of National Key Energy Saving Technologies*, which includes 29 key energy-saving technologies in 13 industries including coal, electricity, steel, nonferrous metals and others; the six catalogues altogether recommended 215 key energy-saving and low-carbon technologies. The National Development and Reform Commission and the Ministry of Finance carried out projects that delivered the benefit of energy-saving products to Chinese citizens, which promoted 130 million sets of efficient, energy-saving household appliances, 2.65 million sets of energy-saving automobiles, 25 GW of efficient motor. The program led to environment-friendly consumption of 1.4 trillion yuan and saved energy equivalent to 20 million tons of coal equivalent. The Certification and Accreditation Administration and the National Development and Reform Commission issued the Interim Procedures for Low-Carbon Product Certification Management, which established China's low-carbon product certification system. The two also released the first batch of the *Catalogue of Low-Carbon Product Certification*, which included Portland cement and other three products, and handled out low-carbon product certificates to 27 firms. The Ministry of Science and Technology compiled and released the *Promotion List on the*

Industrialization of Energy Conservation, Emission Reduction and Low Carbon Technologies (First Batch); the Ministry of Industry and Information Technology published the *Catalogue of Energy Efficiency Star Product (2013)*, as well as two batches of catalogues for industrial energy-saving, emission-reducing electronic information application technology and four sets of promotion catalogues of energy-saving electromechanical equipment (product).

Speed up the development of circular economy. The National Development and Reform Commission published the *Notice on Building Circular Economy Model Cities (Townships)*, proposing to carry out a national circular economy pilot city (township) program in about 100 cities (districts, townships) in 2015. A total of 580 million yuan of the clean production fund was allocated in 2013 to support 95 clean production technology demonstration projects and 43 clean production demonstration firms from PVC industry and other 27 key industries were chosen. The Ministry of Industry and Information Technology formulated the working plan for implementing the *Action Plan on Prevention and Control of Air Pollution* in industries. It also formulated and published a plan to elevate the clean production level in Beijing-Tianjin-Hebei and the neighboring area, Danjiangkou and its upper stream, and other key regions (drainage basin). It further promotes the base construction

for the comprehensive usage of industrial solid wastes. It also collaborated with the State Administration of Work Safety to carry out a model project of the comprehensive usage of tailings, work on the entry threshold for scraps disposing, tire retreading, waste tire disposing, as well as released the third batch of the Catalogue of Remanufactured Products.

Boosting energy conservation in the construction sector.

According to the requirements of the *Green Building Action Plan* issued in January 2013, the National Development and Reform Commission and the Ministry of Housing and Urban-Rural Development is promoting green building and the transformation of existing buildings. By the end of 2013, all newly constructed buildings had adopted mandatory energy-saving standards. Improved energy-saving design standards have been applied in northern regions covered by central heating, regions with hot summers and cold winters, and regions with hot summers and warm winters. Pilot programs of low-energy green housing have been implemented in these regions. In 2013, 48 million square meters of construction was designated as green building, double the figure for 2012. By the end of 2013, a total of 1,446 green projects had been identified, accounting for over 160 million square meters of construction. In total, 8.8 billion square meters of energy-saving structures have been built in cities and towns across the nation,

equivalent to an annual saving of 80 million tons of coal equivalent and 210 million tons of carbon dioxide emissions. In the first three years of the Twelfth Five-Year Plan period, metering and energy-saving transformations had been completed in 620 million square meters of existing buildings in regions of northern China covered by central heating, exceeding the 400-million target set by the State Council. In 2013, energy-saving upgrading task was completed in 11.75 million square meters of existing buildings in regions with hot summers and cold winters. Renewable energy is increasingly being used to heat buildings. By the end of 2013, a total of 2.7 billion square meters in cities and towns nationwide were using solar power, and 400 million square meters were using geothermal energy.

Promoting energy conservation in the field of transportation.

The supervision and service level of energy conservation and emission reduction in the transportation industry keep growing, and prominent progress has been made in green recycling low-carbon transportation system. In August, 2013, the Ministry of Transport published the *Notice on Carrying out Low-Carbon Transportation Project in One Thousand Firms in Automobile, Ship, Road, and Port*, which identifies 981 businesses, improved the report system of energy consumption and carbon emission, proposed assessment index system for participating firms, and roughly built the

long-term mechanism for the firms. The Ministry of Finance and the Ministry of Transport appropriated 749 million yuan of energy-saving, emission-reducing fund in 2013, providing 367 projects with rewards instead of subsidies. A total of 6.13 million tons of coal equivalent were saved in the transportation industry in 2013, equaling a reduction of 13.37 million tons of carbon dioxide.

Because of the efforts of all sides, the energy consumption for per unit of GDP was reduced by 3.7 percent in 2013. In the first three years of the Twelfth Five-Year Plan period, the energy consumption per unit of GDP was reduced by 9.03 percent; an equivalent to about 3.5 tons of coal equivalent was saved, that is, more than 8.4 tons of carbon dioxide reduction: it has yielded sound economic and social benefit. The energy consumption intensity was further reduced in the first half of 2014: the energy consumption per unit of GDP was down by 4.2 percent year on year, posting the best achievement since the beginning of the Twelfth Five-Year Plan period.

(III) Optimizing the energy structure

Strictly controlling total coal consumption. In order to put into practice the *Action Plan on Prevention and Control of Air Pollution* and control coal consumption, local governments and ministries

formulated action plans. The Ministry of Environmental Protection and the National Development and Reform Commission published the *Rules on Implementing the Action Plan on Prevention and Control of Air Pollution in Beijing-Tianjin-Hebei and Neighboring Area*, which will reduce coal consumption in Beijing, Tianjin, Hebei Province and Shandong Province by 83 million tons by the end of 2017. Beijing will cut consumption by 13 million tons, Tianjin by 10 million tons, Hebei Province by 40 million tons, and Shandong Province by 20 million tons. In July 2014, the National Development and Reform Commission and the National Energy Administration published the *Details of Work Plan on Managing the Clean Use of Scattered Coal*, which aims to significantly reduce pollution caused by the use of coal for domestic heating and in small-scale enterprises in the Beijing-Tianjin-Hebei region by the end of 2017, by cutting consumption and identifying clean alternatives. Guangdong Province, Jiangxi Province, and Chongqing have pledged to cut the proportion of coal in their energy consumption to less than 36 percent, 65 percent, and 60 percent, respectively. In March 2014, the Ministry of Environmental Protection released the *Notice on Regulating the Environmental Entry Threshold to Implement the Action Plan on Prevention and Control of Air Pollution*, which mandates that definite coal reduction plans must form part of the environmental assessment and approval process in areas where there is a total coal

consumption cap. In March 2014, the National Development and Reform Commission, the National Energy Administration and the Ministry of Environmental Protection issued the *Work Plan on Enhancing Prevention and Treatment of Air Pollution in Energy Industry*, requiring the energy industry to improve controls on energy consumption, gradually reduce the proportion of coal, and formulate mid-term and long-term targets on the controlling of national coal consumption.

Continuing to promote the clean use of fossil energy. Various departments formulated a number of regulations and standards to strengthen the clean usage of coal, natural gas and petroleum. In September 2014, the National Development and Reform Commission, the Ministry of Environmental Protection, the Ministry of Commerce, the General Administration of Customs, the State Administration of Industry & Commerce, and the General Administration of Quality Supervision, Inspection, and Quarantine released the *Interim Method in Managing the Quality of Commercial Coal*, clarifying the quality standard of commercial coal. The National Development and Reform Commission, the Ministry of Environmental Protection, and the National Energy Administration released the *Action Plan on Upgrading and Transforming the Energy Conservation and Emission Reduction of Coal-Fired Power (2014-2020)*, proposing to put into practice a

stricter environmental protection standard of energy efficiency, speed up the upgrading and transformation of coal-fired power generation, try to realize the reductions in coal consumption of electricity supply, pollutant discharge, and the proportion of coal in entire energy consumption, and the increasing in safe operation quality, technology equipment level, and the proportion of electricity-producing coal in coal consumption, in order to further raise the efficient and clean level of coal power. A series of demonstration projects in coal power environmental protection and energy-saving upgrading and transformation were carried out, and four coal-fired power plants were identified as the national demonstration bases for coal power energy conservation and emission reduction. Targets of those action plans were illustrated in order to promote the efficient and clean use of coal. In February 2013, the National Energy Administration formulated the *Policy on Coal Bed Gas Industry* to promote the scientific and efficient exploitation and use of coal bed gas resource. In October 2013, the National Energy Administration formulated the *Policy on Shale Gas Industry* to advance the sound development of shale gas industry and increase the capabilities of natural gas supply. In July 2014, the National Energy Administration issued the *Notice on Regulating the Scientific and Orderly Development of Coal-to-Liquids Industry and Coal-to-Gas Industry* to regulate coal-to-oil and coal-to-gas projects, proposing five principles, that is, acting within the water

capacity, clean and efficient conversion, starting with demonstration, scientific and reasonable layout, and independent innovation. The Notice also proposed entry level of energy conversion efficiency, energy consumption, water consumption, carbon dioxide emission, and pollutant discharge. In addition, in order to implement the *Action Plan on Prevention and Control of Air Pollution* and actively promote cooperative control to reduce carbon dioxide emission from fossil fuels, the Ministry of Environmental Protection put forward comprehensive policies and suggestion on the cooperative control of air pollutants and greenhouse gas in steel, cement and transportation industries.

Actively developing non-fossil energy. Various departments formulated policies to promote the use of non-fossil energy. In hydropower sector, several large-scale hydropower stations, including the Xiluodu and Xiangjiaba projects, were launched in the first half of 2014, a year earlier than the target date set in the *Twelfth Five-Year Plan*. In wind power sector, since 2013, the National Energy Administration has approved the third and fourth batch of wind power projects to be undertaken under the *Twelfth Five-Year Plan*. These projects will deliver 27.97 GW and 27.60 GW respectively, and will extend the coverage of wind power projects. The National Development and Reform Commission issued an on-grid pricing policy for offshore wind power in June

this year, advancing the development of a number of viable offshore wind power projects. In order to promote the photovoltaic industry, since 2013, the National Energy Administration has published the *Interim Method in Managing Photovoltaic Power Plant Projects*, *Several Opinions on Promoting the Sound Development of the Photovoltaic Industry*, the *Interim Method in Managing Distributed Photovoltaic Power Generation Projects*, the *Notice on the Newly Added Construction of Photovoltaic Power Generation in 2014*, the *Notice on Building the Demonstration Area for Distributed Photovoltaic Power Generation*, the *Opinion on Supporting the Financial Service for Distributed Photovoltaic Power Generation*, and the *Notice on Further Implementing the Policies on Distributed Photovoltaic Power Generation*. Regarding biomass energy, the National Energy Administration and the Ministry of Environmental Protection has issued the *Notice on Carrying out Demonstration Projects on Biomass Fuel Boilers*, which calls for the construction of 120 demonstration projects nationwide. By the end of 2013, non-fossil energy generation capacity accounted for 30.9 percent of total electricity generation capacity, 4 percent higher than the previous year. On-grid wind power capacity reached 81.23 GW, an increase of 32.2 percent year on year. Electricity generated by wind power reached 131.1 Twh in 2013, a year-on-year increase of 35.6 percent. Hydropower generation capacity reached 260 GW, an increase of 4.4 percent year on year. Hydropower reached 911.6

Twh in 2013, an increase of 5.6 percent year on year. Nuclear energy generation capacity reached 17.94 GW, an increase of 17.7 percent year on year. 110.6 Twh of nuclear power were generated in 2013, an increase of 13.6 percent from the previous year. On-grid solar photovoltaic power capacity was 14.79 GW, an increase of 334 percent year on year. Solar power reached 7 Twh in 2013, roughly double the figure for 2012. China's renewable energy capacity accounted for 24 percent of the world total, and its recently added renewable energy capacity amounted to 37 percent of the world total.

China's consumption of primary energy in 2013 was equivalent to 3.76 billion tons of coal equivalent, among which coal took up 66 percent, 0.6 percentage points lower from last year; petroleum 18.4 percent, 0.1 percentage points higher from last year; gas 5.6 percent, 0.6 percentage points higher from last year; and non-fossil energy 9.8 percent, 0.4 percent points higher from last year.

(IV) Controlling emission from non-energy activity

In 2013, the Ministry of Environmental Protection formulated the management plan for phasing out the Hydroflucorcarbons (HFCs) more quickly under the Montreal Protocol, actively carried out the research on non-carbon dioxide greenhouse gas and short-lived

climate pollutants, and worked with the United Nations Environmental Program to compile a report on the Environment and Climate Effect of Controlling Short-Lived Climate Pollutants. On the nineteenth International Day for the Preservation of the Ozone Layer, China's Ministry of Environmental Protection held a project launching meeting of closing down the HFCs production line, which is also an awareness-raising activity on that day. The closing of the five lines can reduce 4647 Ozone Depletion Potential (ODP), equivalent to 93.5 million tons of greenhouse gas annually.

(V) Increasing carbon sink

Further implementing the action plan for the forestry to adapt to climate change. The State Forestry Administration compiled and issued the plan for key work arrangement and division for the forestry to adapt to climate change, which identified the key target and division of work for 2013 and 2014. It initiated the action year for the "REDD+" which goes beyond reducing emissions from deforestation and forest degradation. It also issued the *Instruction Opinion on Advancing the Forestry Carbon Sink Trade*, identifying the relevant guiding thought, basic principles and policies and measures. The metering and monitoring system for forestry carbon sink covers the entire nation, laying down solid foundation for scientifically calculating forestry carbon sink.

Increasing the area of forest carbon sinks. Based on a target of achieving a net increase of 40 million hectares of forest over the 2005 level by 2020 , the State Forestry Administration has accelerated the implementation of the Program for National Forestation (2011-2020). 91.5 million mu of forest and 2.52 billion trees were planted in 2013, surpassing the target for the year. More than 300,000 mu of carbon sink forestation had been created by 2013. Forest cultivation subsidies, which were being tested in pilot areas are now being implemented on a nationwide basis. The central fiscal budget allocated 5.8 billion yuan to cultivating 118 million mu of forest, surpassing the target for that year. The second phase of a project to curb the source of sandstorms that affect Beijing and Tianjin was completed. A project to comprehensively control stony desertification was carried out. Measures to prevent excessive land reclamation, conversion to pasture and tree felling were implemented. Systems for monitoring and assessing forest growth and were formulated. A mid-stage assessment of provincial forest coverage and forest stock set out in the *Twelfth Five-Year Plan* was carried out. The results show that the forested area continues to expand and that the effectiveness of forest carbon sinks continues to grow.

II. Climate Change Adaptation

In 2013, the Chinese government released the *National Strategy for Climate Change Adaptation*, specifying the guiding thoughts and principles in adapting to climate change on a national level by 2020. China has taken positive action to boost the capabilities of monitoring the impact of climate change and to improve the capabilities to deal with extreme weather and climate events. All these efforts have lessened the negative impact of climate change on economic and social development, production and people's lives.

(I) Infrastructure

The Ministry of Civil Affairs has formulated and issued a series of documents such as the Guiding Opinions on Strengthening the Development of Disaster-Relief Equipment and the Notice on Improving the Management of Relief Supplies Offered by the Central Government to set standards and a legal basis for further improving the management of relief supplies offered by the central government and the allocation of relief equipment by local governments. The Ministry of Civil Affairs has revised and formulated the Statistical System for Natural Disasters and the Statistical System for Losses Caused by Major Natural Disasters and set up a mechanism for inter-ministry liaison officials meetings

on disasters in collaboration with 17 departments including the Ministry of Civil Affairs, China Meteorological Administration and China Earthquake Administration. In order to better collect, report and publish disaster information, a pilot program to report disasters online at the town level was launched in seven provinces including Beijing and Tianjin. In carrying out the Opinions of the State Council on Strengthening the Development of Urban Infrastructure, the Ministry of Housing and Urban-Rural Development revised the Design Code for Outdoor Drainage, which raises standards for urban rainwater canals designing and sets requirements for urban waterlogging prevention. The Ministry of Water Resources guided local governments in 2013 to establish 1,292 national model communities of comprehensive disaster-reduction. Apart from the ongoing flood control projects in the lower reaches of the Yellow River, the post-disaster reconstruction in Huai River and the three rivers in northeast China (the Heilong River, Wusuli River and Songhua River), and the water environment rehabilitation in Taihu Lake, the Ministry has consolidated 15,891 vulnerable small II-sized reservoirs, and launched 2,789 rehabilitation projects for key middle and small rivers to strengthen the ability to deal with flood and drought disasters. The Meteorological Administration has promoted the sharing of climate observation data and the construction of comprehensive observation bases in key climate areas. The ministry has established a system for meteorological

disasters risk screening, identification, early warning and estimation. An early warning service system for urban waterlogging has been developed and risk early warning services are offered in pilot provinces and cities. The State Forestry Administration has set up the Internet Center for Ecological Location and Observation. By the end of 2013, a total of 140 ecological stations had been established, including 90 forest ecological stations, 30 wetland ecological stations and 20 desert ecological stations. The Ministry of Agriculture has established experiment bases for water conservation and field observation stations in dry land farming areas. A network of experimental water-saving agricultural technology across the country has emerged. The State Oceanic Administration has paid more attention to ocean climate observation. In an effort to improve the shore-based ocean climate observation, the administration has set up 21 new tide gauging stations and upgraded 85 ocean stations. The administration has also helped provinces such as Zhejiang and Fujian to build an emergency aid system for disaster prevention and mitigation and emergency infrastructure on islands.

(II) Agriculture

The National Development and Reform Commission has invested over 20 billion yuan within the central government's budget in

supporting the construction of production bases for agricultural products such as grain and cotton, and strengthening field projects based on small-sized farmland hydrological projects to improve disaster prevention and mitigation capabilities. The Ministry of Finance and the Ministry of Agriculture have jointly issued the *Notice on Promoting the Dryland Agriculture Technology*, and 1 billion yuan has been allocated to support dry land water-saving agriculture in north, northeast and northwest China. The Ministry of Agriculture has promoted systematic research on varieties selection, cultivation models, field projects, infrastructure and equipment, and chemicals. Dry land water-saving agricultural technologies have been promoted including planting in catchment furrows, under-mulch drip irrigation and drought-resistant agents, covering an area of over 400 million mu. More than 600 stations for monitoring soil moisture status and drought have been established. A service system for water-saving agricultural technology has come into being with its infrastructure and equipment and staff improving remarkably. The Ministry of Agriculture and Global Environment Facility (GEF) has jointly invested in a Five-year Climate Smart Agriculture Project in major grain production bases. The project aims at increasing the adaptation of farming to climate change and promoting energy saving and emissions reduction in agriculture.

(III) Water Resources

The Ministry of Water Resources has implemented the *Opinions of the State Council on Implementing the Strictest Water Resources Management System*, and put into practice the assessment of the strictest water resources management system, enhancing the allocation, conservation, protection and management of water resources. The targets of the Three Red Lines have been disassembled at the provincial level. The comprehensive planning of seven major river basins has been further implemented, promoting the water allocation of important river basins. The technical review of the water allocation of the first 25 major river basins has been basically completed. It also completed the first national water census, systematically mastering the basic situation of the rivers and lakes across the country and the water and soil resources. The ministry has strengthened water resources feasibility study management for construction projects, and promoted water resources feasibility study in the planning of energy development, urban construction and industrial parks. The ministry has tightened the administration of water drawing permission and water resources fees, setting the minimum standard of water resources fees for all the provinces (including autonomous regions and municipalities) by the end of the Twelfth Five-Year Plan period. The development of a water-saving society has been deepened and the water ecology

civilization has been accelerated. Water resources monitoring has been fully strengthened and an information platform for water resources monitoring and management has come into being. The Ministry also completed the *Measures to Implement the National Drought Control Plan* to strengthen major source water projects and drought-control emergency projects in key drought-affected areas, enhancing the adaptation to climate change. In an effort to promote urban water conservation, the Ministry of Housing and Urban-Rural Development, together with the National Development and Reform Commission issued the *Notice on Further Strengthening Urban Water Conservation*, and has completed the assessment of the seventh batch of China's Water Conservation Cities. The Ministry of Water Resources joined hands with the National Development and Reform Commission to speed up the upgrading of major irrigation and drainage projects and large pump stations, and to launch large-scale efficient water-saving irrigation projects. Since 2013, it has allocated 11.7 billion yuan, 2 billion yuan and 1.8 billion yuan respectively, within the central government's budget to enhance the efficiency of the use of irrigation water and electricity equipment, saving a total of over 3 billion cubic meters of water. The Ministry of Finance, the Ministry of Water Resources and the Ministry of Agriculture jointly launched a "Water Saving and Increasing Grain Production" campaign between 2012 and 2015 in four provinces in Northeast China, with a total investment of 38

billion yuan covering an area of 38 million mu. The Ministry of Water Resources has made great efforts to implement key national projects of water and soil conservation. From 2013 to the first half of 2014, up to 80, 000 square kilometers of land affected by soil erosion was dealt with, and over 260 small clean river basins were restored.

(IV) Coastal Areas

The State Oceanic Administration organized the formation of the Provincial Island Protection and eight provinces including Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong and Guangxi have approved their own version of the scheme. A total of 470 million yuan has been allocated to support more than 20 oceanic island restoration and remediation projects. The Administration has been undertaking the ocean climate observation and its impact assessment. By monitoring and assessing coastal erosion, seawater invasion and soil salinization, the administration has accumulated data for analysis about the correlation between climate change and ocean environment disasters. Greater efforts have been made in marine forecasting and disaster prevention and mitigation. The administration has been monitoring sea level changes and issued the *China Sea Level Communiqué 2013*. Sophisticated forecasting has targeted key coastal sites and relevant

departments in 24 key coastal sites are informed of the daily forecast about storm surges, waves, and tide / marine currents in surrounding seawaters, thanks to which the guaranteed capacity of forecast services has been enhanced. The service system for guaranteeing marine fishing environment safety has been promoted, providing forecast and alert information about waves and wind to over 280,000 fishing boats of China's 53 fisheries.

(V) Ecosystem

The State Forestry Administration has begun the compilation of the *Plan of Adapting to Climate Change for Forestry* and made steady progress in forest pest prevention and control and forest protection. The responsibility system of forest pest prevention and control has been strictly implemented and the forest pest disaster rate has been kept under 5‰ for four consecutive years. Woodland planning administration and woodland use control have been implemented to strictly control woodland erosion. In key state-owned forest areas in Heilongjiang Province, the commercial exploitation of ancient woodland has been forbidden to strengthen the protection of ancient woodland. The State Forestry Administration has enhanced the protection and restoration of natural wetlands, formulated the *Regulations on Protection and Management of Wetland* and continued to carry out wetland protection and restoration projects

and wetland protection subsidy programs. The State Forestry Administration allocated a special fund of nearly 400 million yuan to compete the second national survey on wetland resources and established five new state-level key wetlands. Thirty counties in seven provinces and autonomous regions have launched pilot programs of subsidizing desertification protection areas. In the protection areas, all activities that might cause damage to vegetation are forbidden. The Ministry of Environmental Protection has proposed an assessment index system for analyzing the interaction between biodiversity and climate change, and has assessed the impact of climate change on biodiversity in typical areas including Northeast China and the Tibetan Plateau. The Ministry has also researched the impact of the climate change on China's water environment quality and its adaptation policies. The State Forestry Administration has started to formulate the *Plan for Climate Change Adaptation in Forestry*.

(VI) Public Health

The National Health and Family Planning Commission has strengthened the prevention and control of diseases closely related to climate change, such as mosquito-born disease dengue fever and the foot and mouth disease. The commission has issued the *Scheme for the Prevention and Control of MERS Epidemics*, the *Scheme for*

the Prevention and Control of Human-infected H7N9 Epidemics and the *Handbook on the Prevention and Control of Cholera* (6th edition). It also guided local governments to prevent and control major infectious diseases and improved China Information System for Disease Prevention and Control. The commission also strengthened the overall emergency security work for health issues related to climate change, and in order to provide emergency services in the wake of natural disasters and better medical services in high temperatures, issued the *Urgent Notice on Offering Emergency Public Health Services in the Wake of Natural Disasters* and the *Notice on Offering Better Medical Services in High Temperatures*. The commission is drafting its climate change adaptation policies based forecasting and analyzing the impact of climate change on the distribution and spread of parasitic diseases. China Meteorological Administration has established a leading group and an experiment workforce for removing smog by artificial means in Beijing, Tianjin and Hebei Provinces and neighboring regions, which have jointly conducted artificial rainfall experiments both in the air and on the ground. The Administration and the Ministry of Environmental Protection jointly issued the *Implementation Plan for Monitoring and Early Warning during Heavily Polluted Conditions in Beijing, Tianjin, Hebei Province and Neighboring Regions*. A mechanism for joint negotiation, information release and emergency response during heavily

polluted conditions in Beijing, Tianjin, Hebei Provinces and neighboring regions has been established.

III. Developing Low-carbon Pilot Projects

Since 2013, the government has made steady efforts to promote low-carbon pilot projects in selected provinces and cities, pushed forward pilot carbon emissions trading programs, and developed pilot and demonstration projects such as low-carbon industrial parks and communities, and low-carbon transport. An all-dimensional network of low-carbon pilot projects across provinces, cities, towns, industrial parks and communities has emerged.

(I) Promoting Low-carbon Pilot Projects in Provinces and Cities

All the pilot provinces and cities have devoted great efforts to the tertiary industry and restricted the sectors that feature high energy-consumption, heavy pollution and resources dependency. They have made positive progress in developing strategic emerging industries, promoting clean energy, increasing forest sinks, advocating a green and low-carbon lifestyle and consumption model, improving and innovating systems and mechanisms, and actively exploring a green and low-carbon development mode that fits their local conditions. Of the first five pilot provinces and eight pilot cities, Shenzhen City is the first to propose to arrive at an emissions peak between 2017 and 2020. The second batch of 29

low carbon pilot provinces and cities has announced to curb the total amount of carbon emissions or the peak year for carbon emissions. Beijing and Zhenjiang cities are exploring initiating a carbon assessment system for new projects. According to the performance evaluation conducted by the National Development and Reform Commission in 2013 of the target responsibility system for curbing the greenhouse gas emissions in 2012, the carbon intensity in the 10 pilot provinces and cities dropped by nearly 9.2 percent in 2012 compared with 2010, higher than the decline on the national level. In addition, Guangdong, Hubei, Beijing, Tianjin, Shanghai and Yunnan provinces have surpassed their target in 2012 and the cumulative amount prescribed in the *Twelfth Five-Year Plan*. Other pilot regions have performed better in reducing carbon intensity than regions without similar conditions.

(II) Pushing Forward Carbon Emissions Trading Pilot Programs

By the end of 2013, Shenzhen, Shanghai, Beijing, Guangdong Province and Tianjin had all launched carbon emission trading markets. In the second quarter of 2014, Hubei Province and Chongqing followed in their step. The launch of local carbon emissions trading pilot programs signals that China has taken a groundbreaking and meaningful step in promoting low-carbon

green development through market mechanisms, and also represents a major institutional innovation for China in dealing with climate change. The pilot provinces and cities pay high attention to the carbon emission trading market and have done a lot of work, including formulating relevant laws and regulations, setting the total amount of carbon emissions and the coverage, establishing measurement, reporting and verification (MRV) system for greenhouse gases, determining quota allocations, establishing trading system and rules, developing a registration system, setting up special administrative organs, establishing a market regulation system, training staff and enhancing the capacity building. Thanks to the efforts made by pilot provinces and cities, a complete institutional framework for carbon emissions trading pilot programs has come into being. So far, a binding “cap and trade” system has emerged which covers certain economic sectors and sets a total a carbon emissions curb instead of carbon intensity as its target. The pilot provinces and cities, with sound technology and capabilities, have promoted market-based carbon pricing and boosted the development of relevant industries. The awareness of enterprises has increased remarkably. By the end of October 2014, the total trading volume of carbon dioxide in the carbon emissions trading markets of seven pilot provinces and cities reached 13.75 million tons of CO₂ and the turnover was more than 500 million yuan. A total of 15.21 million tons of carbon quota have been sold at auction

for 760 million yuan.

(III) Carrying out Pilot Programs in Low-carbon Industrial Parks and Communities

Trials of Low-carbon Industrial Parks. In October 2013, the Ministry of Industry and Information Technology and the National Development and Reform Commission started piloting low-carbon industrial parks, and established an evaluation index and support policies for it. A batch of qualified industrial parks that is distinctive, symbolic and legally established has been chosen for the pilot program and low-carbon management mode that fits China's conditions has been promoted to encourage industrial low-carbon development. The first 55 parks have been approved for pilot programs and are organizing implementation plans.

Trials of Low-carbon Communities. In March 2014, the National Development and Reform Commission started trials of low-carbon communities, introducing low-carbon ideas into community planning, construction, management and people's lifestyles. The commission has been exploring methods to effectively curb carbon emissions in urban and rural communities, and formulated the *Development Guidance for Low-carbon Communities Pilot Programs* and the *Evaluation Index for Low-carbon Communities*

Pilot Programs. The commission has also studied accounting methods for calculating the carbon emission reduction in low-carbon communities and facilitated the drafting of relevant laws and regulations. By the end of the Twelfth Five-Year Plan period, the number of pilot low-carbon communities is expected to reach 1000 and some of them will be built into state-level pilot low-carbon communities.

Pilot Carbon Capture, Use and Storage (CCUS) Projects. In April 2013, the National Development and Reform Commission published the *Circular on Promoting the Trials of Carbon Capture, Use and Storage*, to boost the trials to promote the CCUS. The Ministry of Science and Technology published the *Technology Development Planning for CCUS during the 12th Five-Year Plan Period*, and conducted a series of CCUS technology support projects, such as projects of R&D and demonstration for carbon dioxide chemical use technologies, projects of R&D and demonstration for carbon dioxide mineral carbonization technologies, carbon dioxide capture in coal-fired power plants, and technology research and demonstration for coal-bed methane use and storage. To direct the scientific research and industry development of CCUS, the Ministry of Science and Technology has released the development roadmap for CCUS technology.

Trials of APEC Low-carbon Model Towns. The concept of APEC Low-carbon Model Towns (LCMT) was initiated by Chinese leaders at the 18th APEC Economic Leaders' Meeting. The National Energy Administration, the National Development and Reform Commission and the Ministry of Housing and Urban-Rural Development have jointly promoted the APEC LCMT and 26 projects have been included in the list so far.

Low-carbon Transport Pilots. The Ministry of Transport continues to support pilots of low-carbon transport systems in 26 cities such as Tianjin, Chongqing, Beijing, Kunming, and etc. The ministry organized a pilot demonstration conference for green recycling low-carbon transport systems and directed the 26 pilot cities to carry out implementation plans. The ministry has conducted a survey of the first 10 pilot cities and produced a written summary report. The ministry continues to carry out extensive research on green recycling low-carbon transport systems and has proposed an evaluation index for its development.

IV. Capability Building

Since 2013, China has actively promoted relevant legislation on climate change, carried out major strategic studies on addressing climate change, strengthened plan formulation for addressing climate change, improved relevant policy systems for climate change, strengthened scientific support for addressing climate change, and accelerated statistics, accounting and evaluation systems for greenhouse gas emissions, which has significantly enhanced its fundamental capability to deal with climate change.

(I) Promoting Relevant Legislation on Climate Change

Accelerating legislation on addressing climate change. The National Development and Reform Commission has communicated with the Environment Protection and Resources Conservation Committee of the National People's Congress (NPC), the Law Committee of the NPC, the Legislative Affairs Office of the State Council and other members of the legislative leading group on dealing with climate change in a bid to accelerate the legislation on tackling climate change. The draft law framework for addressing climate change has been established and will be further improved based on public demands for legislation, China's past experience, as

well as foreign countries' lawmaking experience and advice from other relevant departments.

Enhancing relevant regulations on addressing climate change.

Beijing, Shanghai, Tianjin, Chongqing, Hubei, Guangdong and Shenzhen have introduced carbon emissions trading management in a bid to boost the healthy development of carbon emissions trading market. The National Development and Reform Commission, together with the Certification and Accreditation Administration, issued the *Interim Procedure for Low-carbon Products Certification Management* so as to establish a standard for certification of low-carbon products. The National Development and Reform Commission published *The Assessment Methods for Carbon Dioxide Emissions Reduction Targets per Unit of GDP* in order to evaluate the performance of cities and areas in completing their carbon dioxide reduction targets, and to assess their enforcement of tasks and measures. The China Meteorological Administration launched legislative studies on *Law for the Prevention of Meteorological Disasters*.

(II) Strengthening Major Strategic Studies and Plan Formulation

Carrying out major strategic studies for addressing climate

change. The National Development and Reform Commission took the lead to set China's objectives and action plan for controlling greenhouse gas emissions after 2020, and to study the issue of China's carbon dioxide emissions peak. The National Development and Reform Commission accelerated the study of China's low-carbon development macro strategy program, and supported multiple major studies on the general idea of macro strategy for China's low-carbon development, China's low-carbon development strategy for energy, as well as China's road map for greenhouse gas emissions reduction by 2050, and China's low-carbon urbanization. So far, all of the above studies have made initial achievements including a sequence of special reports, policy proposals reports, and the report on China's general idea of macro strategy for low-carbon development. The National Expert Commission on Climate Change actively carried out consultation on policies for addressing climate change, and conducted strategic studies on compilation of the *Thirteenth Five-Year Plan* and international negotiation regulations.

Strengthening plan formulation for addressing climate change.

The National Plan on Climate Change (2014-2020), approved by the State Council and released by the National Development and Reform Commission, analyzed the trends of global climate change and its impacts on China, the current situation, future challenges

and strategic concerns in addressing climate change. The plan proposed guiding principles and the main target for addressing climate change, and also clarified major tasks regarding control of greenhouse gas emissions and adaptation to impacts of climate change. It put forward policies, measures and approaches for addressing climate change, such as setting up pilot and demonstration projects, improving regional policies for addressing climate change, improving stimulation and restriction systems, strengthening scientific support, enhancing capability building, and deepening international communication and cooperation, in a bid to ensure the implementation of stated objectives. Local governments have taken active steps to compile special plans for addressing climate change at the provincial level, further stipulating and accomplishing mitigation of and adaption to climate change. So far, 21 provinces (autonomous regions and municipalities) have launched provincial-level plans to address climate change.

(III) Improving Relevant Policy Systems for Climate Change

In September 2013, the State Council issued the *Action Plan on Prevention and Control of Air Pollution*, and laid down 10 measures to combat air pollution. The action plan, with its clear focus, specified classification, multi-pronged approaches and scientific policies, integrated the work of structure optimization, innovative

promotion and environmental and ecological protection, in a bid to accomplish difficult tasks with tough measures. In May 2014, the State Council issued the *Low-carbon Development Action Plan for Energy Conservation and Emissions Reduction (2014-2015)*, boosting energy conservation and carbon emissions reduction with “iron measures” and an “iron fist”, further stipulating assessment indexes, tasks and safeguarding measures. All provinces, autonomous regions and municipalities in China, and the State Council departments, released a series of policies for addressing climate change, further improving relevant policy systems.

(IV) Strengthening Scientific Support for Addressing Climate Change

In August 2014, the National Development and Reform Commission issued the *Catalogue on the Promotion of National Key Low-carbon Technologies* to accelerate the promotion and application of low-carbon technology. The Ministry of Science and Technology, together with the China Meteorological Administration and other relevant departments, compiled the *Third National Assessment Report on Climate Change* that systematically summarized China's scientific achievements on climate change. They also formulated the National Achievement Transformation, Promotion and Application Lists on Energy Conservation,

Emissions Reduction and Low-Carbon Technology (first batch), boosting the promotion and application of low-carbon technology. In addition, they inspected the implementation of the *National Scientific and Technological Actions on Climate Change During the 12th Five-Year Plan Period*, in order to promote the actual execution of the action. The Ministry of Environmental Protection promoted studies and policy formulation on coordinated control of air pollutants and greenhouse gas emissions in key industries, as well as biodiversity and water resources quality in adapting to climate change. Moreover, it offered strategies for strengthening the management of carbon capture, utilization and storage (CCUS) environment, and the climate risks in shale gas exploitation. The State Forestry Administration has made important progress in studies on the ecological system carbon mechanism, technological development of adaptation to and mitigation of climate change, and carbon sink metering and monitoring. The China Meteorological Administration continued to improve fundamental work to address climate change, and carried out national scientific and technological projects, including the *Research on Aerosol, Cloud, Radiation Feedback and Its Interactions with Asian Monsoons*. Additionally, it has accomplished the first round assessment of regional climate change. The State Oceanic Administration launched scientific studies on short-term climate prediction, carbon dioxide monitoring and evaluation, and carbon sequestration in wetlands. The Ministry

of Transport worked out a manual for compiling greenhouse gas emissions inventories in the transport sector, and it also carried out studies on policies for transportation enterprises participating in carbon emissions trading. The Chinese Academy of Sciences boosted the implementation of strategic and guiding science & technology programs, such as Carbon Balance Certification and Relevant Issues of Addressing Climate Change. Additionally, it launched a special research program called the *Action Plan for Western China*. The Ministry of Water Resources completed the first national water census. It also launched over 10 key research projects, such as the *Influence Mechanism of Climate Change on Water Cycle in the Yellow-Huai-Hai River Region* and *Water Resources Security Assessment*. The Ministry of Housing and Urban-Rural Development carried out a project to study the baseline of energy consumption on heating for existing residential buildings in northern China, which laid a foundation for the establishment of carbon trading mechanism in the construction sector.

(V) Steadily Setting up Statistics, Accounting and Assessment Systems

Improving statistics and accounting systems. In 2013, the National Development and Reform Commission and the National

Bureau of Statistics promulgated the *Opinions on Strengthening the Statistical Work for Addressing Climate Change*. The National Bureau of Statistics formulated the *Statistical Work Plan for Addressing Climate Change*, and set up a statistical indicator system for addressing climate change and the statistics-reporting system for climate change departments. The National Bureau of Statistics and the National Development and Reform Commission jointly issued the *Notice of Initiating Statistical Work for Addressing Climate Change*, set up a leading group for statistics work in responding to climate change, and urged relevant departments and industrial associations to strengthen their leadership, clarify assignments and responsibilities, and ensure the quality of data. The National Development and Reform Commission conducted research on establishing reporting system imposed on key enterprises and public institutions to report greenhouse gas emission, issued the *Notice on Organizing and Promoting Key Enterprises and Public Institutions to Report Greenhouse Gas Emissions* in 2014, and clarified the subject of report, contents, procedures and related safeguarding measures. The National Development and Reform Commission issued the measuring method and reporting guidelines for the greenhouse emission of manufacturing enterprises in ten industries such as chemical, cement, steel, nonferrous metal, electricity, aviation and ceramics, and promoted the carbon emission trade pilot provinces

and cities to gradually improve accounting and supervision systems, complete accounting work of enterprise carbon emission and standardize the third-party supervision. The State Forestry Administration has set up an initial national forest carbon sink metering and monitoring system that can scientifically calculate China's forest carbon sinks through actual test results.

Improving assessment and appraisal systems. In April 2013, the National Development and Reform Commission organized the first tentative assessment and appraisal of the performance of 31 provinces, autonomous regions and municipalities in meeting their 2012 greenhouse gas emissions control targets, further enforcing greenhouse gas emissions control practices and coordinating the implementation of relevant policies. After the review of the 2012 tentative assessment, the National Development and Reform Commission modified and improved the *Assessment Methods for Carbon Dioxide Emissions Reduction Targets per Unit of GDP* in August 2014. The National Development and Reform Commission officially started to assess carbon intensity reduction targets undertaken at provincial level, in a bid to urge local governments to reduce their carbon intensity and ensure that the carbon intensity reduction targets during the 12th Five-Year Plan period can be achieved.

Intensifying greenhouse gas emissions accounting capability.

Based on the principles of “clarifying actual carbon emissions, supporting decisions and working efforts,” the National Development and Reform Commission has made remarkable progress in improving its capability of accounting greenhouse gas emissions in the country, regions and enterprises. It conducted the compilation of the *Third National Communication on Climate Change*, strengthened the analysis and predictions of the completion of carbon dioxide emissions reduction targets per unit of GDP in first half of 2014 and the full year 2014, strengthened the compilation of provincial-level greenhouse emission list and the capability-building of carbon-intensity measurement and organized the assessment and inspection for the 2005 and 2010 provincial greenhouse gas emissions inventories in 31 provinces (autonomous regions and municipalities).

V. Participation of the Whole Society

Since 2013, China has gradually formed a low-carbon development pattern with the participation of the whole society through multiple channels and the media, including promotional materials, forums, as well as campaigns and training, and through the strengthening of guiding low-carbon development and promoting the concept of low-carbon.

(I) Enhancing Government Guidance

In September 2014, Vice Premier of the State Council Zhang Gaoli, as the Special Envoy of President Xi Jinping, attended the United Nations (UN) Climate Summit and delivered a speech, which had extensive influence on the international society. Zhang Gaoli stressed that China attaches great importance to tackling climate change and is willing to work with the international community to actively tackle the grave challenge of climate change. On June 17, 2013, the National Development and Reform Commission and other relevant departments, jointly organized a series of activities to celebrate China's first "National Low-carbon Day." General Secretary of the United Nations Ban Ki-moon visited the exhibition on climate change and spoke highly of it. In 2014, the National

Development and Reform Commission, together with other relevant departments, continued to organize various events, including 2014 “National Low-carbon Day,” “Climate Change: The New Environment for Climate Policies”-- a session held during the 2014 Summer Davos Forum in Tianjin, and “Climate Change and the Earth’s Future”, a forum held during The Eco Forum Global Conference in Guiyang, all of which had good promotional effects. The National Government Offices Administration, together with the National Development and Reform Commission and the Ministry of Finance, initiated the Model Resources Conservation Public Institutions Projects, and as many as 879 public institutions became the first members. Local governments organized various events, including low-carbon knowledge contests and themed exhibitions, as well as low-carbon cases collections and low-carbon model publicity, in a bid to encourage the whole of society to choose a low-carbon lifestyle in consumption and production, and to promote local low-carbon policies and actions. The National Development and Reform Commission and other relevant departments organized “Chinese Pavilion” series of publicity events during the United Nations Warsaw Climate Change Conference, in order to show the international community China’s actions for addressing climate change. The National Health and Family Planning Commission and other departments organized “Environment and Health Week” in order to raise the public’s awareness of environment and health, and

to improve their ability to protect themselves from extreme weather. The State Forestry Administration developed two distance training courses to address climate change from the forestry perspective. The China Meteorological Administration organized a briefing session for the *Fifth Assessment Report* released by the Intergovernmental Panel on Climate Change (IPCC) and held the Tenth International Seminar on the Climate System and Climate Change (ISCS) and several climate prediction courses. The agency also made a documentary called "Climate Change and Food Security." The State Oceanic Administration has set up a website -- the China Ocean and Climate Change Information Network -- in a bid to extensively inform efforts made by oceanic departments to address climate change. The Certification and Accreditation Administration made public service advertisements and posters to promote China's low-carbon products certification system.

(II) Social Organization Initiatives

Under the guidance of the Climate Change Department of the National Development and Reform Commission, the State Information Center and the Green Commuting Fund of the China Association for NGO Cooperation jointly organized the "Low-carbon China, Academicians and Experts Seminar" in Hangzhou, Ningbo, Zhenjiang and Baoding. They also held the

“2014 Low-carbon China Competition” to select good low-carbon examples from around China, and 20 candidates including industrial parks, communities and enterprises were chosen as the winners. The National Center for Climate Change Strategy and International Cooperation (NCSC), together with the Journalism and Social Development Research Center of Renmin University, the Public Meteorological Service Center of China Meteorological Administration and China Green Carbon Foundation, jointly organized four training sessions for media workers on addressing climate change. Under the guidance of the China Association for Science and Technology, the China Society of Territorial Economists launched the “National Low-carbon Experimental Zone”. The China Green Carbon Foundation celebrated the fourth “Green China, Low-carbon Actions” Tree-Planting Festival. It also organized the first “China Green Carbon Sink Festival and Green Rhythm--Bamboo Instruments and Bamboo Art Exhibition.” It carried out carbon neutrality projects proposed during the Sixth International Forum on Ecological Competitiveness and other important conferences. The China Association for NGO Cooperation compiled and published the *Casebook for a Low-carbon Life*, which collected a large number of low-carbon living cases about clothing, food, housing, traffic and work in urban and rural areas. On the theme of “blue sky self-creation”, the World Wild Fund for Nature (WWF) organized the “2014 Earth Hour”

campaign.

(III) Participation of the Public

As education, training and publicity on addressing climate change proceed, the public are more actively involved in activities, such as low-carbon commuting, low-carbon dieting, low-carbon living, and purchasing low-carbon products. Energy conservation and carbon reduction campaigns have been extensively carried out in schools, organizations, shopping centers, military camps, enterprises and communities, in a bid to raise people's awareness of "energy-saving, frugality and economy" during their work, daily lives, and consumption. The Ministry of Civil Affairs organized the 2014 National Forum on Comprehensive Disaster Reduction and Sustainable Development and drew wide public participation through giving out promotional materials, giving training and lectures, holding drills of varying scales, and sending messages.

VI. International Exchanges and Cooperation

Climate change is a common challenge confronted by humankind and the international community needs to strengthen cooperation to tackle it together. Since 2013, the Chinese government has actively engaged in and promoted cooperation with international organizations, intensified cooperation with developed countries, further deepened South-South cooperation and worked with other countries to address climate change.

(I) Furthering Communication and Cooperation with International Organizations

China continued to proactively collaborate with the United Nations Development Programme, the United Nations Environment Programme, and the United Nations Fund, as well as multilateral financial institutions including the World Bank, the Asian Development Bank, and the Global Environment Facility, continued to implement the *Project of Enhancing Capacity, Knowledge and Technology Support to Build Climate Resilience of Vulnerable Developing Countries* and the *China Climate Technology Needs Assessment Project*, which were funded by the Global Environment Facility, and carried out the *Project of Carbon Capture and Storage*

Road Map, which was assisted by the Asian Development Bank, participated in meetings of the Global Alliance for Clean Cookstoves hosted by the United Nations Fund and the Alliance Secretariat of the Global Alliance for Clean Cookstoves, rolled out pilot programs across the nation, and organized workshops and field trips on carbon capture and storage with organizations such as the Global CCS Institute.

(II) Strengthening Communication and Cooperation with Developed Countries

Leaders of China and the United States have attached great importance to climate change and reached a consensus on strengthening climate change talks and cooperation as well as phase down of HFCs during two meetings in 2013. China and the United States issued the Joint Statement of Climate Change, established China-U.S. Climate Change Working Group and defined five areas of cooperation. At the Fifth Round of the China-U.S. Strategic and Economic Dialogue held in July 2013, the special representatives of President Xi Jinping and President Barack Obama co-chaired the climate change special meeting and convened experts of the two countries to hold dialogues, which deepened communication on climate policy and bilateral pragmatic cooperation. The two sides will use the expertise and institutions of the Montreal Protocol to

curtail HFCs, among other forms of multilateral cooperation, to carry forward the agreement between President Xi Jinping and President Barack Obama. At the Nuclear Security Summit (NSS) in The Hague, the Netherlands, China and the United States held meetings and reached a consensus on continuing to strengthen climate change dialogues and cooperation and propelling practical cooperation within the framework of the China-U.S. Climate Change Working Group. In July, the Sixth Round of the China-U.S. Strategic and Economic Dialogue hosted the special joint session on climate change and approved the report presented by the China-U.S. Climate Change Working Group on work progress.

The National Development and Reform Commission held bilateral consultations of China-Britain, China-Germany and China-South Korea climate change working groups for the adoption of relevant framework agreements and cooperation on projects, and exchanged views on climate change international negotiations, domestic climate policies and relative pragmatic cooperation through the China-U.S., China-Europe and China-Australia ministerial-level consultations. The National Development and Reform Commission continued to implement the existing bilateral cooperation projects, including the Project of Adapting to Climate Change in China in cooperation with the UK Department for International Development and the Embassy of Switzerland, as well as the China-Germany

Climate Change Project and China-Italy Climate Change Plan. The National Development and Reform Commission signed a memorandum of understanding concerning the cooperation on climate change and energy efficiency with Danish Ministry of Energy, Climate and Building and established a mechanism of ministerial-level dialogue on climate change. China conducted cooperation project with Europe on the capacity building of carbon emission trade and strengthened pragmatic cooperation on low-carbon towns, low-carbon community, low-carbon industrial park as well as curbing greenhouse gas emission. China convened the Third China-Australia Ministerial Dialogue on climate change, China-Australia Climate Change Forum, and engaged in extensive communication and consultations on practical cooperation and other issues. China conducted dialogues with New Zealand to discuss issues such as international negotiations and bilateral cooperation. The National Development and Reform Commission organized dialogues between the experts from China's State Expert Commission of Climate Change and experts from France and the United States.

China took part in the Leaders' Representatives Meetings of the Major Economies Forum on Energy and Climate, the ministerial-level dialogue meeting on climate change in St. Petersburg, the Pre-COP19 Preparatory Ministerial-Level Meeting, and actively engaged in multilateral exchange on climate change.

(III) Deepening South-South Cooperation

The Chinese government has actively boosted the South-South Cooperation on climate change, intensified collaboration with Asia, Africa, South Pacific region on satellite monitoring, clean energy exploitation and use, agricultural drought-resistance technology, water resources use and management, desertification prevention and treatment and ecological protection, provided assistance to developing countries on 182 climate change projects. To fulfill China's pledge of 200 million yuan between 2011 and 2013 at the 2012 UN Conference on Sustainable Development to cooperate with other developing countries on climate change, China signed the Memorandum of Understanding on Providing Foreign Aid to Address Climate Change in 2013 with nine developing countries including Uganda, Dominica, Chad, Barbados, and Antigua and Barbuda, and donated an aggregate of over 300,000 efficient light bulbs, over 2,000 energy-saving air conditioners, over 4,000 solar-powered road lamps, over 6,000 sets of solar generation systems, one set of vehicle-mounted application system for receiving and processing satellite data, and assigned technique staff to provide support in developing countries. In September 2014, Chinese Vice Premier Zhang Gaoli announced at the UN Climate Change Summit that China would double its annual financial support for the establishment of South-South cooperation fund on

climate change, and pledged US\$6 million to support UN Secretary-General Ban Ki-moon in advancing South-South cooperation on climate change. China arranged 28 seminars on South-South cooperation policy and action on climate change, as well as workshops on climate change and low-carbon development, training more than 1,000 officials and professionals from 114 developing countries.

China continued to strengthen the consultations with the BASIC countries and developing countries with similar positions, jointly conducted research with developing countries, and actively safeguarded the interests of developing countries. Taking advantage of the Pacific Islands Forum, China took an active part in holding regional dialogues and exchange including the realization of the 2012 East Asia Summit initiatives including the preparation of the establishment of the East Asia Regional Research and Cooperation Center on Addressing Climate Change, and proactively promoted the exchange with think tanks from other countries. The Ministry of Science and Technology collaborated with the United Nations Development Programme to launch China-Ghana and China-Zambia Renewable Energy Technology Transfer Project, and promote African countries to respond to climate change challenges and realize the Millennium Development Goals.

VII. Proactive Promotion of the Multilateral Process of Addressing Climate Change

Since 2013, based on the principle of mutual benefit and win-win cooperation, China has united with developing countries, maintained cooperation and communication with developed countries, actively participated in the international process of tackling climate change and played a proactive and constructive role in current climate change negotiations.

(I) Proactive Participation in International Negotiations under the UNFCCC

China adheres to the UNFCCC and the Kyoto Protocol as the basic framework of international climate mechanism, takes multilateral negotiations under the UNFCCC framework as the channel of tackling climate change challenges, upholds the principles of “common but differentiated responsibility, ” fairness and respective capability, openness and transparency, extensive participation, signatory leadership and consensus through consultation. China has always proactively constructively participated in negotiations, and promoted negotiations to achieve positive results based on the

principles of openness, rationality, being pragmatic and efficient, cooperation and win-win, and strengthened the implementation of treaties in a comprehensive, effective and sustainable way.

In 2013, China continued to proactively participate in the international negotiations on climate change within the UN framework, and took an active part in the consultations at the Warsaw Climate Change Conference, actively guided the direction of negotiations and promoted the success of the conference. Thanks to the efforts of China and other developing countries, the conference approved the decision to further promote the Durban Platform, laid the foundation of the signing of an agreement in 2015, made related arrangements concerning the implementation of the Bali Road Map, and made headway in such issues like the capital of concern to developing countries, loss and damage, and the second commitment period of the *Kyoto Protocol*. The Chinese delegation held a series of Chinese Pavilion side events in a reformed manner of expression to introduce Chinese achievements and policies to the international community using new media and projected Chinese image as a responsible country.

(II) Proactive Participation in Other Multilateral Negotiations

At the meeting of the leaders of BRICS nations, the G20 Leaders

Summit, the APEC Economic Leaders Meeting and the Eighth Summer Davos and on other significant multi-lateral diplomatic occasions, Chinese President Xi Jinping made important speeches to encourage the progress of multilateral negotiations to jointly address climate change with other countries. In September 2014, when leading a delegation to the UN Climate Change Summit in New York as a special envoy of President Xi Jinping, Chinese Vice Premier Zhang Gaoli stressed that China attaches great importance to climate change and is willing to join the international community to proactively tackle grave climate change challenges. China actively participated in the government review work of the three working group reports and the Synthesis Report of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. China also actively joined the negotiations within the international framework such as the International Civil Aviation Organization, the International Maritime Organization, the *Montreal Protocol on Substances that Deplete the Ozone Layer* and the Universal Postal Union. China also actively participated in climate change-related initiatives and international mechanisms outside the UNFCCC, such as the Global Alliance for Clean Cookstoves, the Global Methane Initiative, the Global Research Alliance on Agricultural Greenhouse Gas, while promoting negotiations on the UNFCCC as the main channel to make progress.

(III) Basic Positions and Stand on Participation in the Lima UN Climate Change Conference

The 20th session of the Conference of the Parties and the 10th session of the Conference of the Parties serving as the Meeting of the Parties to the *Kyoto Protocol* will be held in December 2014 in Lima, the capital city of Peru. With only one year leading up to the announcement of a new treaty at the Paris Climate Change Conference in 2015, the Lima Climate Change Conference this year will be a key meeting before the new treaty is reached. China enforces the signing of the new treaty at the 2015 Paris Climate Change Conference on time.

First, we should uphold the treaty framework, adhere to the principles of “common but differentiated responsibility”, openness and respective capability, and intensify the implementation of the treaties in a comprehensive, effective and sustainable way. Second, we should carry out existing consensus, and fulfill respective pledges. The developed countries should substantially boost efforts to cut emission, fulfill the obligations of providing fund and transferring technology to developing countries. Third, we should intensify mission and action, and take forceful measures to tackle climate change challenges.

China will continue to play an active and constructive role and work with other nations to support host nation Peru to follow the principles of openness and transparency, extensive participation, consensus through consultation and signatory leadership to push for success at the Lima Conference.

Conclusion

China is still in the process of industrialization, urbanization and agricultural modernization, and faces an arduous task of developing economy, improving wellbeing, protecting environment and addressing climate change, as energy demand and carbon emission will keep reasonable growth rate for a long period of time. Yet, China will not repeat developed countries' old path of unlimited greenhouse gas emissions during their industrialization period and instead China will endeavor to explore a sustainable development path that can make economic development compatible with the efforts to address climate change in line with China's national conditions.

As the year of 2015 is the last year to fulfill the targets and tasks set in the *Twelfth Five-Year Plan* in a comprehensive way, the Chinese government will continue to follow the principles of giving priority to conservation and protection and taking natural rehabilitation as focus, play the decisive role of market in allocating resources, accelerate the process of climate change legislature, improve systems and mechanism, push for the progress of addressing climate change in an overall way, and ensure the realization of the targets specified by the Outline of the *Twelfth Five-Year Plan for*

National Economic and Social Development to cut carbon dioxide emission per unit of GDP by 17 percent and raise the share of non-fossil energy in primary energy consumption to 11.4 percent.

The Thirteenth Five-Year Plan period is a crucial period for building a moderately prosperous society as defined by the 18th National Congress of the Communist Party of China and also a crucial period for China to actively respond to climate change and propel the green and low-carbon development. The Chinese government will stick to the goal of controlling greenhouse gas emission by 2020, advance the implementation of the targets and tasks set in the *National Plan for Addressing Climate Change (2014-2020)*, play the leading role of low-carbon development in saving energy, streamlining energy structure, adjusting industrial structure, ecological construction and environmental protection, engage in international negotiations on climate change in an active and constructive way, continue to promote bilateral and multilateral dialogues, communication and pragmatic cooperation on climate change, and make greater contribution to the protection of global climate environment.