

Opportunities in Climate Actions in China

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Main Content

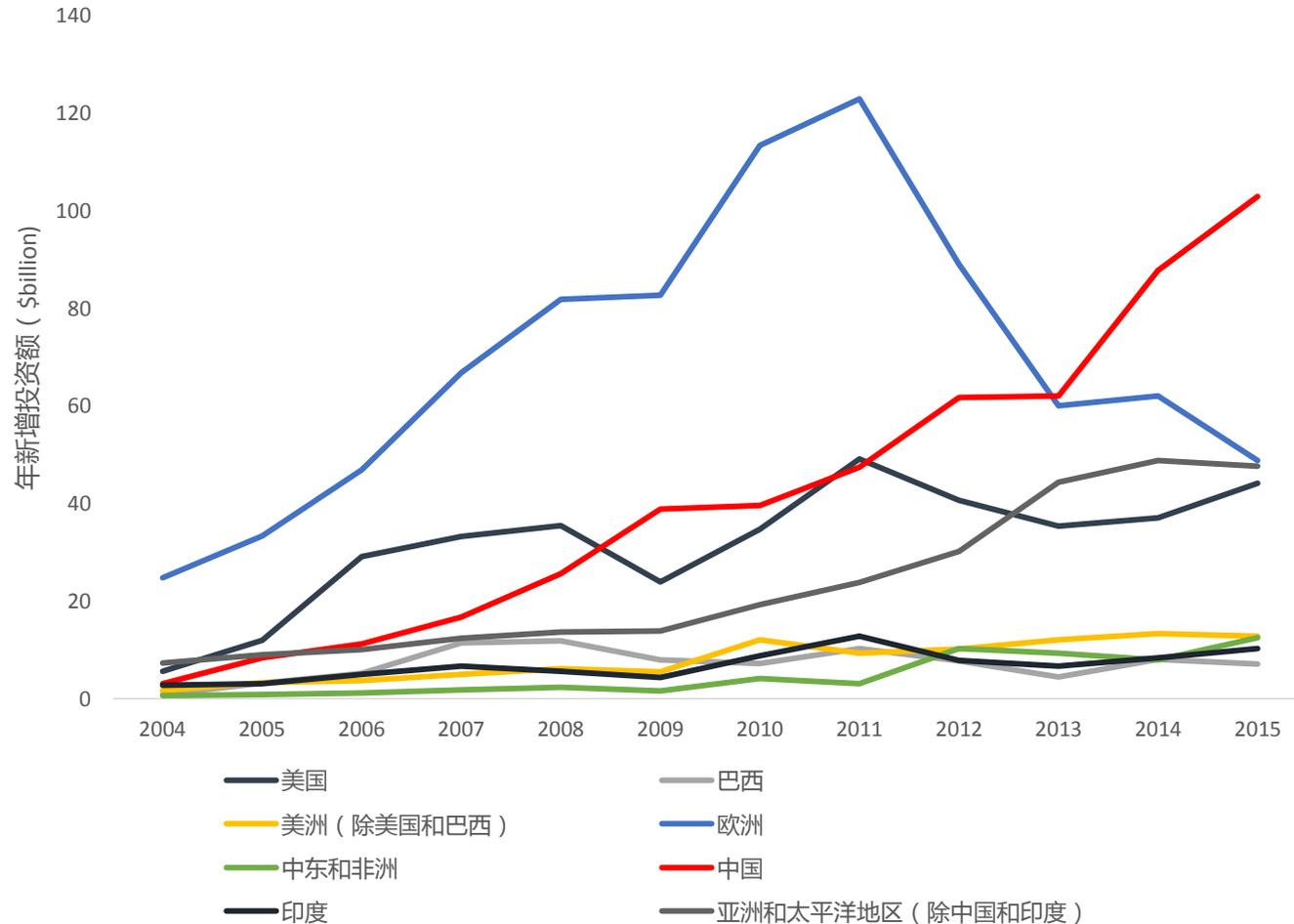
- 1 Current Opportunities and Actions**
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Why China needs a action for climate

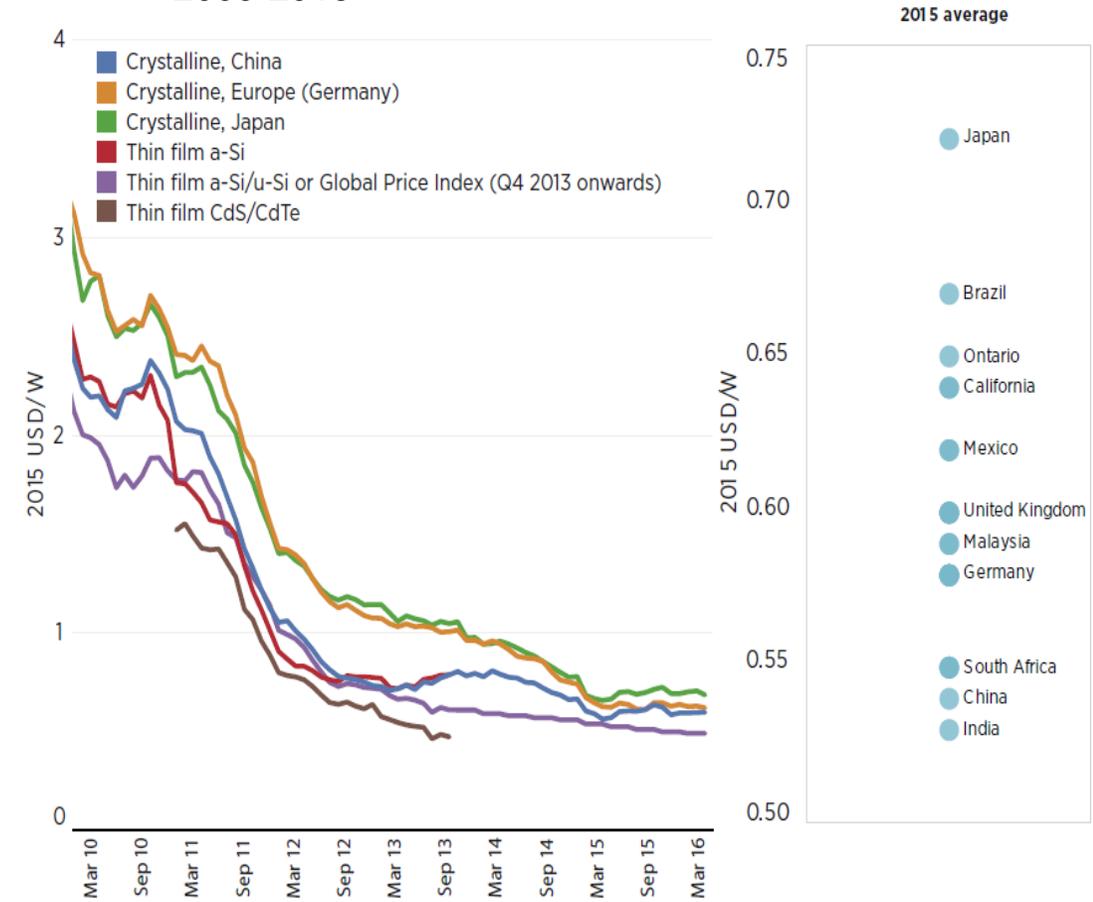
- Domestic needs:
 - Local pollutions
 - Non-sustainable development
 - Resources constrains
- International needs
 - INDC for Paris Agreement
 - Take driven seat for leadership on building of Eco-civilization
- Green development already to be a common understanding in the world
 - Paris agreement
 - 17th sustainable development goals of UN, SDG
 - G20's green growth
 - And others

China is a Great Help to Significantly Drive Down the Cost of Renewable Energy

全球可再生能源行业年新增投资额变化趋势



Drastic Drop of Global Solar Panel Prices, 2009-2016



Source: GlobalData, 2014; pvXchange, 2016; Photon Consulting, 2016.

01

Current opportunities and actions in climate

Central Leadership Highly Emphasize Climate Change & Low-Carbon Development



Xi Jinping

To counter climate change is not something that we are asked to do, but we ourselves want to do.

The international community should take the opportunity from implementing the Paris Agreement, and make double efforts to continuously enhance and improve the global governance system, and innovate the pathway to countering climate change.

Reaching the Paris Agreement is a milestone in the history of global climate governance. We shall not void this fruit. China will continue taking actions on climate change and take up our own obligations 100%.



Li Keqiang

To make active efforts for China to counter climate change is not only an important aspect of ensuring security for economy, energy, ecology and food, and promoting sustainable development, but also a part of the responsibility to deeply participate global governance, build the community of common destiny for mankind, and push forward common development.



Hu Jintao

We should treat fighting climate change as a major strategy for China's economic and social development and a significant opportunity to speed up the transformation of the way of economic growth and the adjustment of economic structure. We should further do a good job on every item of fighting climate change and ensure that China realize its targets in the 2020 greenhouse gas emission control action.

★The 6th Collective Learning by the Political Bureau of CPC Central Committee, on the afternoon of June 27, 2008.

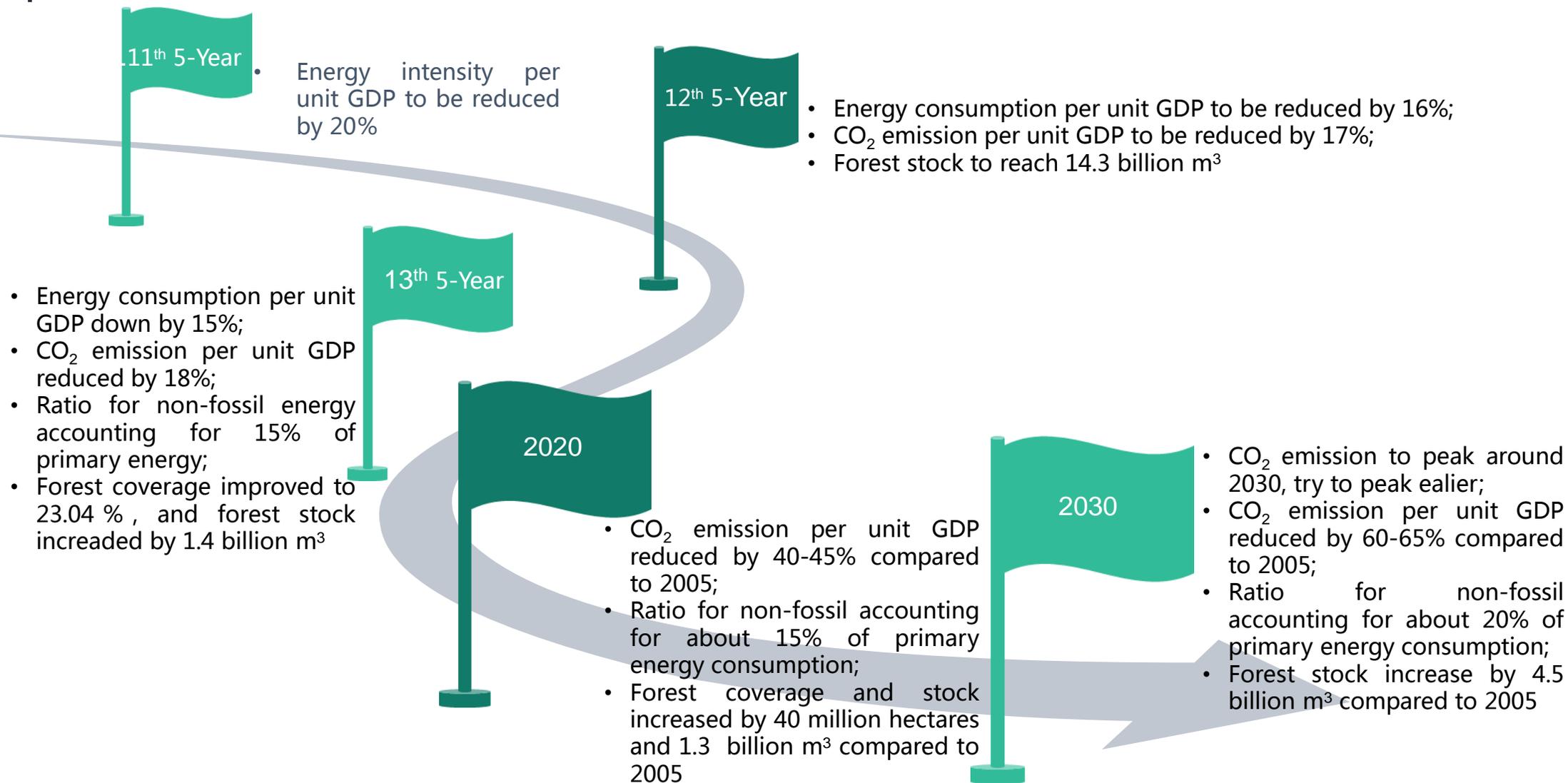


Wen Jiabao

Chinese government's decision to mitigate greenhouse gas emission is a voluntary action according to China's situation. It is responsible to the Chinese people and the whole mankind. It is not attached to any conditions, or linked up with the emission reduction target of any country.

★The 19th Collective Learning by the Political Bureau of CPC Central Committee, on the afternoon of February 22, 2010.

National Target for Mid-Long Term Low-Carbon Development Has Been Proposed



Gradual Forming of Policy and Management System

Management Mechanism

- National Level: National Leadership Group for Climate Change, with Premier Li Keqiang as group leader, and NDRC as the Liaison Office
- Local Level: Provincial Leadership Group for Climate Change; Division for Climate Change

Legislation & Standards

- Drafting the Law on Climate Change & the Provisions on Carbon Emission Right Trading
- Emission standards for key industries such as power, steel, non-ferrous metal, building material, petrochemical, and building industry

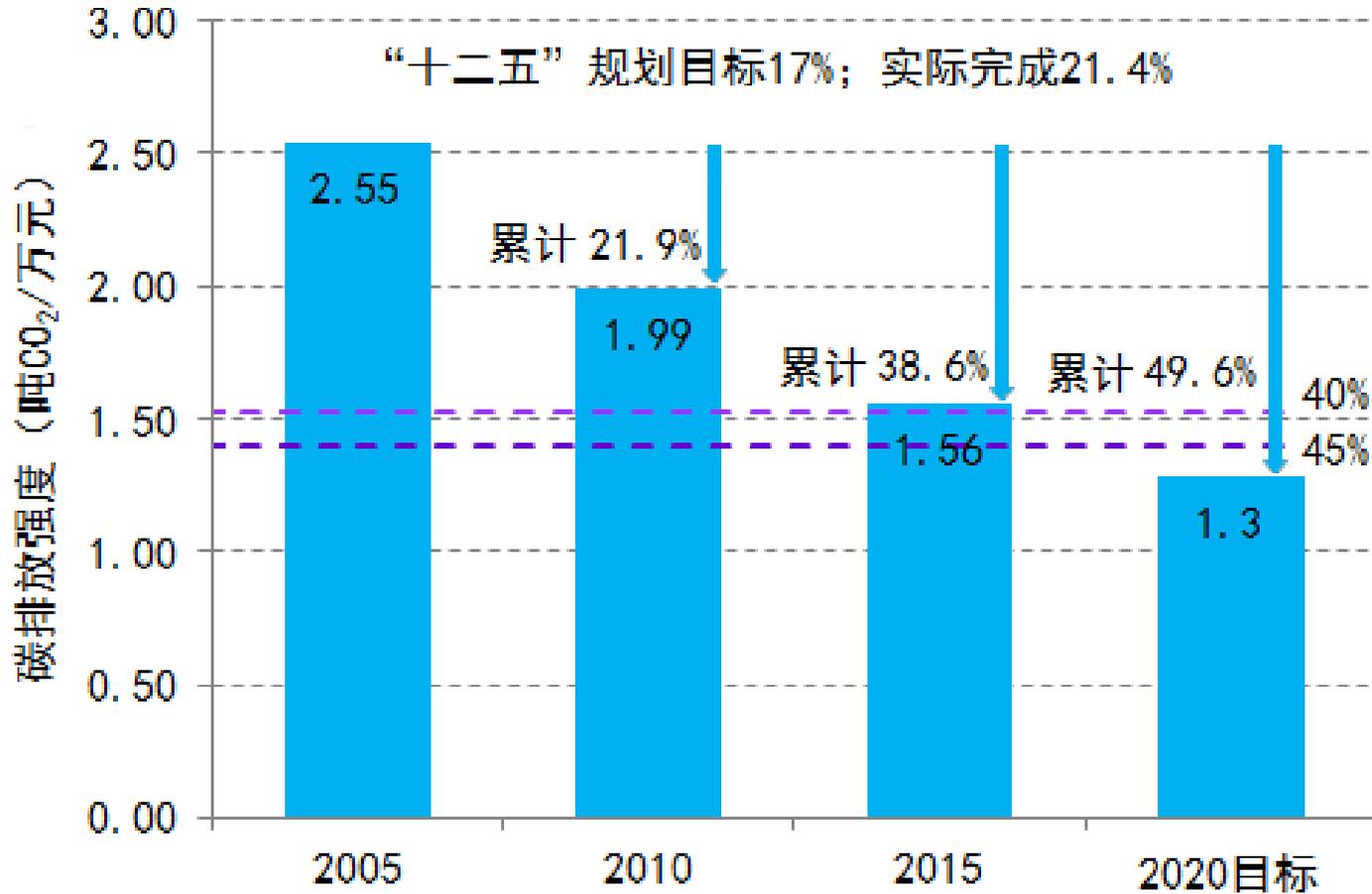
Carbon Intensity Target

- Reduction of carbon emission intensity incorporated into the Five-Year Plan. The 13th Five-Year Plan proposes to cut CO₂ emission per unit GDP by 18% as compared to 2015;
- Establish a by-region mechanism for the target and implementation, and conducted annual test

Carbon Trading Policy

- Voluntary emission reduction trading activity, the Management Method for Voluntary Trading of Greenhouse Gas Emission
- Regional Trading Pilot, National Carbon Emission Trading Market; Conducting Carbon Finance Production Innovation in an orderly manner

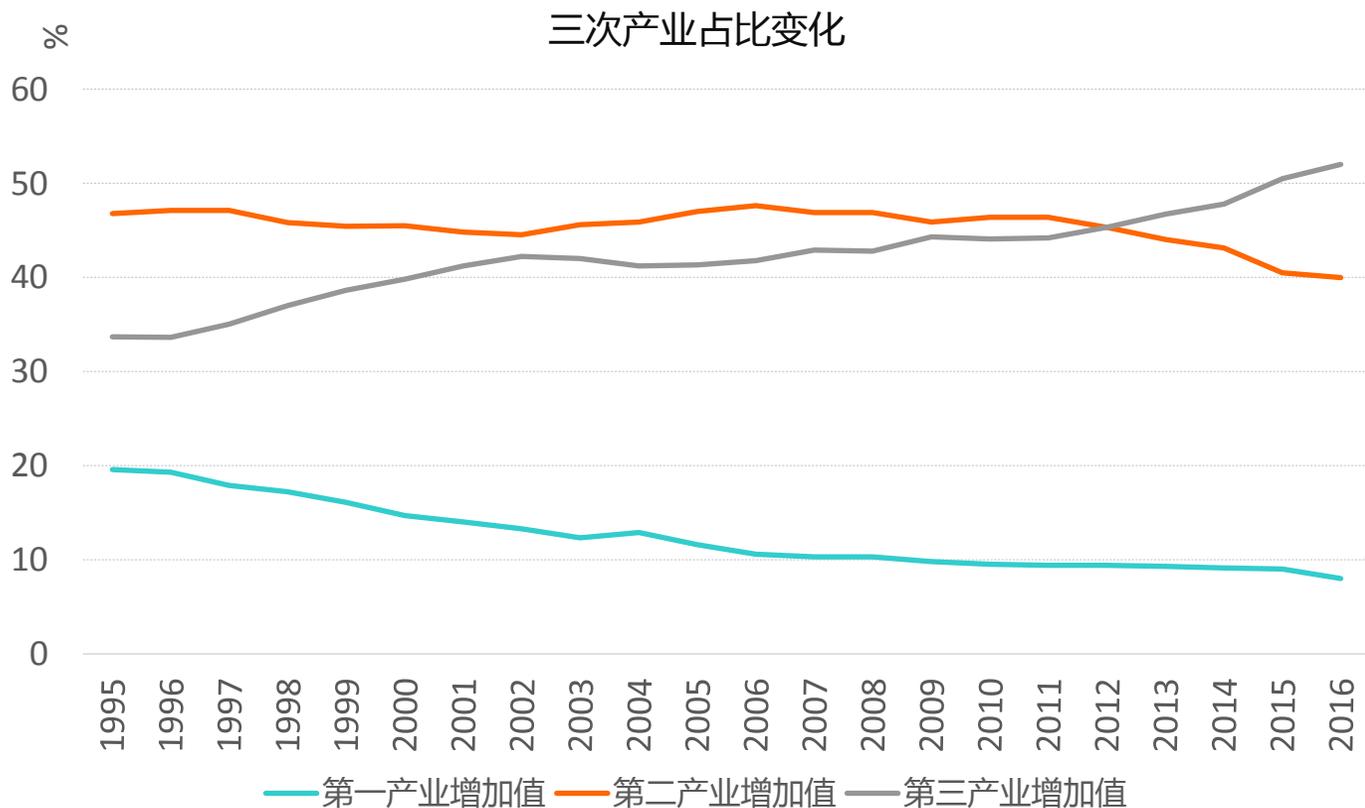
Carbon Intensity Reduction Becomes a Binding Index for Development of National Economy



	Target for 12 th Five-Year (2011-2015)	Achieved (End of 2015)	End of 2016
Unit GDP Energy Intensity Decrease from 2010	16%	18.2%	19.7%
Ratio of Non-Fossil in Primary Energy Consumption	11.4%	12%	13.4%
Forest Stock	14.3 billion m ³	15.1 billion m ³	N/A

Industry Structure is Continuously Optimized

By revamping and upgrading traditional industries and eliminating backward capacities, supporting the development of strategic emerging industries, and pushing forward high-quality and efficient development of the service industry, real results have been obtained in industry structure adjustment. In 2012, the ratio of tertiary industry overtook the secondary industry for the first time. In 2016, the ratio became 8% for the primary, 40% for the secondary, and 52% for the tertiary industry.

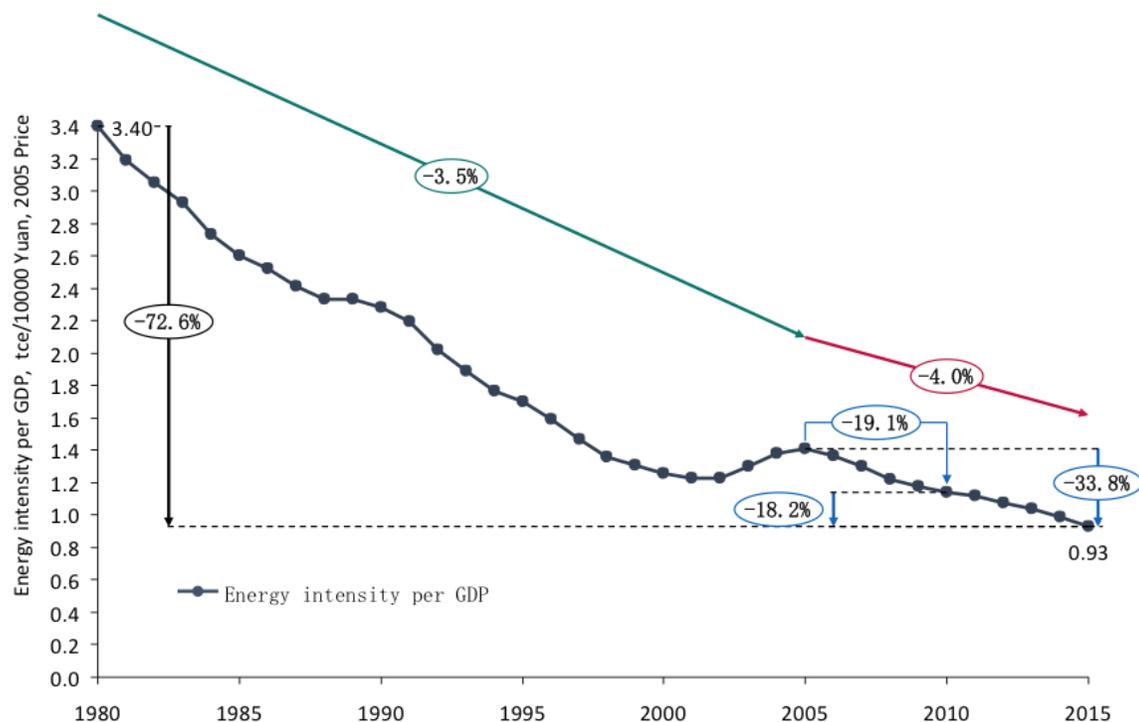


Backward Capacity Elimination During 12th Five-Year

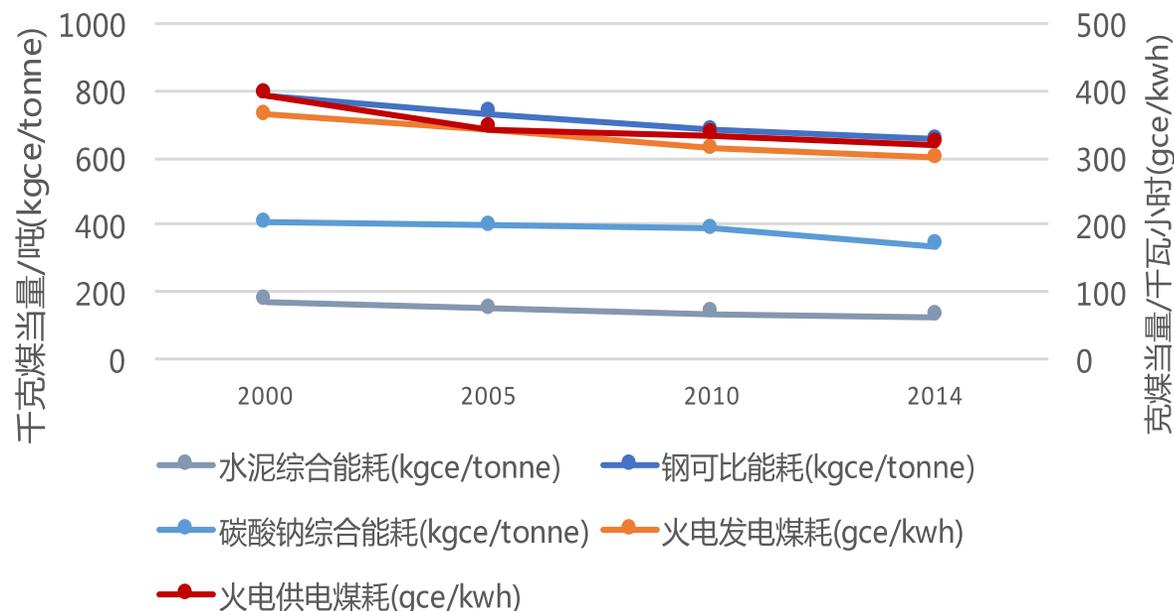


Obvious Progress in Energy Saving and Energy Efficiency Improvement

Through enhancing assessment of responsibility for energy saving targets, performing key energy saving revamp projects, further improving energy saving standards and labelling, popularizing energy conservation technologies and products, pushing forward energy saving in the building and transport industry, China's energy efficiency has been remarkably improved. The cumulative energy saving between 1990 to 2010 accounted for 58% of the global total. The unit GDP energy consumption during the 12th Five-Year reduced by about 18.2%, which is equivalent to save 950 million tce.



能源密集型工业产品能源消耗



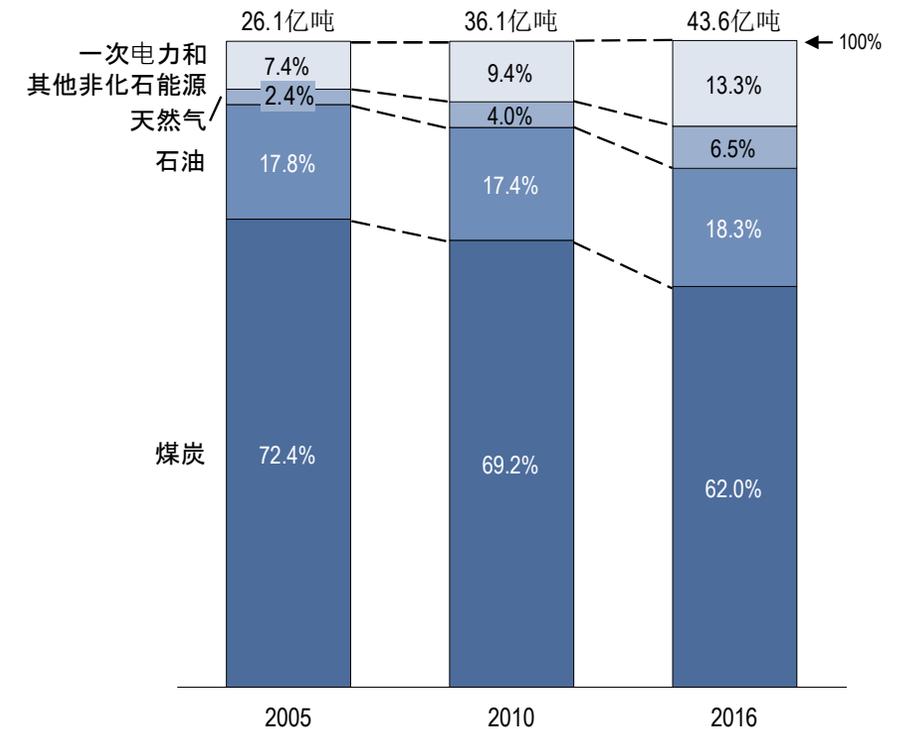
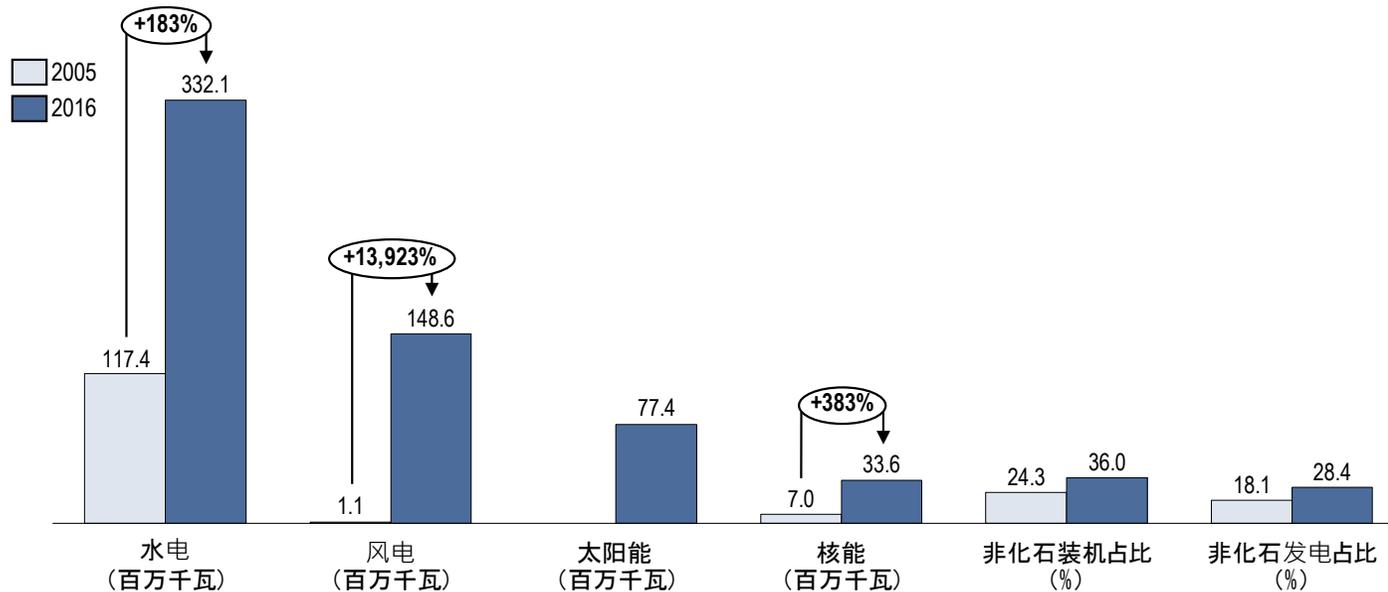
The Ratio for Non-Fossil Energy Constantly Improved

Coal Consumption Decrease:

- The ratio for non-fossil out of primary energy consumption increase to 13.4% in 2016 from 7.4% in 2005;
- The proportion of fossil energy decreases and the internal mix also changes. The proportion of coal out of primary energy consumption and out of fossil energy consumption decreases to 62% and 72% respectively in 2016 from 72% and 78% in 2005. There is a constant decrease of absolute coal consumption in 2014, 2015 and 2016.

Rapid Growth for Non-Fossil Energy:

- During the 12th Five-Year, the installed capacity for hydro, nuclear, wind and solar power increases by 1.4 times, 2.6 times, 4 times and 168 times. China's non-fossil energy investment has ranked the world's No. 1 for 7 consecutive years.



China Achieved Great Results in Controlling Coal

The annual growth of coal consumption during the 12th Five-Year is 2.6%, 4.9 percentage points lower than the average growth of the 11th Five-Year. In 2015, the coal consumption was 3.96 billion tons, decreasing 3.7% from the previous year. In 2015, the ratio for coal consumption decreased to 64%, representing 5.2 percentage points decrease from 2010 and accomplishing the 2017 target in advance.

In 2015, coal consumption for Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang and Guangdong decreased by 11.05 million tons, 7.59 million tons, 24.16 million tons, 9.75 million tons, 5.53 million tons, 5.48 million tons and 10.47 million tons as compared to 2012. The coal consumption for the Pearl River Delta in 2015 decreased by 12.27 million tons from 2012. The coal consumption for Shandong in 2015 was 409.27 million tons, increasing by 6.94 million tons from 2012. On the whole, Shanghai, Jiangsu and Zhejiang fulfilled the target for coal consumption reduction in advance; Beijing, Tianjin and Hebei satisfied the time progress requirements.

Main Achievements in Controlling Coal During 12 th Five-Year				
Index	Unit	2010	2015	Annual Growth
Primary Energy Production	100 million tce	31.2	36.2	3%
Coal Production	100 million tons	34.3	737.5	1.8%
Total Energy Consumption	100 million tce	36.1	43	3.6%
Ratio of Coal in Energy Consumption	%	69.2	64	{-5.2}

Note: { }standards for cumulative figure for 5 years.

Many Provinces and Cities Proposed Targets for Peaking In Advance

During 13 th Five-Year (2016–2020)		During 14 th Five-Year (2021–2025)					
Beijing	2020	Tianjin	2025	Zhuzhou	2025	Suining	Around 2025
Yantai	2017	Shenzhen	2022	Qinhuangdao	Around 2025	Wuzhong	2025
Ningbo	2018	Wuhan	2022	Jiaxing	2023	Jinan	Around 2025
Wenzhou	2019	Quzhou	Around 2022	Zhongshan	2023–2025	Enshi	Around 2025
Dunhuang	2019	Ganzhou	2023	Weifang	Around 2025	Daxing'anling Prefecture	2024
Guangzhou	By the end of 2020	Jincheng	2023	Changji	Around 2025	Nanping	2025
Nanjing	2020	Shijiazhuang	2025	Hetian	2025	Panjin	2025
Hangzhou	2020	Changsha	2025	Changzhou	2023	Ji'an	2023
Qingdao	2020	Dalian	2025	Lanzhou	2025	Jinchang	2025
Suzhou	2020	Lhasa	2025	Chaoyang	2025	Jingdezhen	Around 2023
Zhenjiang	2020	Jilin	2025	Wuhai	2025	Yinchuan	2025
Jiyuan	2020	Guiyang	2025	Chengdu	Before 2025	Sanming	2025
Jinhua	Around 2020	Hefei	Around 2024	Huaibei	Around 2025		

General Situation for Carbon Trading Pilot

With both commonalities and differentiations, the pilot provinces and municipalities are very representative.

- Having their own characteristics in social and economic development, industrial structure, energy consumption and greenhouse gas emission;
- Covering both developed regions and less developed regions in the central and western regions;
- Covering a land area of 480,000 km², with a population of 250 million, a total GDP OF RMB 14.2 trillion, and an energy consumption of 830 million tce, accounting for 19%, 27% and 24%.

Policy Element Development for Pilot Carbon Trading

Setting Total Volume Target and Scope of Coverage

Region	Type of GHG	Indusries Included	Emission Threshold for Enterprises	No. of Enterprises Included
Shenzhen	CO ₂	Power, water, building, manufacturing and large public buildings; possibly will include transport after 2014	Enterprises and entities with annual emission of 3000s ton of CO ₂ e; public buildings bigger than 10,000 m ²	635 industrial enterprises, 197 large public buildings, 8 power companies, and 1 grid company
Beijing	CO ₂	heating, power, cement, petrochemical and other industries and the service industry	2009—2011 average emission greater than 10,000 tons of CO ₂ e, later reduced to 5,000 tons	About 980 enterprises, 7 power companies and two grid companies
Shanghai	CO ₂	Steel, petrochemical, chemical, power, non-ferrous, building material, textile, paper making, rubber, chemical fiber, aviation, airport, port, railway, hotel, commercial and retail, financial	Key industrial enterprises with annual emission greater than 20,000 tons of CO ₂ e in any of the year 2010—2011, and non-industrial enterprises with emission greater than 10,000 tons of CO ₂ e.	About 310; 14 power companies
Guangdong	CO ₂	Included power, cement, steel, petrochemical in Phase 1; plan to include ceramics, textile, non-ferrous, plastics, paper making, civil aviation, etc.	Annual emission greater than 20,000 tons of CO ₂ e in any of the year 2011—2014	About 190; 85 power companies
Tianjin	CO ₂	steel, chemical, power & heating, petrochemical, oil & gas production	Emission greater than 20,000 tons of since 2009	About 120; 17 power companies
Hubei	CO ₂	power, steel, cement, chemical, petrochemical, automobile manufacturing, non-ferrous, glass and building materials, paper making, chemical fiber, pharmaceutical, food, beverage	Annual comprehensive energy consumption greater than 60,000 tce in any of the year between 2010—2011	About 140; 24 power companies
Chongqing	6 types including CO ₂ , methane and NO	Industrial enterprises including many sectors such as eletrolytic aluminium, calcium carbyde, caustic soda, cement and steel	Annual emission greater than 20,000 tons of CO ₂ e in any of the year 2008—2012 (or energy consumption greater than 10,000 tce)	About 260

Policy Element Development for Pilot Carbon Trading

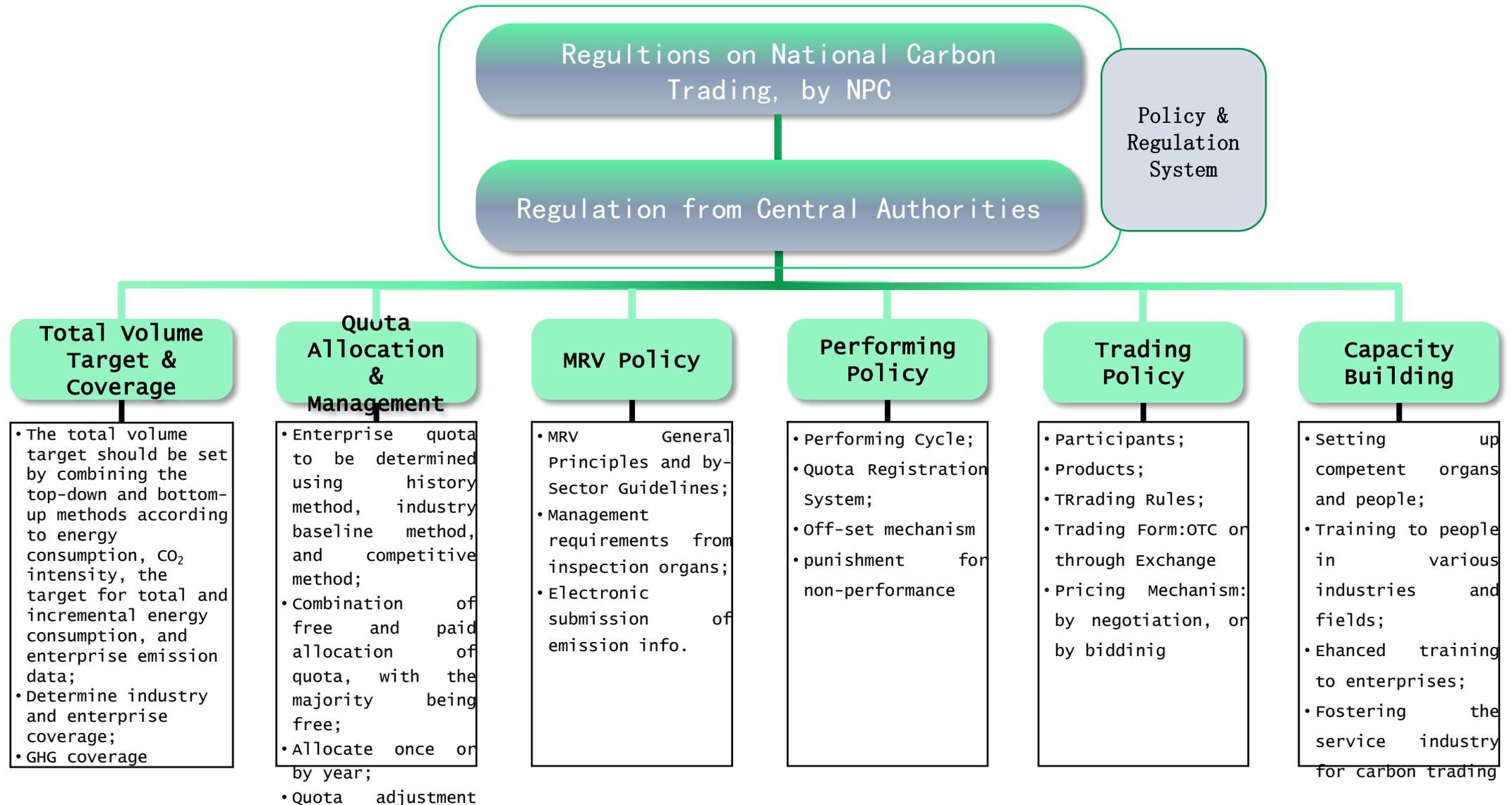
Developing Quota Allocation Scheme

Region	Approach	Auction	Free
Beijing	·History Method: Existing Facilities ·Baseline Method: New Facilities	Temporarily No	Quota Allocated by Year
Tianjin	·History Method: Other Industries ·Baseline Method: Power & Heating	Temporarily No	Quota Allocated by Year
Shanghai	·History Method: Industrial (Except Power) ·Baseline Method: Power, Aviation	Auctioned 7,220 tons on Jun3 30, 2014	Allocate the Quota for Three Years
Chongqing	Combination of Total Volume Control by Government plus Enterprise Competition	Temporarily No	Quota Allocated by Year
Guangdong	·History Method: Steel, Petrochemical ·Baseline Method: Power, Cement	·3% of total quota is auctioned: 5 auctions totalling 11.12 million tons (2013) ·5% of total quota for power industry, and 3% for other industries on auction. 6 auctions held totalling 4.038 million tons (2014, 2015)	Quota Allocated by Year
Hubei	·History Method: Non-Power Industry ·Benchmark+ History: Power	Government to reserve 30% quota for auction Auctioned 2 million tons on March 31, 2014	Quota Allocated by Year
Shenzhen	·Manufacturing: Competitive Bidding ·Building Industry: Emission Standards	Auctioned 75,000 tons on June 6, 2014	Quota Allocated by Year

Principle Requirements for Building National Carbon Market

Given the complexity in building the national carbon market, we should be oriented by problem solving and pay attention to the stages, unity, fairness, operability, compatibility, market role and the initiative of participants. With referencing to the experience from the 7 carbon trading pilot projects and international carbon markets, we should design the national carbon market following the principle of “easy things first, difficult ones later”, and taking into consideration the situation in China as well as the regional differences. Efforts should be made to gradually establish and improve the national carbon market.

Key Tasks in Building National Carbon Market



Quota Allocation Methods for National Carbon Market

Principles: Striking a balance between results and efficiency, between scientificness and applicability, between fairness and differentiations; open and transparency

Basic principles are set by the central government, specific implementations performed by local governments with appropriate flexibility

Competent National Authorities	<p>Determines the unified free of charge quota allocation method and standards after referencing the opinions from the authorities responsible for managing the industry;</p> <p>Develops the national quota allocation scheme, specify the free emission quota for all Provinces/Autonomous Regions/Municipalities, and the quota reserved by the state;</p> <p>Emission quota for existing facilities, emission quota for new facilities, and the reserved emission quota;</p> <p>Free-of-charge allocation as the mainstay, paid allocation as supplement. The ratio for paid emission quota allocation will be gradually increased.</p>
Competent Local Authorities	<p>Follow the methods and standards determined by the country to propose the amount of free emission quota for key emitting entities in the region. The free quota is allocated after submitted to and get approval from the State Council department responsible for carbon trading.</p> <p>Allocation methods and standards more stringent than the national unified methods and standards can be designated and implemented by Provinces/Autonomous Regions/Municipalities</p> <p>After the free emission quota is deducted from the total emission quota for Provinces/Autonomous Regions/Municipalities, the balance of the quota will be used for paid allocation by competent provincial authorities responsible for carbon trading.</p>

MRV System Building for National Carbon Market

- Establish carbon emission monitoring policy for key emitting entities. The Key emitting entities should follow the requirements from the competent State Council department responsible for carbon trading, develop an emission monitoring plan and submit it to the provincial carbon trading authorities for archiving, Monitoring should be performed strictly according to the archived monitoring plan, and gradually establish and improve the on-line emission monitoring system and its management mechanism.
- Establish carbon emission reporting policy for key emitting entities. The key emitting entities should, follow the Emission Reporting Management Methods and the Guidelines for Verification and Reporting of Greenhouse Gases by Enterprises as promulgated by the competent State Council department responsible for carbon trading, and report the emission data and relevant information for the previous year by leveraging greenhouse gas emission submission system.
- Establish carbon emission verification policy for key emitting entities. In accordance with the Management Method for Verification Organs and the Guideline for Verification promulgated by the competent State Council department responsible for carbon trading, provincial carbon trading authorities will organize third party verification organs to verify the carbon emission by key emission entities in the region.

02

Mid-Long Term Opportunities and
Actions

China has Entered a New Era for Socialism with Chinese Characteristics

19 THE 19TH CPC NATIONAL CONGRESS

BEIJING • OCT 2017



This is an era for Chinese people to work hard and realize the China dream of the great resurgence of the Chinese nationality, and an era for China to move into the center of the world stage and continuously make greater contributions to mankind.

“Two One Hundred Years” and “Two Working Hard for Another Fifteen Years”



十九大提出 两阶段奋斗目标

第一阶段 2020-2035

在全面建成小康社会的基础上，再奋斗15年，基本实现社会主义现代化，生态环境根本好转，美丽中国目标基本实现

我国已进入中国特色社会主义新时代

第二阶段 2035-2050

把我国建成富强民主文明和谐美丽的社会主义现代化强国，生态文明得到全面提升



The Significance of China's Low-Carbon Transformation

First, low-carbon development is the inherent need from transforming development modes and improving economic growth quality and results

Viewed from both economic development stage and regional development mode, China's economic growth, for a long time has been driven mainly by high resource and high energy consumptions. This not only leads to high dependency on resources and energy, but also significantly decrease the efficiency of China's national economy, and its competitiveness relies on high environment cost and low labor cost.

Second, low-carbon development is the long term need for implementing new development philosophy and building ecological civilization

Since its opening and reform, China has achieved rapid economic growth, with remarkable improvement in its economic strength and comprehensive power. But China has also paid heavy environmental cost, with serious environment pollution on the whole, with ever worsened confined and hybrid environmental problems and serious damage to the ecology. This has a lot to do with the traditional high-carbon development path.

Third, low-carbon development is the strategic choice by China to seize the commanding height of international low-carbon technology and industry.

Only by early planning, and through accelerating low-carbon development, improving independent innovation capability for low-carbon technology, making proactive efforts in developing international low-carbon rules, policies and standards, and vigorously conducting core low-carbon technology R&D and industrialized application, can China take the commanding height of the new round of development for low-carbon technology and industry, form its competitive edge in low-carbon industry, and improve its discourse power and influence in the global wave of low-carbon development.

Fourth, low-carbon development is the objective requirement for China to participate into global governance and raise its international discourse power and influence

As the world's second largest economy and the biggest greenhouse gas emission entity, China faces greater and greater pressure from emission reduction. Low-carbon development is not just a transformation of development mode, but also a policy arrangement for a new order in international development. Many countries try to guide the development trend of times, occupy the ethical height, and treat low-carbon development as an important working point to build a new order in international politics and economy and to participate in the global governance.

Low-Carbon Development Outlook for 2030

(1) Economy Growth will Gradually Become Decoupled with Carbon Emission

- According to the long-term economics forecast and analysis by OECD, for USA to achieve GHG reduction of 26-28% in 2025 from 2005, the average annual reduction rate for 2005-2025 needs to be about 3.5%-3.6%; for EU to achieve the reduction of 40% in 2030 from 1990, the average annual reduction for 2005-2030 needs to be about 3.2%. The expected average annual reduction pace for China in the next three Five Years is about 4%, faster than for Europe and USA.

(2) Incremental Energy Demand will be Satisfied Mainly by Non-Fossil Energy

- As of 2030, the non-fossil power annual growth needs to be about 250 billion kwh (new installed capacity of 60 million kw). Among these, a new installed capacity of 200 million kw for nuclear power (about 220 reactors in total, 14 reactor/year, equivalent to 1 reactor per year for more than 1/3 of the Provinces), 300 million kw for solar power (about 17,000 PV power stations, 1,1000 stations/year. equivalent to 1 station per year for more than 1/3 of all counties ini China) , and 400 million kw for wind power (about 220,000 turbines, 14,000 turbines/year, equivalent to 1 turbine per year for more than 1/3 of all the townships).

(3) Carbon Emission Peak will Come Earlier and be Lower than Europe and USA

- It is expected that around 2030 when China's CO₂ emission peaks, its per capita GDP will be about \$ 10,000 (fixed price of 2005), where as the per capita GDP of USA and Europe exceeded \$ 40,000 and \$ 20,000 (2005 fixed price) at their peak emission. Then the per capita CO₂ emission will be about 8.6 tons, while the peak per capita levels for USA, Germany and UK were 19.5 tons, 14.1 tons and 11.3 tons.

Low-Carbon Development Outlook for 2030 (Cont'd)

(1) RMB 1.6 trillion of new investment per year

- It is expected that in 2030, the low carbon industry will reach a scale of over RMB 23 trillion, contributing to more than 16% of GDP and truly becoming a pillar industry of the national economy;
- From 2005-2030, the cumulative investment into low-carbon development will exceed RMB 41 trillion, of which about RMB 15.2 trillion for energy efficiency, RMB 25.7 trillion for low-carbon energy (about RMB 11.3 trillion for wind and solar power)

(2) 3 million new jobs per year

- It is expected that by 2030, the work force for energy saving and low-carbon energy will reach 63 million. New professions, sectors and enterprises are being created during the low-carbon transformation and upgrade of traditional industries, such carbon finance, carbon auditing, carbon inventory, enterprise carbon strategy, contracted carbon management, carbon asset custody, renewable energy smart solution provider, new energy vehicle manufacturer, and energy internet, climate big data.

(3) Synergy to cut air pollution by 80%

- Realization of CO₂ peak will be very helpful for China's air quality improvement. The 2030 SO₂, NO_x and PM_{2.5} emission can be decreased by 78.9%, 77.6% and 83.3% as compared to 2010.

China has Potential to Fulfill in Advance and Surpass the Targets for Voluntary Contribution

(1) China will exceed the 40-45% target for 2020

- According to the target in the 13th Five-Year Plan, China's unit GDP CO₂ intensity is expected to decrease by about 50% in 2020 as compared to 2005, exceeding the 2020 target of going down by 40-45% from 2005;
- As of 2016, the unit GDP CO₂ intensity already decreased by about 42% from 2005.

(2) China emission has entered platform period in recent years

(3) There is hope for China to peak in advance, but still faces uncertainties

- Taking into consideration the trend of China's social and economic development and the new normal policy, China's carbon emission may peak before 2030, and the targets for 2030 carbon intensity and non-fossil energy are expected to be exceeded. Arriving at peak in advance will be helpful in further improving air quality and promoting the development of low-carbon industries;
- But the realization of the above potential still faces uncertainties, especially China's future economic landscape.

Strategic Steps for Achieving Peak in Carbon Emission

First, to push forward different regions to reach peak by steps

- First to push the coastal area in the eastern region and leading cities in middle and western regions to achieve development transformation, to be the first to peak before 2030 and gradually achieve absolute emission reduction;
- Next, to require most areas in China to peak by 2030;
- Third, to support stable development of some economically less developed areas and allow them to peak after 2030.

Second, to push forward different industries to peak by steps

- Ask key industries such as steel, building material, and chemical to peak first and gradually achieve absolute reduction so as to reserve room for the development of other industries;
- While gradually improving the livelihood of urban and rural residents, push building and transport industries to peak ASAP.

Third, to push forward high-carbon energy consumption to peak ASAP

- Total Coal consumption is required to peak around 2020, and petroleum to peak around 2030 so as to reserve room for the development of low-carbon energy such as non-fossil energy and natural gas.

Fourth, to push forward low-carbon transformation for consumption

- By making vigorous efforts in advocating green and low-carbon consumption and simple way of life, improve the awareness of the public for low-carbon development and build a low-carbon society.

Stagewise Low-Carbon Development Roadmap

Nurturing Stage (2015-2020)

- Basically turn around the momentum of rapid growth for total carbon emission: practice a carbon emission management policy that mainly controls carbon intensity with the control over total carbon emission volume as supplement. Make vigorous efforts to quickly drive down carbon emission intensity, to achieve a **carbon emission intensity in 2020 that is about 50% lower than 2005**, and strive to decrease more. **The ratio of non-fossil energy out of primary energy consumption will reach 15%.**

Key Problem Solving Stage (2020-2030)

- Gradually peak for total carbon emission: adopt policies to control both carbon emission intensity and total volume. **The carbon emission intensity in 2030 will decrease by about from 2005.** Try to peak by 2030 and ASAP. **The ratio of non-fossil energy out of primary energy consumption will reach 20%.**

Innovation & Breakthrough Stage (2030-2050)

- Gradually realize absolute decrease in total carbon emission: Enhance carbon emission management to push the total carbon emission to go down gradually. **Strive for total carbon emission in 2050 to go back to 2010 level, and the ratio of non-fossil energy out of primary energy consumption to exceed 1/3.**

Key Questions for China's Low-Carbon Development



Thank You !

