

**Overall Strategy for Addressing Climate Change in China,
Introduction on Emissions Peaking and Near-zero Carbon Emission
Demonstrative Regions and Projects**

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Strategy and Planning for Addressing Climate Change in China



Main Actions on Climate Change in China



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Strategy and Planning for Addressing Climate Change in China

The position of addressing climate change in the macro-strategy for social and economic development improves gradually

The first twenty years of reform and opening-up

Internationally speaking, China's efforts in addressing climate change was basically at the stage of subordinated following and participation

2005

It was pointed out at the G8+5 Summit that climate change is not only an environmental issue, but also a development issue. In the final analysis, it is a development issue. This has laid a theoretical foundation for the establishment and execution of the strategy for addressing climate change.

2012

The Report to the 18th CPC National Congress specified that China will further integrate addressing climate change into the larger picture of national economic and social development.

2017

The Report to the 19th CPC National Congress noted that China should guide the international cooperation in addressing climate change and become an important participant, contributor and leader of global ecological civilization construction.

2018

The National Conference on Environmental Protection made clear again that ecological civilization is a fundamental plan mattering to the sustainable development of the Chinese nation, and ecological environment is a major political issue mattering to the mission and purpose of the Communist Party of China (CPC), and also a key social issue mattering to people's wellbeing.

Strategic goals becomes clear steadily

2006

- Proposed the obligatory target that energy consumption per unit of GDP in 2010 would be down by about 20% from that of 2005

2009

- Announced that by 2020, carbon dioxide emission per unit of GDP in China would be down by 40%-45% from that of 2005

2011

- Proposed that “by 2015, carbon dioxide emission per unit of GDP in China would be down by 17% from that of 2010”

2014

- Proposed the plan that by about 2030, carbon dioxide emission would peak
- Proposed the plan that by 2030, the proportion of non-fossil fuel energy in primary energy consumption would amount to about 20%

2015

- *Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions*
- Further made clear the intended action targets that carbon dioxide emission in China would peak in about 2030 or earlier, and carbon dioxide emission per unit of GDP would be down by 60%-65% from that of 2005

2016

- For the first time, the Outline of the 13th Five-Year Plan put forward the goal that total energy and carbon emission would be under effective control based on the goal of controlling carbon emission intensity
- The Outline also proposed to initially support optimized development areas to take the lead in reaching the peak value of carbon emission
- Proposed to gradually establish the mechanism for total carbon emission control and peaking execution across the country

Identify the medium and long-term strategic goals for addressing climate change

First stage

China needs to put in place the near and medium-term strategy for addressing climate change and low-carbon development by about 2035, including the implementation plan and action plan for realizing the goals of China's Intended Nationally Determined Contributions, and put forward the strategic objective about the absolute volume in the relative peaking year of carbon dioxide emission.

Second stage

China needs to study on and put in place the long-term strategy for addressing climate change and low-carbon development by 2050, and propose low-carbon emission goals, strategies, actions and measures, so as to adapt to global low-carbon development and emission reduction progress and play its leading role as a socialist and modernized great power while promoting the large decline in carbon dioxide emission by that time.

Addressing climate change is gradually included into the macro-plan for national economic and social development

11th Five-Year Plan

- Energy conservation and emission reduction

12th Five-Year Plan

- Took green and low-carbon development as one of the guiding principles for the first time, decided to carry out mitigation and adaptation actions, give full play to the role of technological advancement, improved mechanism, system, policy and regime, and build up their capacity in addressing climate change

13th Five-Year Plan

- Proposed for the first time total carbon emission control, required integrating low-carbon development into multiple aspects of social and economic development, production, life and energy; underscored the requirement for equal emphasis on mitigation and adaptation, active control of carbon emission and enhancement of the capacity in adapting to climate change

Planning becomes systematic gradually

In 2006, relevant ministries and commissions jointly issued the *China's National Assessment Report on Climate Change* for the first time

In 2007, China published the first national plan for addressing climate change -- *China's National Climate Change Programme*, and each year, China will compile and publish the white paper of China's Policies and Actions for Addressing Climate Change

In 2011, the State Council issued the *Work Plan for Greenhouse Gas Emission Control during the 12th Five-Year Plan Period*, and the core is to realize the greenhouse gas emission control target for the 12th Five-Year Plan Period, and decompose the target of reducing carbon dioxide emission per unit of GDP across the country in 2015 by 17% from that of 2010 to the provinces (autonomous regions, municipalities)

In 2014, the National Development and Reform Commission issued the *National Plan for Addressing Climate Change (2014-2020)* -- the first national plan for addressing climate change

In 2016, the State Council issued the *Work Plan for Greenhouse Gas Emission Control during the 13th Five-Year Plan Period*

Key departments of industry, transportation, building, energy, forestry and city that control greenhouse gas emissions also put forward specific actions plans or planning for the 13th Five-year Plan Period

- The Ministry of Industry and Information Technology issued the *Industrial Green Development Plan (2016-2020)*
- The National Development and Reform Commission and the National Energy Administration issued the *Energy Production and Consumption Revolutionary Strategy (2016-2030)*, and the *13th Five-Year Plan for Energy Development*
- The National Development and Reform Commission issued the *13th Five-year Plan for Sustainable Energy Development*
- The National Energy Administration issued the *13th Five-year Plans for the Development of Solar Power, Wind Power, Petroleum, Natural Gas and Coal Industries*, respectively
- The Ministry of Housing and Urban-rural Development issued the *13th Five-year Plan for the Development of Building Energy Efficiency and Green Buildings* to facilitate the supply-side structural reform in the field of housing and urban-rural development
- The Ministry of Science and Technology, the Ministry of Environmental Protection and the China Meteorological Administration formulated and released the *Special Plan for Scientific and Technological Innovation in Addressing Climate Change during the 13th Five-year Plan Period*
- The State Forestry Administration issued the *Key Points of Actions for Addressing Climate Change in the Forestry Industry during the 13th Five-year Plan Period*, and formulated the *Provincial Work Plan for Addressing Climate Change in the Forestry Industry (2017-2018)*

Main Actions on Climate Change in China

Establish the management system for addressing climate change

State administrations

- At the end of 1988, China set up an inter-agency coordinating group to prepare for the affairs related to climate negotiation
- In 1990, the Environmental Protection Commission under the State Council established the National Climate Change Coordination Team
- In 1998, the State Council set up the international climate change coordination team, and the State Development Planning Commission replaced the China Meteorological Administration as the leading organ coordinating climate policies, which was participated by representatives from 14 ministries, commission and committees.
- In 2003, the team was adjusted again, and consisted of 15 departments, with its office set under the State Development Planning Commission.
- In 2007, the Chinese government established the Leading Group to Address Climate Change which replaced the former national climate change coordination committee as the leading organ of China to address climate change
- In 2008, the National Development and Reform Commission established the Department of Climate Change, the National Bureau of Statistics established the Energy Statistics Department to enhance energy statistics, and the Ministry of Foreign Affairs set up the International Climate Change Leading Group
- In 2008, China launched institutional reform, and the Department of Climate Change under the National Development and Reform Commission was then under the administration of the Ministry of Environmental Protection

Technical support institutions

- In 2007, the China Meteorological Administration established the National Commission on Climate Change consisting of 31 top climate change experts
- In 2008, it was nominated as the National Advisory Organ for Climate Change to ensure the scientific nature of relevant decisions on addressing climate change
- In 2012, China established the National Center for Climate Change Strategy Research and International Cooperation

China Meteorological Administration
National Leading Group on Climate Change, Energy Conservation and Emissions Reduction
National Development and Reform Commission
Ministry of Ecology and Environment

Formed the pattern managing the fight against climate change in China featuring the unified leadership of the leading group, coordination by the Ministry of Ecology and Environment which is the competent authority responsible for addressing climate change, cooperation among all departments concerned, and full participation by all regions and industries

Put forward greenhouse gas emission mitigation targets

Five-year targets

11th Five-Year (2006-2010)

Energy consumption per unit of GDP down by 20%

12th Five-Year (2011-2015)

Energy consumption per unit of GDP down by 16%

Carbon dioxide emission per unit of GDP down by 17%

Forest coverage: 21.66%

13th Five-Year (2016-2020)

Energy consumption per unit of GDP down by 15%

Carbon dioxide emission per unit of GDP down by 18%

Proportion of non-fossil fuel energy in primary energy consumption: 15%

Forest coverage: 23.04%

Decompose and achieve greenhouse gas emission mitigation targets

Target decomposition

- Decompose “Five-Year” reduction targets to the provinces and municipalities
- Decomposition basis: economic development level, total energy consumption, economic structure, optimization potential of energy consumption structure of the regions, and the specific requirement for the regions in the national Five-Year Plan

Target implementation

- Governments at all levels are fully responsible for controlling greenhouse gas emission of their respective administrative regions, and major leader of the government is the first person responsible
- The provinces and municipalities ensure to complete greenhouse gas emission control targets by optimizing industrial structure, adjusting energy structure, developing non-fossil fuel energy, saving energy and improving energy efficiency, and enhancing forest carbon sequestration, among other means

Appraisal and assessment

- Integrate the completion status of the indicator of reducing carbon dioxide emission intensity into the comprehensive appraisal system for economic and social development and the leaders’ political performance examination system of the regions (industries)
- Carry out annual assessment on the completion status of the target of reducing carbon dioxide emission intensity in the “Five-Year Plan” of the provinces (autonomous regions, municipalities)
- Make public the assessment results

Assessment methods of greenhouse gas emission control targets and responsibilities during the 13th Five-year Plan Period

Compared with the assessment methods during the 12th Five-year Plan Period

Intensify the implementation of targets and responsibilities:

Include "annual objectives into government work report and annual plan report" for the first time, and take the annual objectives as the standards for assessing the "completion rate of the annual objectives";

Strengthen the application of results:

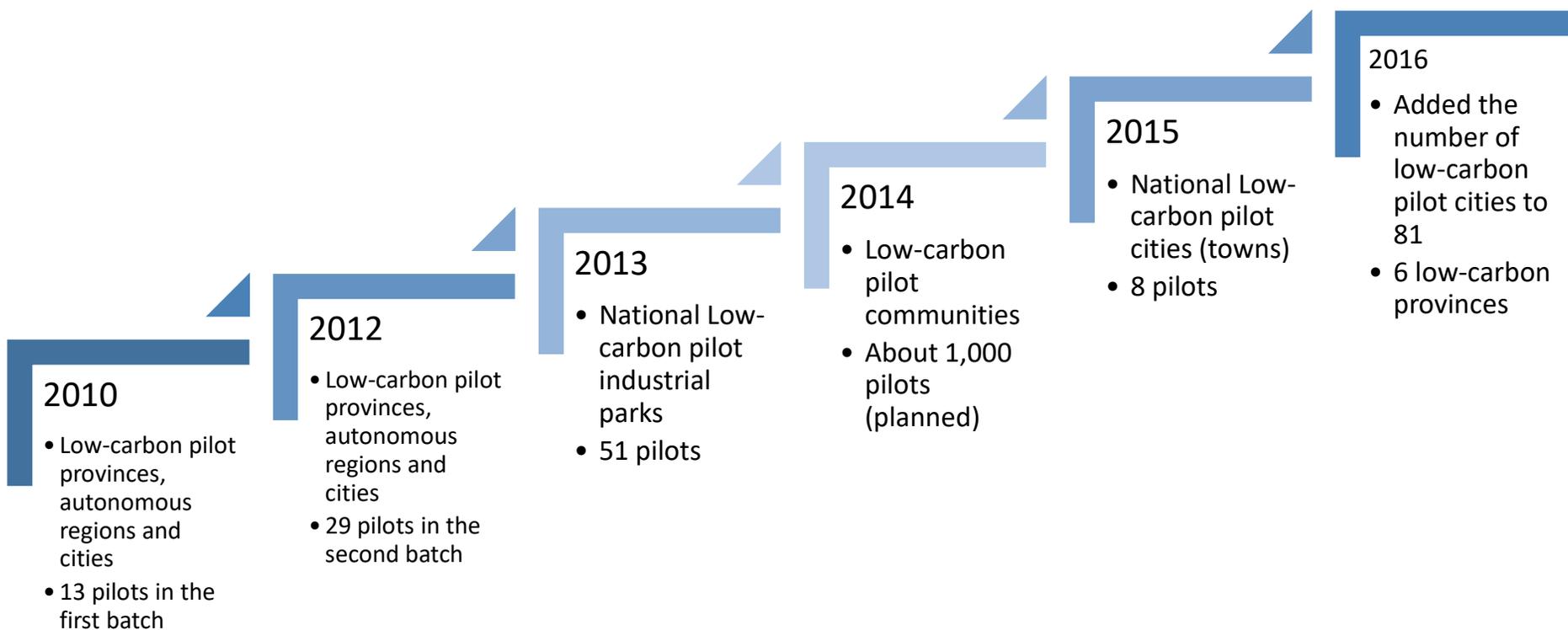
Regard the results of annual and final examination validated by the State Council as the important basis of the comprehensive evaluation, rewards and punishment, appointment and removal of leaders, examination of leaders at the expiration of office terms, and qualification examination of **major leaders and leading group** of the people's government of the provinces, autonomous regions and municipalities directly under the Central Government.

The completion status of carbon dioxide emission reduction goals of per unit of annual gross regional domestic product will become relevant basis for calculating the annual **green development index** of the region.

The completion status of carbon dioxide emission reduction goals of per unit of annual gross regional domestic product at the end of the "five-year plan period" will become relevant basis for assessing **the goals of building an ecological civilization**.

Scoring standards become more scientific and refined: more indicators and refined grades.

Demonstration of multi-level low-carbon development pilots



Pilots and demonstrations are deepened gradually

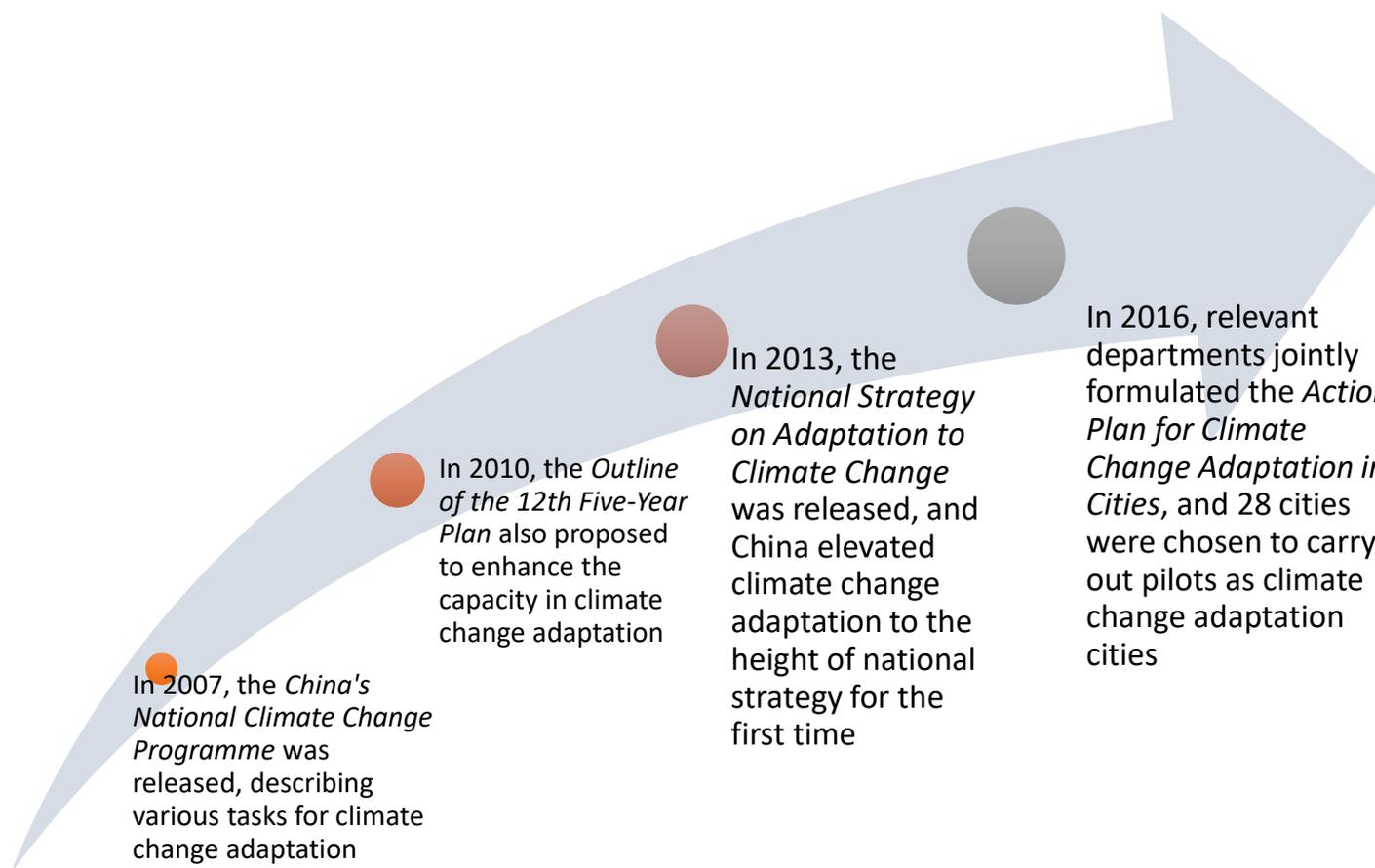
New pilots and demonstrations:

- * Carry out low-carbon agricultural pilots and demonstrations;
- * Explore carbon sequestration pilots of ocean and other ecosystems;
- * Actively conduct pilots and demonstrations of green eco-cities and **zero-carbon emission buildings**;
- * Choose to conduct **demonstrative projects of near-zero carbon emission areas**;
- * Promote climate investment and financing pilots.

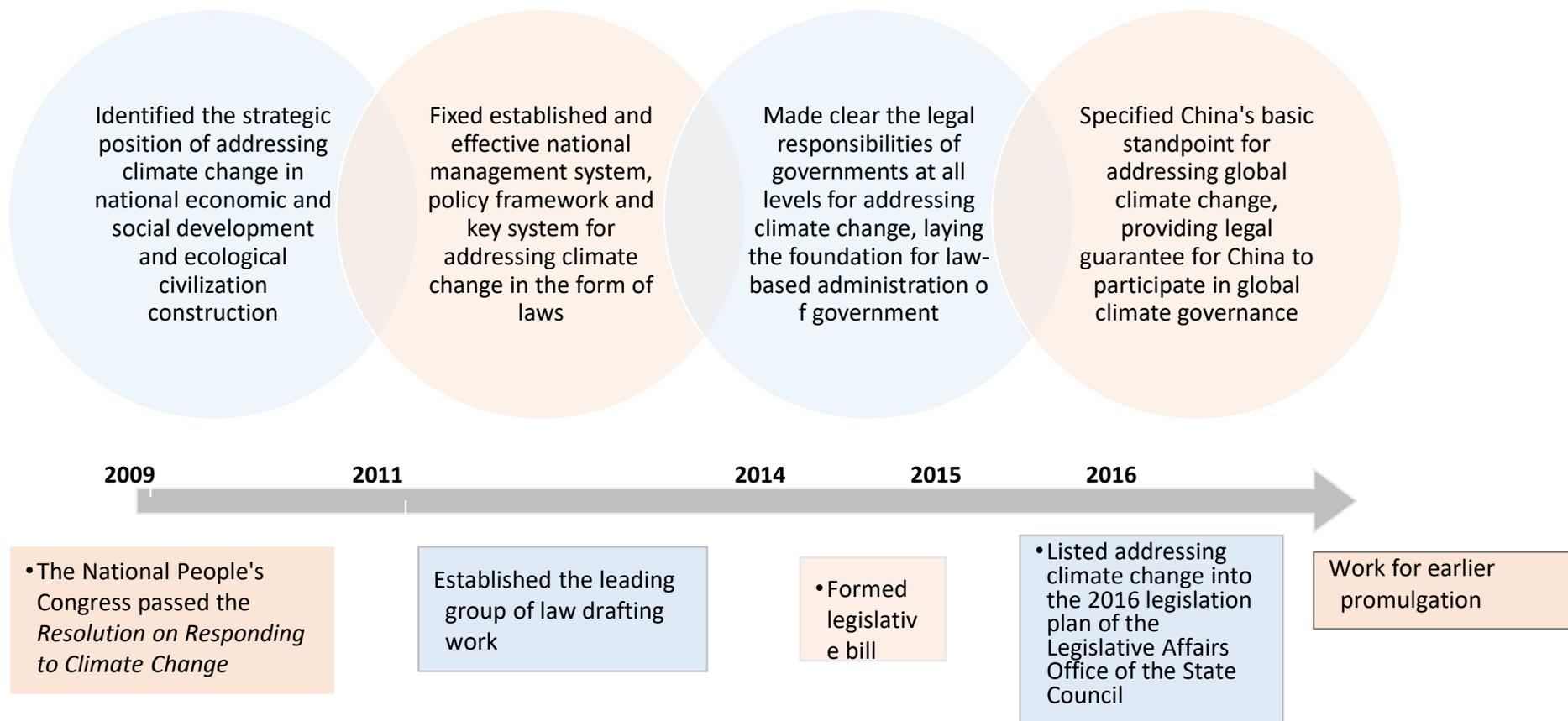
Deepen pilots and demonstrations:

- * Facilitate the pilots and demonstrations of carbon capture, utilization and storage in industrial fields;
- * Organize and launch pilots of low-carbon commerce, low-carbon tourism and low-carbon enterprises;
- * **Expand low-carbon pilot cities with carbon emission peak and total carbon emission control as the key points**;
- * Deepen the pilots of national low-carbon industrial parks;
- * Press ahead with the pilots of national low-carbon communities.

Adaptation actions are strengthened gradually



Legislation work is advanced step by step



The Central Committee of the Communist Party of China and the State Council pay high attention to the development of the carbon trading system

President Jinping XI emphasizes at the National Conference on Environmental Protection in May 2018



Important contents of the Xi Jinping Thought on Ecological Civilization
Enhance environmental governance, fully utilize market-based means, and improve the resource and environment price mechanism



- Outline of the 12th Five-Year Plan, *Comprehensive Work Plan for Energy Conservation and Emission Reduction during the 12th Five-year Plan Period*: make clear arrangements for establishing the carbon emission rights trading market.
- Report to the 18th CPC National Congress, Third Plenary Session and Fifth Plenary Session of the 18th CPC Central Committee: actively conduct and deepen carbon trading pilots, advance and establish the carbon emission rights trading system.
- *Action Plan for Energy Conservation, Emission Reduction and Low-carbon Development (2014-2015)*: advance carbon emission rights trading pilots, and study and establish the national carbon emission rights trading market.
- *National Strategic Plan for Addressing Climate Change (2014-2020)*: deepen carbon market pilots and establish the national carbon market.
- *Opinions of the CPC Central Committee and the State Council on Accelerating the Ecological Civilization Construction*: deepen carbon market pilots, and promote the establishment of the national carbon market.
- *China-U.S. Joint Presidential Statement on Climate Change*: establish a unified national carbon emission rights trading market.
- United Nations Climate Change Conference held in Paris: establish a unified national carbon emission rights trading market in 2017.
- Outline of the 13th Five-Year Plan: establish a unified national carbon emission rights trading system.
- *Comprehensive Work Plan for Energy Conservation and Emission Reduction During the 13th Five-Year Plan Period*: launch the national carbon market in 2017, improve institutions, and build up capacity.

Work Plan for Greenhouse Gas Emission Control during the 13th Five-Year Plan Period

State Council, the People's Republic of China
2016

Pilot carbon market

Pilot carbon emission rights trading market

Pilot provinces and cities are typical as they not only show common features, but also demonstrate regional disparity.

- They include both economically developed regions and under-developed regions in mid-west China.
- They are distinctive in social and economic development, industrial structure, energy consumption, greenhouse gas emission and other areas.
- Covering a land area of 480,000 square kilometers, the total number of population in these provinces and cities reached 250 million in 2011, while GDP totaled RMB14.2 trillion, energy consumption stood at 830 million tons of standard coal, accounting for 19%, 27% and 24% of the national total, respectively.



Regions	Population (10,000)	GDP (RMB100 million)	Per capita GDP (RMB)	Proportion of three main industries in GDP (%)	Fossil fuel energy consumption (10,000 tons of standard coal)	Per capita fossil fuel energy consumption(tons of standard coal)	Carbon dioxide emission generated from fossil fuel energy (100 million tons)
Beijing	2151.6	21330.8	99995	0.7/21.3/77.9	4820.71	2.24	1.00
Tianjin	1516.8	15726.9	103684	1.3/49.4/49.3	6293.23	4.15	1.47
Shanghai	2425.7	23567.7	97159	0.5/34.7/64.8	8914.08	3.68	2.00
Chongqing	2991.4	14262.6	47679	8.3/51.1/40.5	6216.76	2.08	1.48
Guangdong	10724.0	67809.9	63232	4.7/46.3/41.5	20820.47	1.94	4.90
Hubei	5816.0	27367.0	47055	0.1/42.7/57.2	12156.87	2.09	2.96
Shenzhen	1077.9	16002.0	149497	9.2/42.7/48.1	—	—	—
Nationwide	136782.0	634043.4	46629	0.7/21.3/77.9	378077.35	2.76	93.3

Launch the pilot carbon emission rights trading markets



The inauguration of the carbon market in Shenzhen on June 18, 2013 marks a milestone in establishing the mechanism for the carbon emission rights trading market in China.

2013



November 28, 2013 Beijing

November 26, 2013 Shanghai



December 19, 2013 Guangdong

December 26, 2013 Tianjin



2014

April 2, 2014 Hubei



June 19, 2014 Chongqing



Pilot carbon market has been fully initiated, and five fulfillment periods have been completed. China has put in place a pilot carbon market with complete system elements, certain scale, stable operation and initial emission reduction effect.

Emission reduction effect of pilot carbon markets -- pilot regions achieved "double control and double decline"

Regions	Emission reduction effect
Beijing	<ul style="list-style-type: none"> • By June 2016, carbon dioxide emission reduction added up about 10 million tons in Beijing. • The comprehensive cost of carbon emission reduction of key emission units in Beijing was down by about 2.5% on average in the fulfillment year of 2013 by establishing the carbon emission rights trading market. Preliminary estimation shows that in 2013, total carbon emission of key emission units was down by about 4.5% year on year. Carbon dioxide emission was down by 6.69% year on year in Beijing in 2013 when it comes to per RMB10,000 gross regional production, outperforming the annual target of 2.5%. This shows the initial effect of energy saving and carbon reduction through market means. • In the fulfillment year of 2014, the carbon dioxide emission of key emission units was down by 5.96% year on year in 2014 by establishing the carbon emission rights trading market, while the synergetic emission reduction involved 17,000 tons of sulfur dioxide and 7,310 tons of nitrogen oxides, and 2,193 tons of PM10 and 1,462 tons of PM2.5. Both the year-on-year emission decline rate and absolute emission reduction of carbon dioxide were evidently higher than that of the previous year.
Shanghai	<ul style="list-style-type: none"> • In 2013, the carbon emission of emission control enterprises of industries was down by 5.317 million tons compared with that of 2011, down by 3.5%. • In 2014, the carbon emission of emission control enterprises was 11.7% less than that of 2011. • This means that Shanghai achieved the energy saving and emission reduction goals for the 12th Five-Year Plan Period a year in advance.
Shenzhen	<ul style="list-style-type: none"> • 635 industrial enterprises eligible for the carbon trading control system witnessed 3.83 million tons of reduction in absolute carbon emission in the fulfillment year of 2013 from that of 2010, down by 11.7%; in the meantime, the industrial added value of 621 emission control manufacturing enterprises grew by RMB105.1 billion, up by 42.6%. The carbon dioxide emission intensity of the 635 enterprises in terms of per RMB10,000 industrial added value dropped significantly compared with the base period, and reduced by 33.5% compared with that recorded at the end of the 11th Five-Year Plan Period. These enterprises outperformed the target requirement of Shenzhen for reducing carbon intensity by 21% in the 12th Five-Year Plan Period.
Hubei	<ul style="list-style-type: none"> • In 2014, the total emission of 138 enterprises in Hubei Province reached 236 million tons of carbon dioxide, down by 7.67 million tons of carbon dioxide compared with that of 2013 and down by 3.14% year on year. Specifically, 81 enterprises saw decline in absolute emission, and the growth rate of emissions of 26 enterprises was down by 18.71% year on year. • At the level of industries, nine industries realized emission reduction, with electricity and iron & steel industries experiencing the most evident emission reduction.

Policies and actions for establishing national carbon market

Properly deal with the relationship between economic development and carbon reduction
Properly deal with the relationship between market and government
Properly deal with the relationship between competent departments
Properly deal with the relationship between fairness and efficiency
Properly handle market risks

Due to the complexity, the establishment of the national carbon market should be problem-based, focus on the periodical, integrated, fair, operable, compatible, market-based and positive features, design, establish and gradually improve the national carbon market step by step on the basis of the experience of seven pilot carbon trading exchanges and international carbon market in the principle of “starting with the easy part and getting difficult gradually” while considering national conditions, regional and industrial differences.



Experience of Near-zero Carbon Emission Demonstrative Areas and Demonstrative Projects

Background and significance of promoting the development of demonstrative projects of near-zero carbon emission areas

• Constantly strengthen the goal restrictions on addressing climate change in China

- ❑ 2020: carbon emission intensity down by 18% during the 13th Five-Year Plan Period, total carbon emission under effective control
- ❑ 2030: carbon dioxide emission will peak in about 2030 or earlier, carbon dioxide emission per unit of GDP down by 60%-65% compared with that of 2005.

• Actively advance low-carbon pilots and demonstrations

- ❑ Advance 87 low-carbon pilot cities in three batches in China
- ❑ Conduct low-carbon pilot communities, low-carbon pilot cities (towns), and low-carbon pilot industrial parks

• Clearly propose conducting demonstrative projects of near-zero carbon emission areas

- ❑ The Outline of the 13th Five-Year Plan proposes conducting demonstrative projects of near-zero carbon emission areas.
- ❑ The *Work Plan for Greenhouse Gas Emission Control during the 13th Five-Year Plan Period* puts forward that China will choose well-conditioned restricted development areas and prohibited development areas, eco-functional areas, industrial and mining areas, cities and towns to establish demonstrative projects of near-zero carbon emission areas, and 50 demonstrative projects would be built by 2020.

Progress in the development of demonstrative projects of near-zero carbon emission areas in China

Many provinces and municipalities explored and carried out demonstration of near-zero carbon emission areas

- Shaanxi, Guangdong, Zhejiang, Hainan, Beijing and other provinces actively promoted this endeavor
- Shenzhen, Hefei, Ningbo, Haikou and other cities actively constructed demonstrative areas

Explored and established different types of demonstrative areas of near-zero carbon emission areas

- New urban areas established demonstrative projects of near-zero carbon emission areas
- Independent islands developed demonstrative projects of near-zero carbon emission areas
- Established zero-carbon counties

Conducted different types of near-zero carbon demonstrative projects

- Zero-carbon buildings
- Zero-carbon islands
- Zero-carbon communities

Key problems of the development of demonstrative projects of near-zero carbon emission areas

Near-zero carbon emission means that total absolute carbon emission is close to zero. It mainly considers the balance between carbon emission source and sequestration. Carbon sequestration and other offset mechanisms are allowed to be used so long as "net emission" after carbon source subtracts carbon sequestration is close to zero. The requirement for zero carbon emission is more demanding and zero carbon emission must be realized from the source. For example, zero carbon resources should be totally used, and carbon sequestration and other offset mechanisms couldn't be used.

Near-zero carbon emission is a status higher than low-carbon and relatively close to zero carbon emission.

Key ways of developing demonstrative projects of near-zero carbon emission areas: source reduction, sequestration increase and replacement.

Typical types of areas about the demonstrative projects of near-zero carbon emission areas: residential areas, industrial parks, eco-functional areas/tourist areas, science parks, production areas of agricultural products, etc.

Key problems of the development of demonstrative projects of near-zero carbon emission areas

Different regions put forward multiple types of demonstrative projects, and these include cities (towns), parks, communities, villages and small towns, islands, scenic areas, and the like at the regional level. Given the different conditions of the regions, it is difficult to identify the unified and comparable boundary for carbon emission accounting.

Key problems of the development of demonstrative projects of near-zero carbon emission areas

Total carbon emission level
Industry and energy system
Technology and infrastructure
Management and assorting support



Serial number	Indicators
1	Total carbon emission
2	Carbon emission per unit of added value
3	Energy consumption per unit of area of structure
4	Proportion of renewable energy utilization
5	Per capita carbon emission
6	Application of low-carbon technology
7	Construction of low-carbon infrastructure
8	Carbon emission management and data monitoring capacity-building
9	Foundation of low-carbon development work

Key problems of the development of demonstrative projects of near-zero carbon emission areas

Non-unified concepts and standards

- The regions don't have perfect understanding about the concept of and unified standards for the demonstrative projects of near-zero carbon emission areas, so they feel difficult in providing effective guidance for the work

Imbalanced regional development

- Imbalanced regional development led to difference in resource availability, industrial foundation, construction goal and realization path of the implementation objects

Different standards for selecting implementation objects

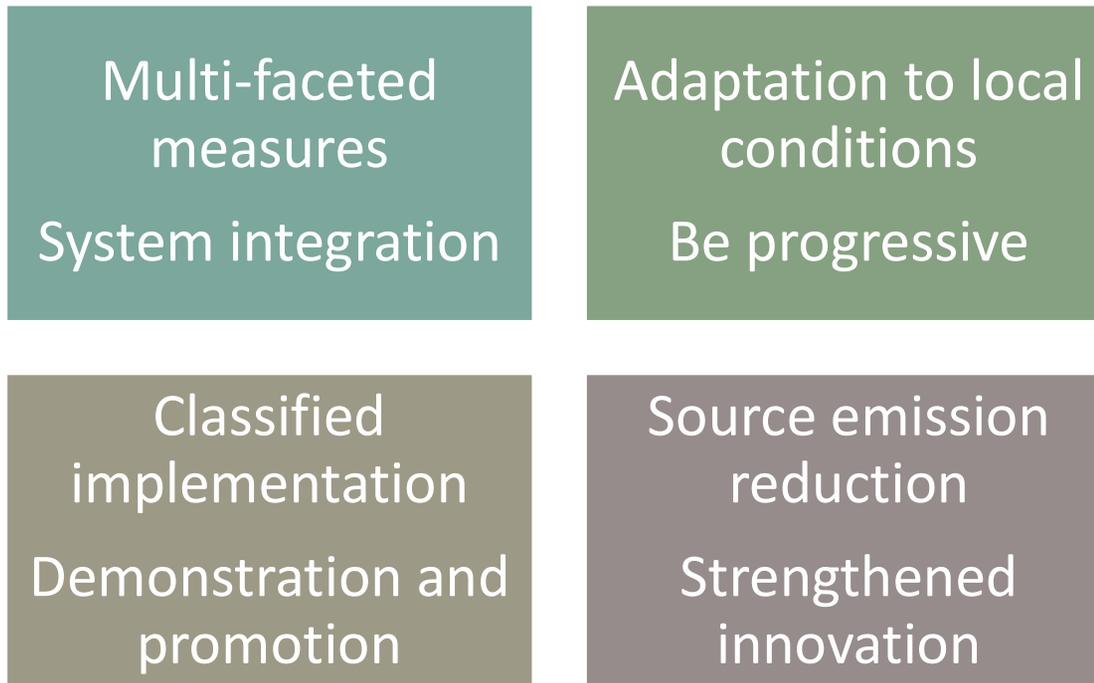
- The regions don't have unified recognition and selection standards for the implementation objects of near-zero carbon emission areas, there are more monomer projects selected for implementation, and the technical route is relatively simplex, so it is difficult to reflect the multi-technology coupling and system integration of near-zero carbon emission areas

Imperfect supporting policies

- The regions don't have effective department coordination and overall planning mechanism when conducting the demonstrative projects of near-zero carbon emission areas, and the departments of environment, development and reform, industry and information technology, housing and urban-rural development, transportation, energy, and finance couldn't harness policy synergy, affecting the construction progress and demonstration effect of the demonstrative projects

Strategy and suggestions for promoting the development of demonstrative projects of near-zero carbon emission areas

Overall strategy



Strategy and suggestions for promoting the development of demonstrative projects of near-zero carbon emission areas

Basic principles

Systematic

- System integration demonstration that has certain scale and dimension, and covers different factors and multi-faceted measures

Advanced

- Innovative path with advanced development concept and technological application and exploring into low-carbon transition

Continuous

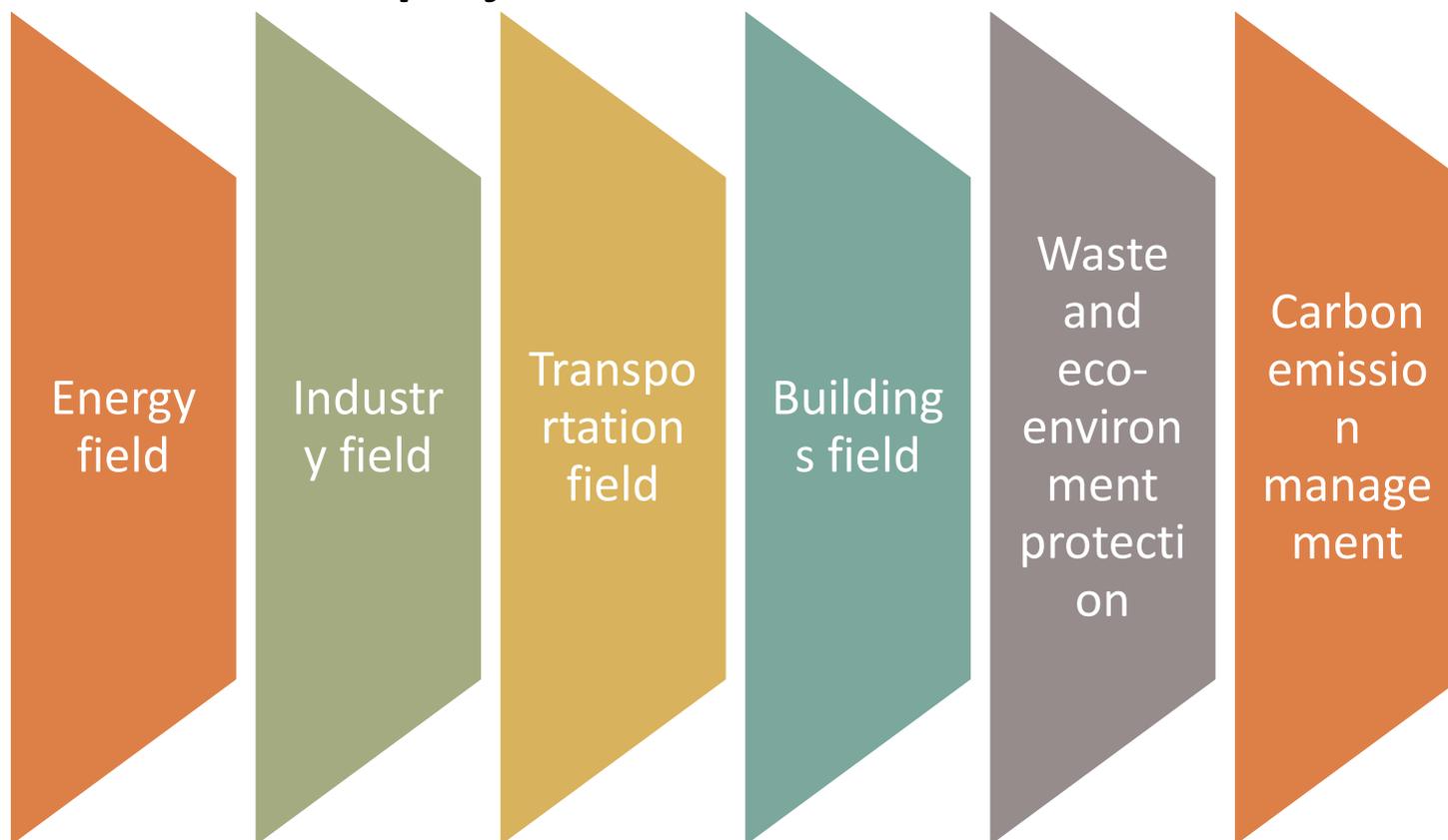
- “Near-zero” carbon emission is a sustainable status, with sustainable measures and effects

Demonstrative

- Offers strong promotion and demonstration value and is replicable

Strategy and suggestion for promoting the development of demonstrative projects of near-zero carbon emission areas

Major fields



All regions are taking actions to facilitate the earlier peaking of carbon dioxide emission

Target Driven

Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions:

- Proposes the action objectives for China by 2030: **by 2030 or so**, carbon dioxide emission would try to **reach the peak value as early as possible**, carbon dioxide emission per unit of GDP would be down by **60-65%** compared with that of 2005, the share of non-fossil fuel energy in primary energy consumption would reach about 20%, and forest growing stock would be about 4.5 billion cubic meters more than that of 2005.

Outline of the 13th Five-Year Plan for the National Economic and Social Development

- Effectively controls carbon emission in key industries such as electricity, iron & steel, building materials and chemical industry, and advances the low-carbon development in such **major fields** as industry, energy, building and transportation.
- Supports **optimized development areas** to take the lead in realizing the peak value of carbon emission.
- Deepens various types of low-carbon pilots, and conducts demonstrative projects of **near-zero carbon emission areas**.
- Controls non-carbon dioxide greenhouse gas

Work Plan for Greenhouse Gas Emission Control during the 13th Five-Year Plan Period

- **Major goals:**
 - By 2020, carbon dioxide emission per unit of GDP will be down by **18%** compared with that of 2015, and total carbon emission will be under effective control.
 - Supports **optimized development areas** to take the lead in realizing the peak value, and try to realize the earlier peaking in some **heavy chemical industries by about 2020**.
- **Speeds up regional low-carbon development:**
 - Promotes some regions to take the lead in reaching the peak value. Supports optimized development areas to take the lead in realizing the peak value of carbon emission before 2020. Encourages other areas to put forward peak value objectives, identifies peaking roadmap, and explores and conducts total carbon emission control in some developed provinces and cities. Encourages cities of the Alliance of Peaking Pioneer Cities of China (APPC) and other full-fledged cities to step up efforts for emission reduction, improve policy measures, and try to complete peaking targets in advance.

Local peaking actions

- Some provinces (autonomous regions and municipalities) put forward clear timing for overall carbon emission peaking, while others made clear the peaking objectives for key regions and pilot cities or major industries although they didn't identify the general peaking time for their respective provinces.
- Some provinces without setting up specific peaking objectives also conducted relevant studies on carbon emission peaking based on the conditions of their respective provinces.
- 73 low-carbon pilot provinces and cities came up with carbon emission peaking objectives in different forms, including 28 pilot provinces and cities in the first and second batches and 45 pilot regions in the third batch.

Local peaking actions

- **Yunnan:** ensure to achieve the binding target issued by the state to Yunnan Province -- carbon emission intensity should be down by 18% during the 13th Five-Year Plan Period, **promote the realization of carbon emission peak across the province by about 2025;**
- **Shandong:** carbon dioxide emission will reach the peak value across the province in about 2027. It will support optimized development areas to take the lead in realizing the peak value of carbon emission, and establish the reversed mechanism for carbon emission peaking; Qingdao and Yantai will try to realize the annual peaking value before 2020, explore and conduct total carbon emission control; Jinan and Weifang will try to realize before 2025.
- **Hainan:** cement, petroleum, chemical industry, electricity and other major industries will realize the peak value as early as possible as per national requirement, laying foundations for **province-wide peaking before 2030.**
- **Shanxi:** conduct studies on carbon emission peaking objective and peaking roadmap across the province, **and try to realize the peak value together with other regions across the country in about 2030 or earlier.**
- **Xinjiang:** scientifically measure the carbon emission peaking objectives of the region, identify peaking roadmap, **try to realize the peak value in 2030 or earlier,** encourage Urumqi, Changji, Yining and Hetian to realize the peak value before 2025.

Local peaking actions

- **Tianjin:** promote carbon emission peaking in about 2050, with iron & steel, electricity and other industries taking the lead in reaching the peak value. Promote studies on carbon emission peak value and peaking roadmap.
- **Chongqing:** total carbon emission will peak across the city before 2030, support urban core functional area and urban functional expansion area to take the lead in reaching the peak value.
- **Beijing: Outline of the 13th Five-Year Plan:** try to realize the peak value of total carbon dioxide emission in about 2020, establish and improve total carbon emission control and trading system; 13th Five-Year Plan: the goal of "realizing the peak value of total carbon dioxide emission in 2020 or earlier", peaking carbon emission would be about 160 million tons of carbon dioxide.
- **Shanghai: Overall Urban Planning (2017-2035):** the goal that "total carbon emission and per capita carbon emission would reach the peak value across the city before 2025; by 2020, total carbon dioxide emission would be controlled within 250 million tons; by 2040, total carbon emission would be about 15% less than the peak value". Outline of the 13th Five-Year Plan: by 2020, total energy consumption of the city would be controlled within 125 million tons of standard coal, total carbon dioxide emission would be controlled within 250 million tons while trying to realize the peak value of carbon emission as soon as possible.

Local peaking actions

Propose the earlier peaking of key industries

Jiangxi	Try to realize the earlier peaking in some heavy chemical industries in around 2020
Sichuan	Synchronous peaking with the country in some heavy chemical industries in about 2020
Tianjin	Earlier peaking in iron & steel, electricity and other industries
Hainan	Cement, petroleum, chemical industry, electricity and other major industries will realize the peak value as early as possible as per national requirement.

Propose the peaking year of key regions (cities)

Jiangsu	Suzhou, Zhenjiang, 2020
Guangdong	Guangzhou, Shenzhen, 2020
Shaanxi	Yan'an, Ankang, 2029 and 2028, respectively
Shanxi	Jincheng, 2025
Xinjiang	Urumqi, Changji, Yining and Hetian, 2025
Gansu	Lanzhou, 2025
Shandong	Qingdao, Yantai, 2020; Jinan, Zibo, 2025

Local peaking actions

- **Qinghai:** conduct studies on the carbon emission peak value of Qinghai Province
- **Guangxi:** conduct studies on carbon emission peak value, total carbon emission control and target decomposition measures, and realization paths
- **Fujian:** conduct studies on the carbon emission peak value in the province
- **Heilongjiang:** promote studies on carbon emission peak value and total carbon emission control
- **Guangdong:** ranks the first in GDP, 68.7% of urbanization rate; one of the first batch of low-carbon provinces, two state-level low-carbon cities: Shenzhen and Guangzhou; two state-level carbon trading pilots: Guangdong and Shenzhen; **"three orientations, two pioneering practices"** (peak value study: Guangdong Jinan University 2023: Technical-Economic Center, Zhongshan University 2027, Guangzhou and Shenzhen 2020, Shenzhen "double peaking study").
- **Jiangsu:** ranks the second in GDP, 66.5% of urbanization rate; Suzhou, Zhenjiang, Huai'an: second batch of low-carbon cities; Nanjing, etc.: third batch of low-carbon cities; **"strong, rich, beautiful, high" "Jiangsu Takes Actions upon Central Requirements and Achieves Effect" (Implementation Opinions on Realizing Carbon Emission Peak Value and Promoting the Development of Low-carbon New Economy:** energy and carbon emission peak in about 2026 at 750 million tons, and the per capita figure is no more than 10 tons; support Suzhou, Zhenjiang and other cities to take the lead in realizing the peak value before 2020);
- **Zhejiang:** ranks the fourth in GDP, 65.8% of urbanization rate; Hangzhou, Ningbo and Wenzhou: the first and second batches of state-level low-carbon cities; Quzhou, etc.: the third batches; **"Doer, Leader, Bell-weather" (province-wide 202); (Organize the Study on the Roadmap of Carbon Emission Peaking and Support System of Zhejiang Province.** Peaking time: Ningbo: 2018, **Hangzhou: 2020**; Jinhua and Quzhou: about 2022).



Thanks!