

China's efforts and achievements in reducing greenhouse gas emissions

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Outline

- The international and domestic context to proactively address climate change issues
- China's medium-and long-term targets for controlling GHG emissions
- Policies, actions and achievements for emission control during the 11th Five-year Period (2005-2010)
- Policies, actions and achievements for emission control during the 12th FYP (2010-2015)
- Policies, actions and achievements since the beginning of the 13th FYP (2015-2020)
- A summary and a vision for the future

To substantially mitigate GHG emissions is a global consensus

- The issue of climate change is a major challenge for human survival and development in the 21st century, and it has become a global consensus and common trend to actively address climate change and to promote green and low carbon development.

IPCC science knowledge	Global consensus
<p>气候系统的变暖是不容置疑的，并对自然生态环境产生重大影响，对人类经济社会发展构成重大威胁；</p> <p>人类活动带来的温室气体排放是造成气候变暖的主要因素（大于95%的可能性）；</p> <p>减缓和适应的措施能够降低气候变化在本世纪带来的严重影响。需要多种类型的复合手段。</p>	<p>1992年，《联合国气候变化框架公约》</p> <p>1997年，《京都议定书》</p> <p>2016年11月，《巴黎协定》生效，提出将本世纪较工业化前温升控制在2° C以内并努力限制在1.5° C以内，全球排放尽早达峰、下半叶源汇平衡等目标。迄今178个国家批准，释放全球低碳转型的强劲信号。</p>

To vigorously promote low-carbon development and ecological civilization is an important strategic choice for China's economic and social development

- Climate change trend in China is basically the same as in other regions. severe and long-term threat to our food supply, water resources and ecological security, etc.
- China is still a developing country, with no compulsory mitigation obligations.
- Nevertheless, as a responsible country and the world's biggest emitter, and due to domestic constraints on supply of energy and other resources and for a better environmental circumstance...
- To actively and proactively deal with climate change, to vigorously promote green and low-carbon development and ecological civilization, is our country to indigenous needs and inevitable choice for a SD future.

China's medium-term targets for controlling GHG emissions

- China's "Nationally Appropriate Mitigation Actions (NAMAs)" by 2020 states:
 - To lower carbon dioxide emissions per unit of GDP by 40% to 45% from the 2005 level;
 - To increase the share of non-fossil fuels in primary energy consumption to about 15%;
 - To increase the forested area by 40 million hectares and the forest stock volume by 1.3 billion cubic meters compared to the 2005 levels.

China's long-term targets for controlling GHG emissions

- China's Intended Nationally Determined Contributions on enhanced actions by 2030 states:
 - To achieve the peaking of carbon dioxide emissions around 2030 and making best efforts to peak early;
 - To lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level;
 - To increase the share of non-fossil fuels in primary energy consumption to around 20%;
 - To increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.

Policies and actions for emission control during the 11th FYP

- In 2006, *Outline of the 11th Five-year Planning for National Economic and Social Development of the People's Republic of China*, proposed a binding target to lower energy consumption per unit of GDP by about 20%, and to make efforts to effectively mitigation GHG emissions. This is the first time to incorporate a mitigation target in the Plan ;
- In 2007, the Chinese government issued its first policy document on climate change—China's National Programme for Addressing Climate Change, which was also the first national programme on climate change in the developing world;
- The national programme elaborated on China's guiding ideology, basic principles and overall objectives for addressing climate change, including those key objectives by 2010 as well as policies and measures to control greenhouse gas emissions in key areas such as energy production and conversion, energy efficiency and energy conservation, industrial production processes, agriculture, forestry, urban waste, etc.

The achievements in emission control during the 11th FYP

- During the 11th FYP, China has made remarkable achievements in controlling greenhouse gas emissions by accelerating the transformation of economic growth patterns, adjusting industrial structure and energy structure, saving energy, improving efficiency and enhancing carbon sinks.
 - In 2010, energy consumption per unit of GDP decreased by 19.1% compared to the 2005 level, thus for the whole period reduced energy consumption by about 630 million tonnes of standard coal, which equivalently avoided about 1.46 billion tonnes of CO₂e emissions.
 - The total amount of non-fossil energy utilization reaches 280 million tonnes of standard coal, and the share of non-fossil fuels in primary energy consumption was raised to 9.4%.
 - Nitrous oxide emission from industrial production process was basically kept at the 2005 level, while the growth rate of methane emission was controlled to some extent.
 - Forest coverage reached 20.36% and forest stock reached 13.7 billion cubic meters.

Policies and actions for emission control during the 12th FYP

- In 2011, *Outline of the 12th Five-year Planning for National Economic and Social Development*, proposed a binding target to lower CO₂ emissions per unit of GDP by 17%. This is the first time for a quantitative mitigation target being written into China's economic and social development plan.
- *The Outline* also required to lower energy consumption per unit of GDP by 16%, to increase the share of non-fossil fuels to 11.4%, to increase forest coverage to 21.66%, and to increase forest stock by 600 million cubic meters.

Policies and actions for emission control during the 12th FYP

- During the 12th FYP, the Chinese government also put into place other policies that were dedicated to or had a close connection with GHG emission reduction, including the *Working Programme for Controlling Greenhouse Gas Emissions in the 12th FYP*, the *Comprehensive Working Programme for Energy Conservation and Emission Reductions in the 12th FYP*, the *Plan for Energy Conservation and Mitigation in the 12th FYP*, the *2014-2015 Action Plan for Energy Conservation, Mitigation and Low-Carbon Development*, and the *National climate Change Planning (2014-2020)*.
- Through the *Working Programme for Controlling Greenhouse Gas Emissions in the 12th FYP*, the national target to lower CO₂ emission intensity was assigned to each province, autonomous region and municipality, and a mechanism was thus established to evaluate their performance annually.

Policies and actions for emission control during the 12th FYP

- Adjust and optimize the industrial structure
 - Accelerate phase-out of low-efficient production capacity
 - Promote the upgrading of traditional industries
 - Support the development of strategic emerging industries
 - Accelerate the development of service industries
- Optimize energy structure
 - strictly control the amount of coal consumption
 - Promote coal clean extraction and high-efficient utilization
 - Accelerate the development of natural gas and other clean energy sources
 - Promote the development of non-fossil fuels

Policies and actions for emission control during the 12th FYP

- Energy conservation and efficiency improvement
 - Reinforce the assessment of provincial government's performance in energy-saving targets
 - Implement a series of key energy conservation projects
 - Refine the economic incentives to boost energy saving
 - Enhance energy-saving standard and identification
 - Promote energy-saving technologies and products
 - Intensify energy conservation in buildings
 - Promote energy saving in transportation sector
 - Promote energy conservation in public institutions
 - Accelerate the development of circular economy

Policies and actions for emission control during the 12th FYP

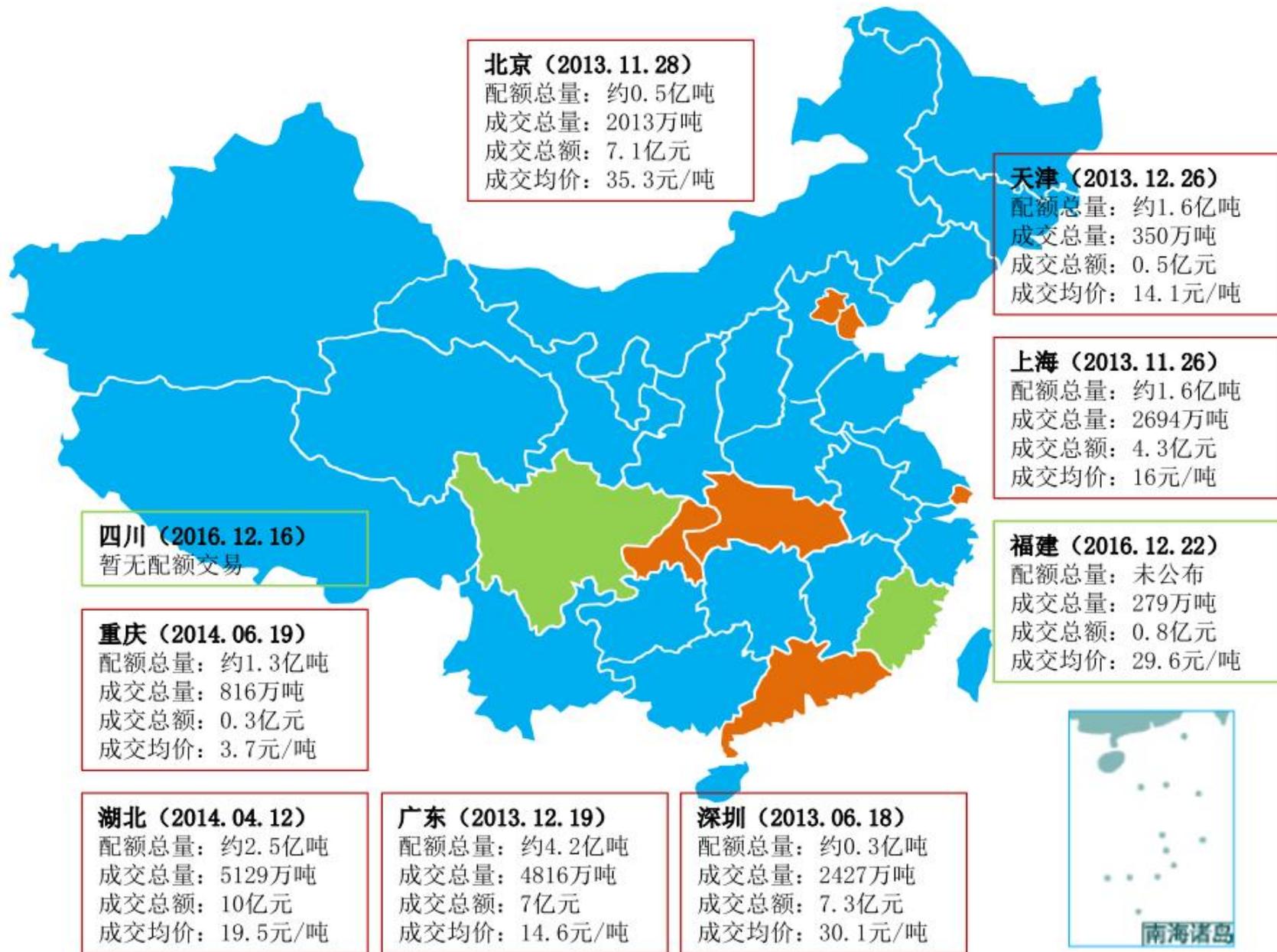
- Controlling greenhouse gas emissions from non-energy activities
 - Organizing key actions for the reduction of HFCs, requiring newly established HCFC-22 production facilities to build and put into operation the HFC-23 destruction facilities, arranging financial subsidy in central budget to support the incineration/conversion of HFC-23, and encourage the end-user industry to use low GWP alternatives
 - Control GHG emissions from industrial production process, e.g. cement, nitric acid, adipic acid etc.
 - Control GHG emissions from agricultural activities
 - Control GHG emissions from waste disposal

Policies and actions for emission control during the 12th FYP

- Efforts to increase carbon sinks
 - Accelerating plantation and afforestation
 - Enhance forest tending and management
 - Intensifying forest disaster prevention and control
 - Increase grassland carbon sinks
 - Develop ocean carbon sinks
- Pilot demonstration of low carbon development
 - Pilot demonstration of low-carbon provinces and low-carbon cities
 - Pilot demonstration of low-carbon industrial parks, low-carbon communities, low-carbon towns, etc.
 - Other low-carbon pilot demonstration, including low-carbon transportation, low-carbon product identification, CCUS, etc.

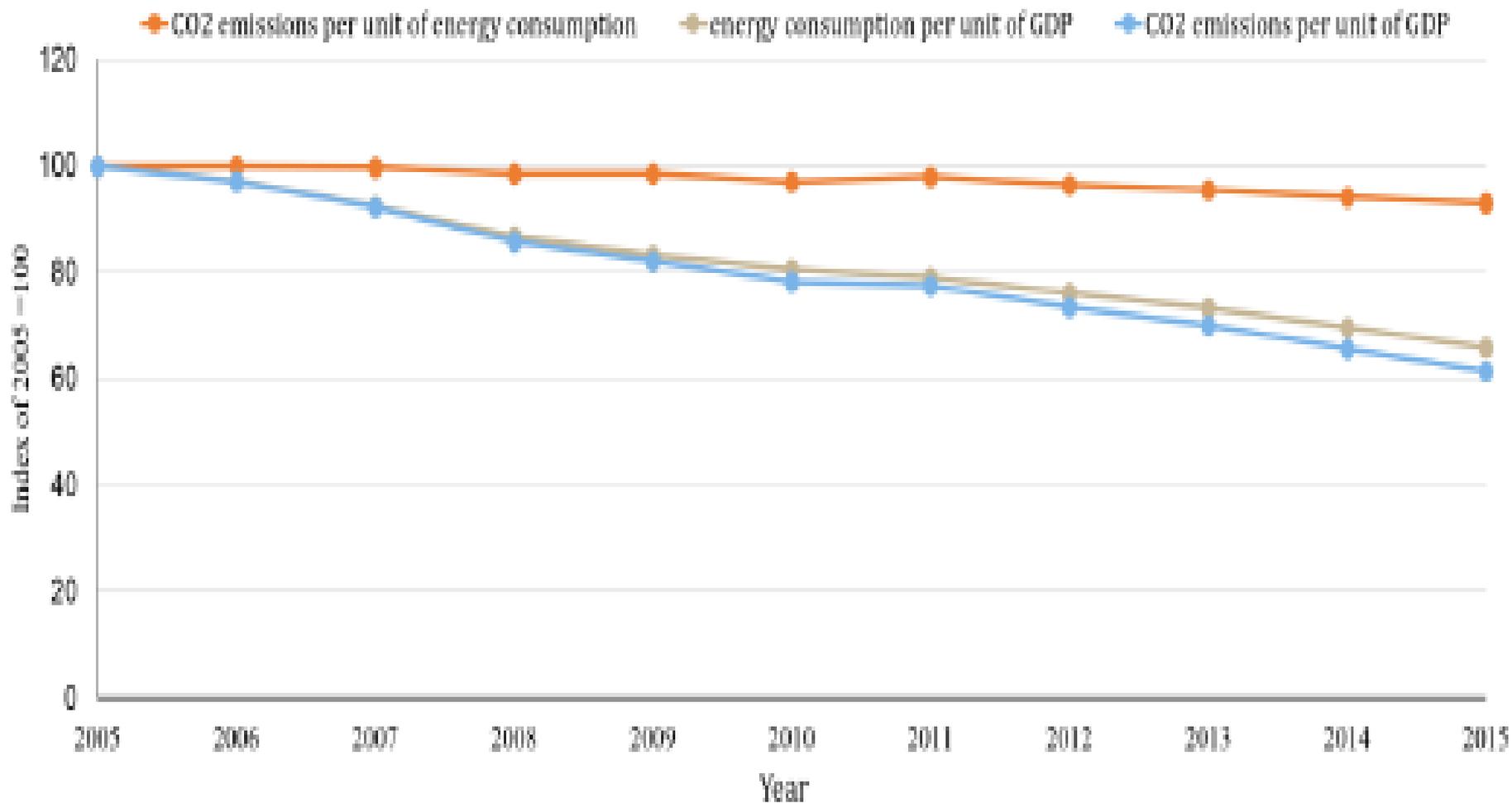
Policies and actions for emission control during the 12th FYP

- Exploring the use of market mechanisms to control GHG emissions
 - Active participation in CDM projects development
 - Establish a domestic mechanism for voluntary GHG emission reductions and trading system of verified reductions
 - Successfully establish and put into operation 7 regional pilot schemes for carbon emission trading



The achievements in emission control during the 12th FYP

- The above-mentioned measures during the 12th FYP helped our country to gain remarkable achievements in mitigation of greenhouse gas emissions.
- E.g. by the end of 2015, CO₂ emissions per unit of GDP dropped by 38.6% compared to the 2005 level, and 21.7% from the 2010 level;
- Contribution of non-fossil fuels to total energy consumption reached 12.0% due to substantial growth of hydropower installed capacity (320 GW, 1.7 times higher than the 2005 level), Grid-connected wind power (130 GW, 122 times higher), PV installed capacity (42.18 GW, 602 times higher), nuclear power (27.17 GW, 2.9 times higher).
- Forest area increased by 32.78 million hectares from 2005 level, and forest stock increased by about 2.68 billion cubic meters.



From : *The First Biennial Update Report on Climate Change of the People's Republic of China*, pp35

Policies, actions and achievements since the beginning of the 13th FYP

- In 2016, *Outline of the 13th Five-year Planning for National Economic and Social Development* requires to actively control carbon emissions to fulfill our NAMAs and INDC pledges;
- By 2020, CO₂ emissions per unit of GDP shall drop by 18% from the 2015 level;
- Encourage nationally priority development areas to take lead to reach the peaking of CO₂ emissions;
- Effectively control carbon emissions from key industries including power generation, iron & steel, building materials and chemical industry;
- Promote low-carbon development in key areas including energy, manufacturing industry, construction and transportation;
- Deepen all kinds of low-carbon pilot, and carry out demonstration of near-zero emission zones.

Policies, actions and achievements since the beginning of the 13th FYP (continued)

- While the *Working Programme for Controlling Greenhouse Gas Emissions in the 13th FYP* further proposed the following objectives:
 - make concrete achievements in low-carbon transformation in energy industry, manufacturing industries and consumer side;
 - Effectively curb the total amount of CO₂ emissions, while intensify the efforts to control emissions of non-CO₂ gas types including HFCs, CH₄, N₂O, PFCs, SF₆, etc.;
 - Significantly enhance the capacity of carbon sinks;
 - Strive to push several heavy chemical industries to peak their CO₂ emissions by 2020 around.
 - develop and put into operation a unified national carbon emission trading scheme.

Policies, actions and achievements since the beginning of the 13th FYP (continued)

- Through successful transformation and upgrading of our industrial structure, remarkable development of the strategic emerging industries and services, and continuous phase-out of production capacity in high energy consumption industries, GDP contribution of the first, second and tertiary industry reached 8.6 : 39.8 : 51.6 by the end of 2016, while share of the first and second industry have decreased 0.2 and 1.1 percentage points respectively.
- By strengthening the “double control” of total energy consumption and energy intensity, reinforcing energy management and system construction, deepening energy conservation campaign in key areas, energy consumption per unit of GDP has been lowered by 5% by the end of 2016.
- By effectively controlling the total amount of coal production and consumption, implementing energy-saving and low-carbon power dispatching, actively developing and use of non-fossil fuels, energy structure is getting better, the share of coal in total energy consumption has decreased by about 3% by the end of 2016. While share of non-fossil fuels (hydropower, wind power, nuclear power, etc.) increased correspondingly.

Policies, actions and achievements since the beginning of the 13th FYP (continued)

- By carrying out survey and statistics to gain the detailed information about production, usage, import and export of fluorine-containing greenhouse gases and their treatment of by-products; by conducting verification of the disposal of HFCs to ensure that those in place HFC-23 destruction facilities are actually being used;
- Actively taking a series of initiatives to control GHG emissions from agricultural activities and waste disposal and to increase forestry carbon sinks and other carbon sinks, and over-completed the tasks of plantation and afforestation;
- Through the above-mentioned efforts, carbon intensity in 2016 decreased 6.6% from 2015 level, share of non-fossil fuels reached 13.3%, which laid a good basis to fulfill the carbon intensity reduction target set for the 13th FYP.

A summary and a vision for the future

- The CPC Central Committee and the State Council have always attached great importance to climate change issues. And China has been doing all her best in mitigation and adaptation. As Present Xi Jinping said in his speech at the 19th National Congress of the CPC, China has become an important participant, contributor, and torchbearer in the global response to climate change and the construction of ecological civilization over the past five years. This is a summary of the past, but also a requirement to our future's work;
- Under the constrain and promotion of the Paris Agreement and the INDC, China's endeavor to address climate change has been deepened to a wider range of areas, and the intensity, quality and efficiency of the implementation would be further enhanced.
- China will, in accordance with the requirements of Present Xi Jinping to 100% fulfill our NAMAs and INDC, organize and coordinate various departments, local governments and key industries to take effective policies and actions to ensure the achievement of 2030 targets.

A summary and a vision for the future

- Till now, the 2030 targets have been incorporated into many departments' working programme for the 13th FYP or other medium- or long-term development goals, such as the goal of macroeconomic restructuring, the goal of renewable energy development, the goal of reducing carbon intensity of energy, the goal of energy saving in industry and service, the goal of forest wetland carbon sinks, the goal of construction a national carbon market system, etc. Operation of the national carbon market will ensure that the market mechanism would play a decisive role in allocation of carbon resources;
- Furthermore, China will put forward an ambitious goal for mitigation and adaptation of climate change to the middle of this century, for a sustainable development world as well as a more beautiful China.