

IMPLEMENTATION OF THE COAL CAP PLAN: LONG TERM IMPACTS, URGENCY AND EFFECTIVENESS

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**CRY FOR
A BLUE
SKY**

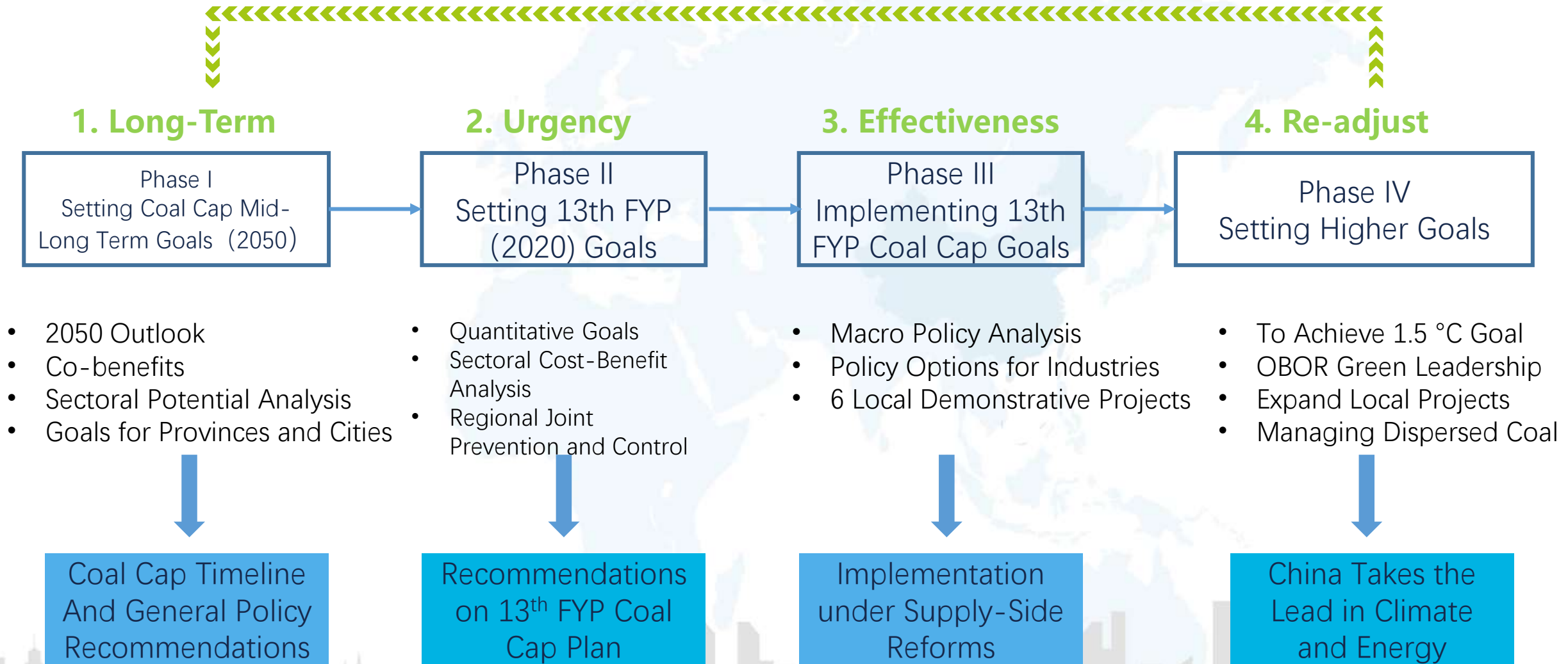
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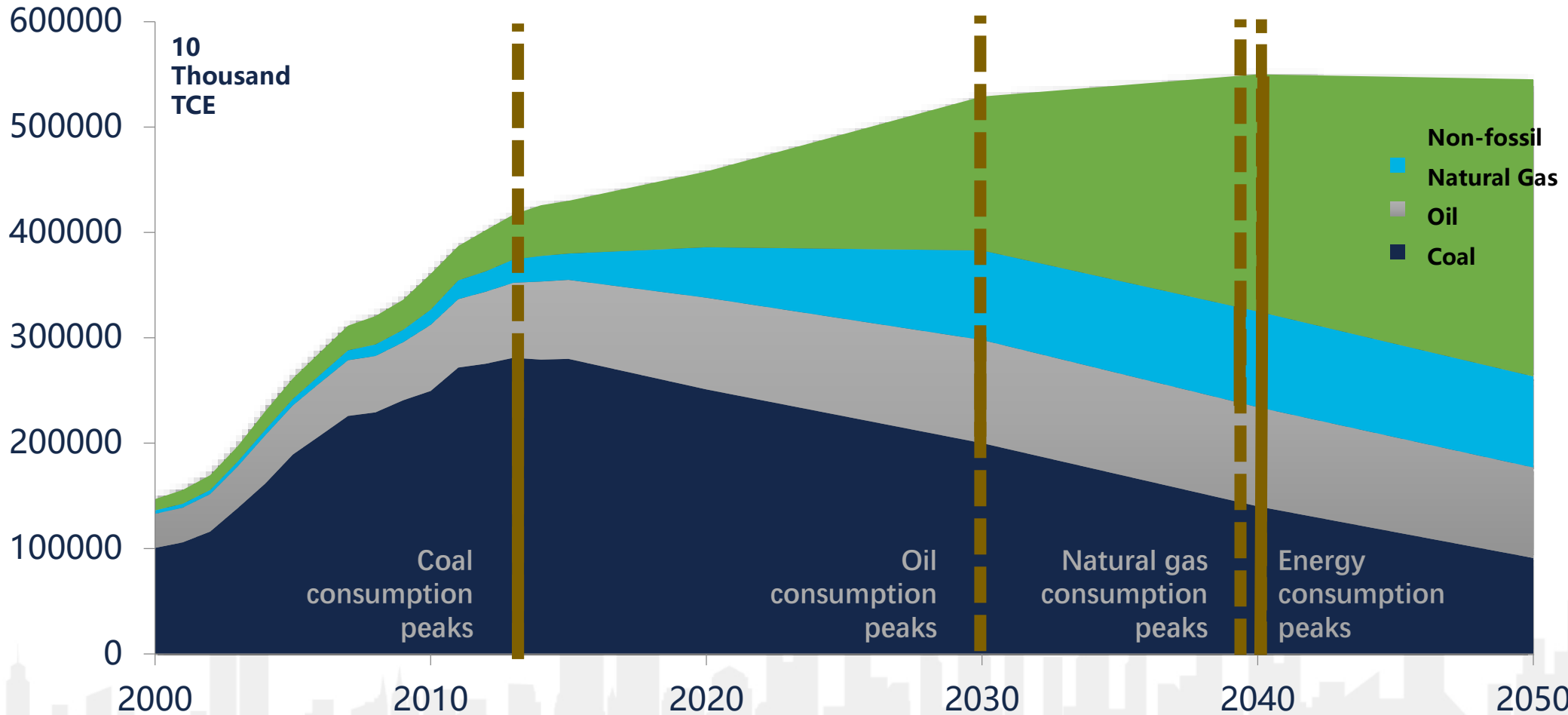
OUTLINE

Adjust Goals Based on New Developments



1.1

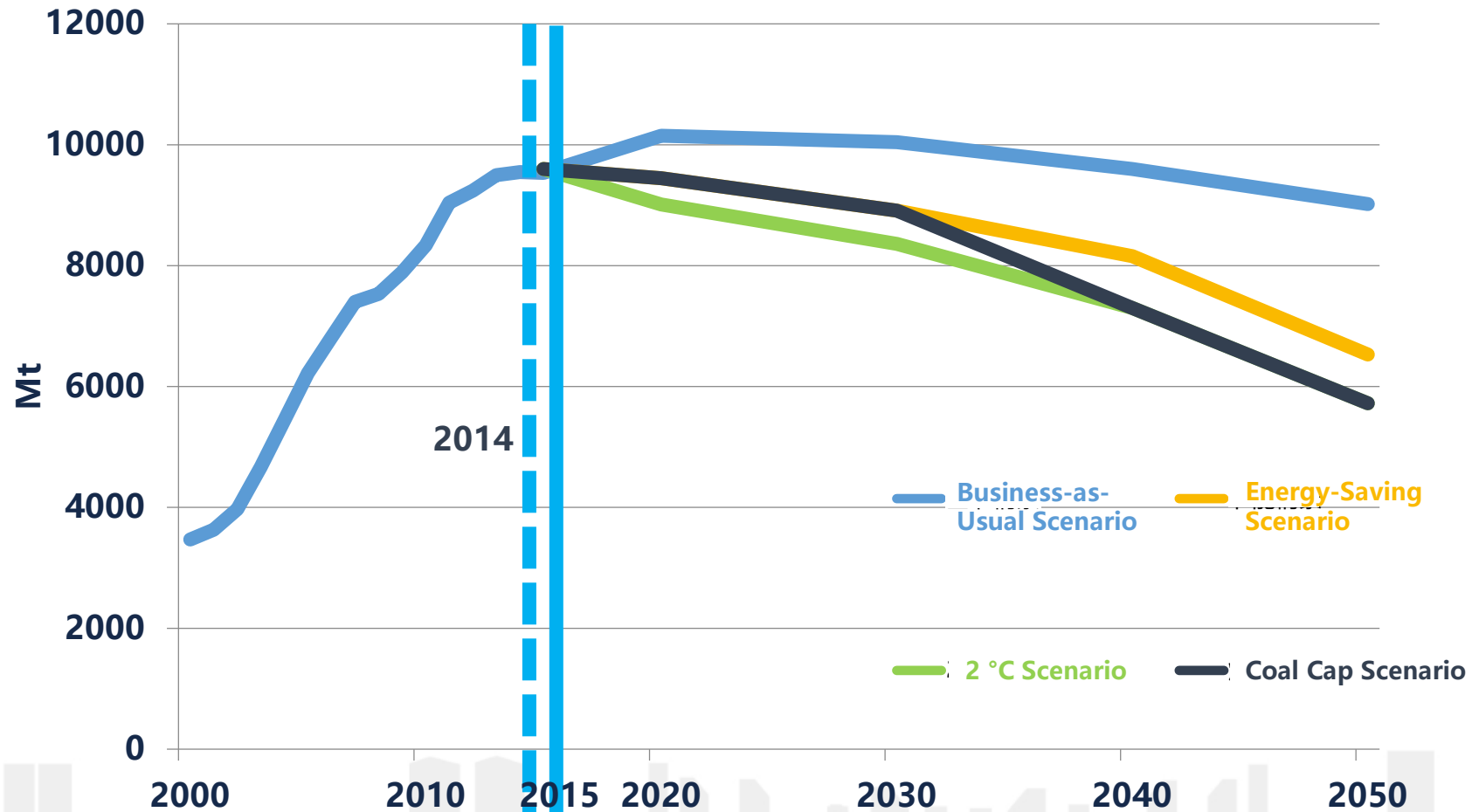
China Energy Development Outlook 2015-2050 (Coal Cap Scenario)



Source: *The China Coal Consumption Cap 2050* by Coal Cap Project, 2014

1.2

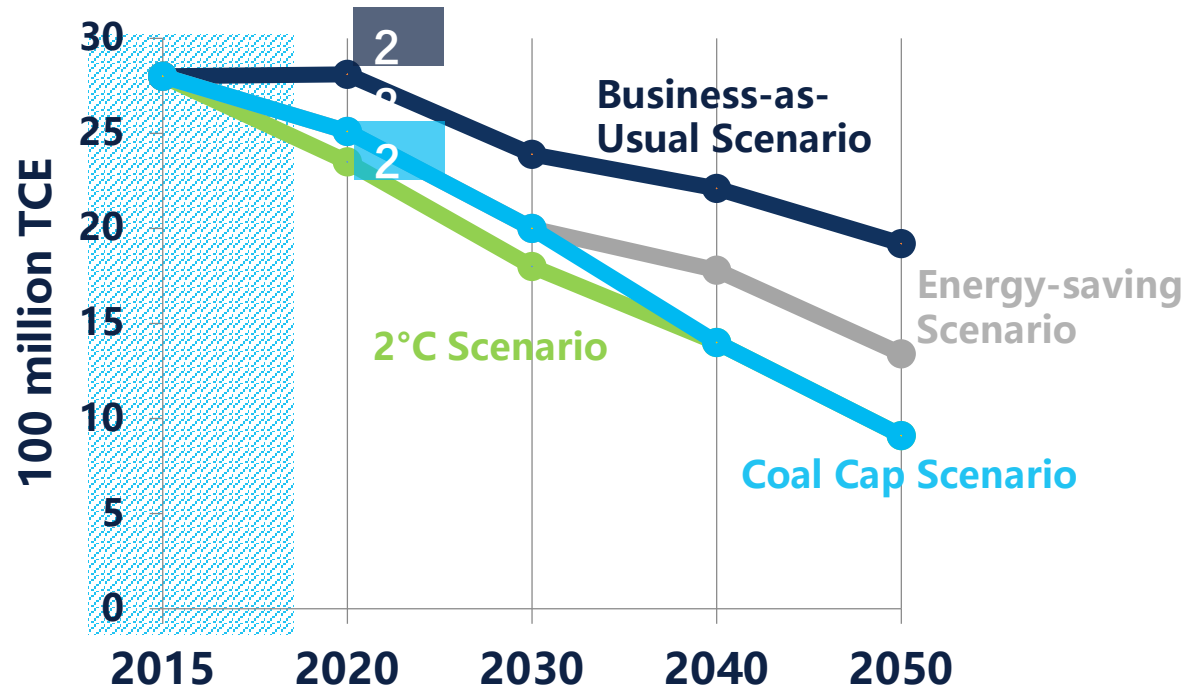
Carbon Emissions under Different Scenarios 2015-2050



Source: *The China Coal Consumption Cap 2050 by Coal Cap Project, 2014*

2.1

2020 Coal Cap Goal: 2.5 Billion TCE, 55% Share of Energy



2020 Coal Cap Goal : 2.5 bln TCE
(3.5 bln tons of coal)

Total Energy Consumption : 4.58 bln TCE

Coal Share : 54.8%

Natural Gas Share : 10.4%

Non-fossil Fuel Share : 15.7%

Oil Share : 19.0%

Coal Reduction Goal : 0.3 bln TCE
(0.42 bln tons of coal)

Coal Production Goal : 3.4 bln tons of coal

2015-2050 Coal Consumption Scenarios

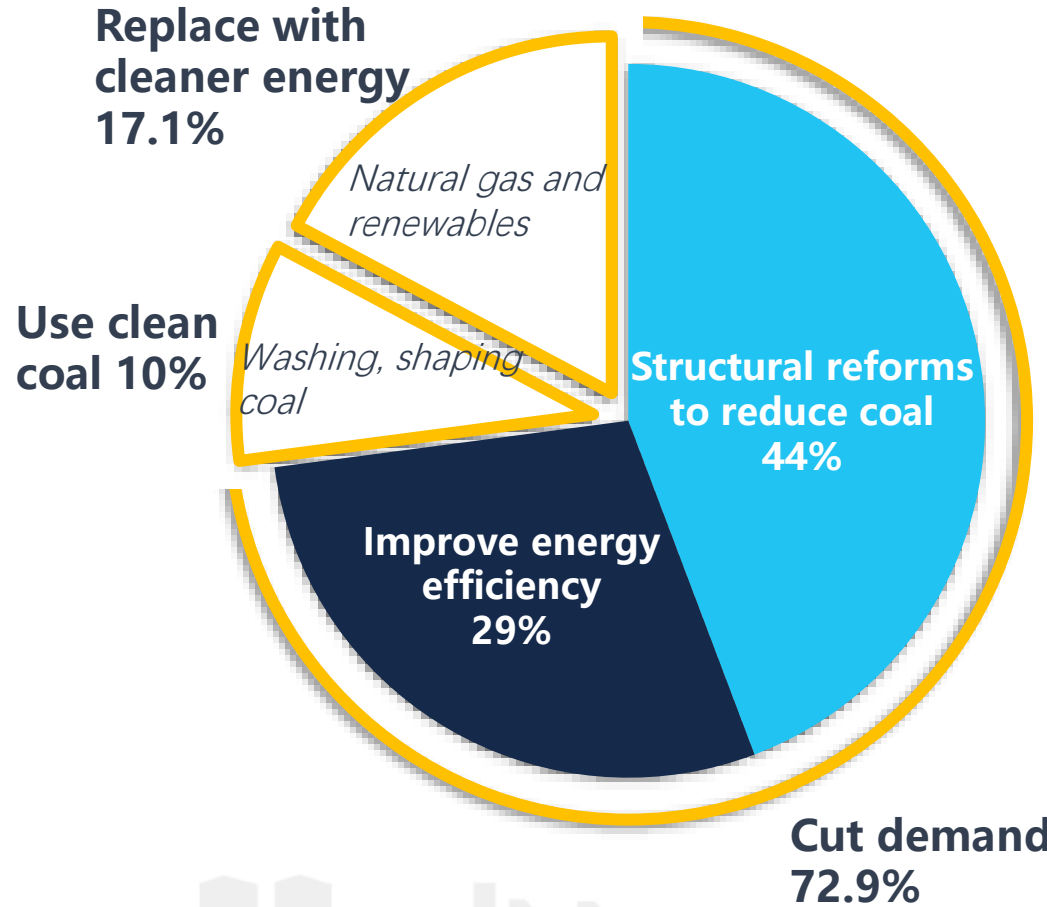
2.2

Three Major Approaches to Cut Coal Consumption

Coal Reduction by 2020

0.3

Billion TCE



Emission Reduction by 2020

SO₂ : **5.59** million tons

NO_x : **1.92** million tons

PM : **900,000** tons

2.3

Coal Cap Target Allocation for Regions, Provinces, and Cities



Scale Coal Reduction Goals by 2020



Regions	Coal Reduction by 2020 2020 (million tons)
Beijing-Tianjin-Hebei, Shanxi, Henan, and Shandong	77.5
-- <i>Beijing-Tianjin-Hebei alone</i>	24.5
Yangtze River Delta and nearby regions	72.5
-- <i>Yangtze River Delta alone</i>	50.5
Sichuan-Chongqing-Guizhou, Hunan, and Hubei	49.5
-- <i>Sichuan-Chongqing alone</i>	30
Northwest (Inner Mongolia, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang)	160.5
Northeast (Heilongjiang, Jilin, Liaoning)	48
Southeast (Fujian, Jiangxi, Guangdong, Guangxi, Hainan)	8.3
Southwest (Yunnan, Tibet)	11
Total	427.3

2.3

Policy Recommendations on Coal Cap in Different Industries

Power Generation

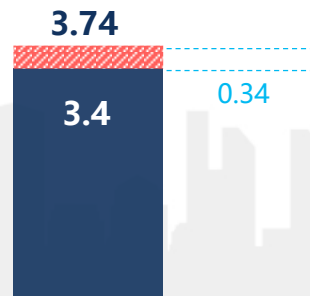
Coal power transitions from a main to a supporting role; no new coal power plant approves in the 13th FYP; no new approval of coal gangue/low heat coal power plants.



100 million TCE

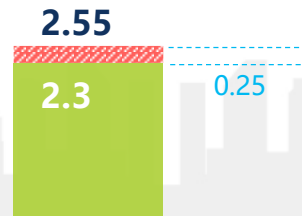
Iron & Steel

Develop policies on steel scrap recycling and reduce the export of energy-intensive products to cut 100-150 million-tons excess capacity



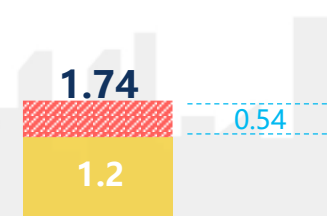
Buildings

Limit built-up area to 70 billion m² by 2020, with 85% meeting international standards and 50% green buildings. 15% of the total energy use will be renewables



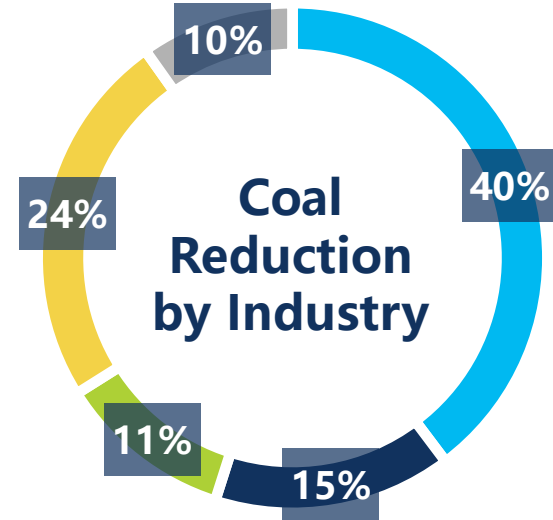
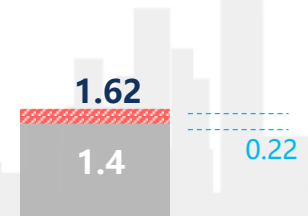
Coal Chemicals

Halt the approval of CTO and CTG projects and slow down the process of approving coal-to-olefins and ethylene glycol projects



Cement

Reduce excess capacity, and co-process municipal and industrial waste and sludge



3.1

3 Provincial, 3 City 2020 Coal Cap Pilot Projects

- Inner Mongolia by 2020
- Coal consumption: **110** mln TCE
 - Coal production: **680** mln TCE

- Shaanxi by 2020
- Coal consumption: **97.3** mln TCE
 - Coal production: **290** mln TCE

Coal consumption target of **21.36** mln TCE by 2020

Shijiazhuang

- Shandong by 2020
- Coal consumption: **250** mln TCE

Xi'an

Wuhan

Coal consumption target of **20.61** mln TCE by 2020

Coal consumption target of **8** mln TCE by 2020

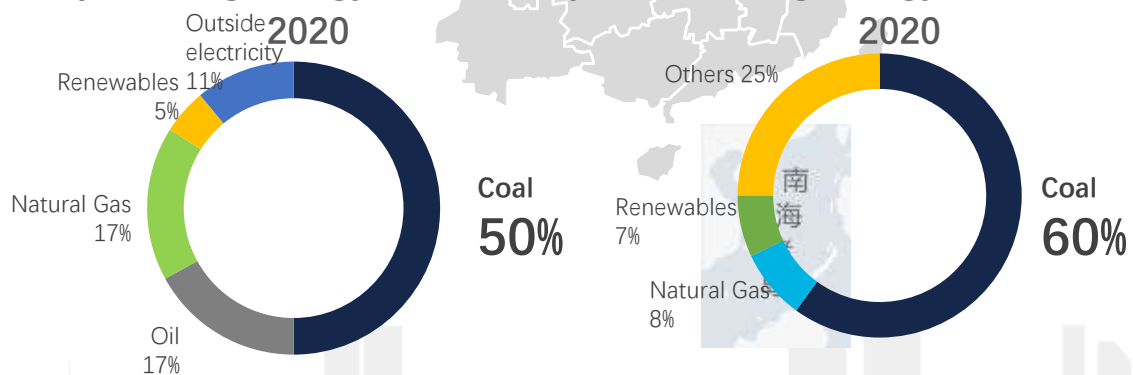


3.1.1

Demonstrative Projects in Beijing-Tianjin-Hebei and Nearby Provinces Air Quality as the Main Concern



Shijiazhuang Energy Structure by 2020 Shandong Energy Structure by 2020



Overview:

- A number of energy-intensive industries are located in this area with high consumption of coal, leading to heavy air pollution.

Goals by 2020

Shandong

PM2.5 : $49\mu\text{g}/\text{m}^3$
Coal consumption:
250 mln TCE

Shijiazhuang

PM2.5 : $64\mu\text{g}/\text{m}^3$
Coal consumption:
21.36 mln TCE

Policy Recommendations:

Capacity reduction: phase out old facilities and upgrade with energy-efficient technology

- Renewable energy and natural gas as replacement
- Managing dispersed coal

Target of zero dispersed coal use by 2017 in Shijiazhuang

Shandong plans to address 40 million tons of dispersed coal

3.1.2

Demonstrative Project in Western China Water Crisis and Air Quality as the Main Concerns

Overview:

Provinces in western China are not only large coal consumers, but where most of the country's coal is produced. Air pollution is becoming worse with a threat from water shortage.

Goals by 2020

Inner Mongolia

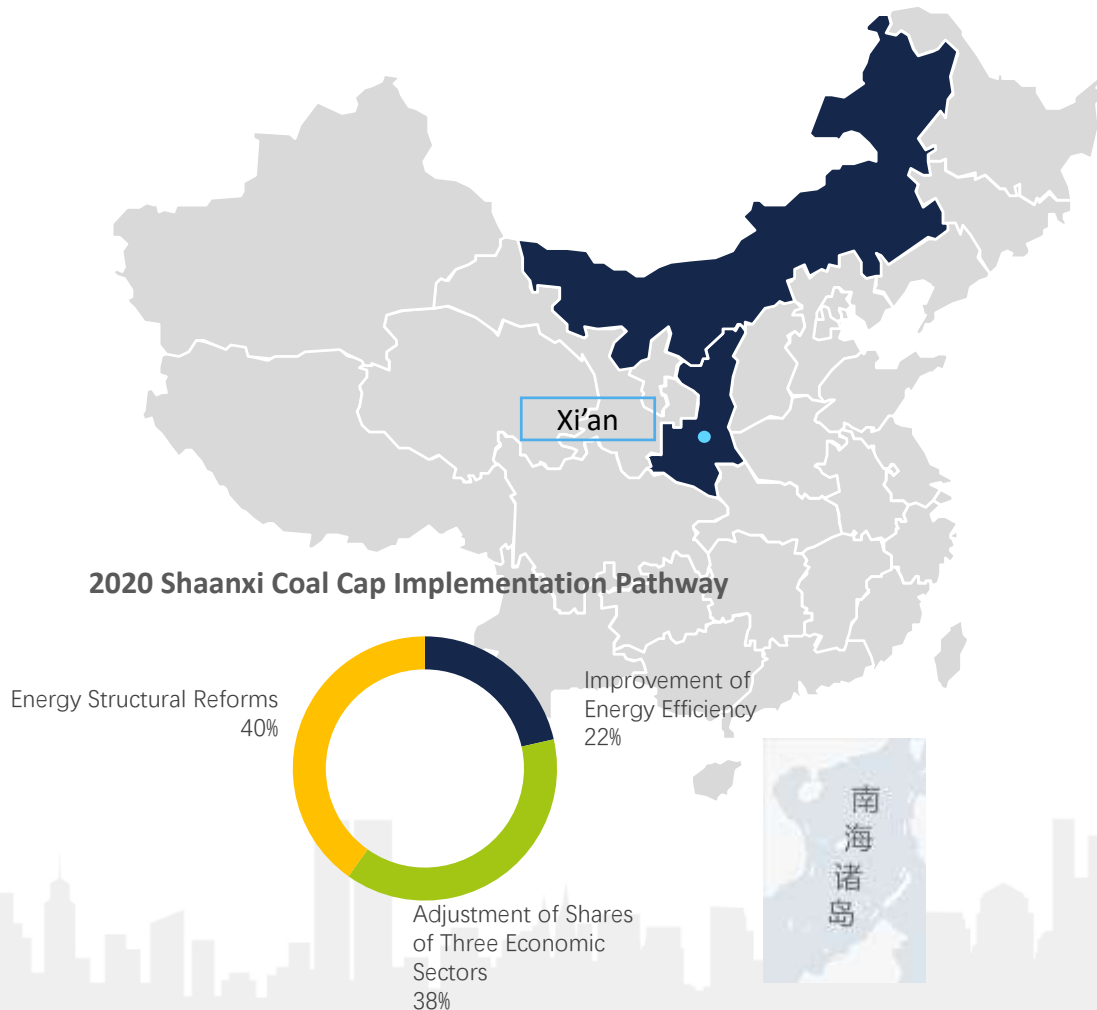
Coal consumption:
210 million TCE
Coal production: 680
million TCE

Shaanxi

Coal consumption:
97.30 million TCE
Coal production: 290
million TCE

Xi'an

Coal
consumption: 8
million TCE

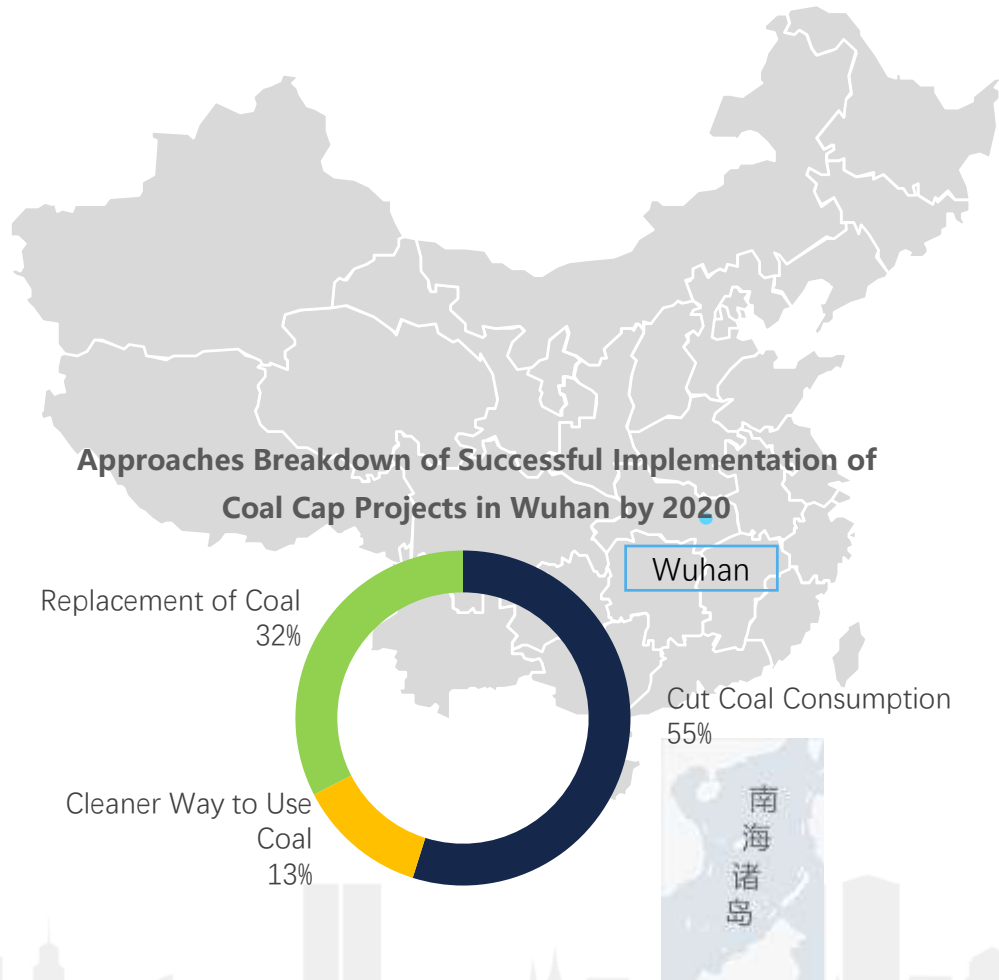


Policy Recommendations:

- Continue phasing out plants of low energy efficiency in Inner Mongolia and Shaanxi
- Adjust the shares of three economic sectors – develop sustainable livestock ranching in Inner Mongolia
- Renewable energy and natural gas as replacement
- Managing dispersed coal
- Promote energy-efficient technology in coal-related industries

3.1.3

Coal Cap Project in Wuhan Carbon Emissions as the Main Concern



Overview:

As a major industrial city along the Yangtze River, Wuhan is aiming to peak its carbon emissions by 2022.

Goals by 2020

Wuhan

PM2.5 : 49 μ g/m³

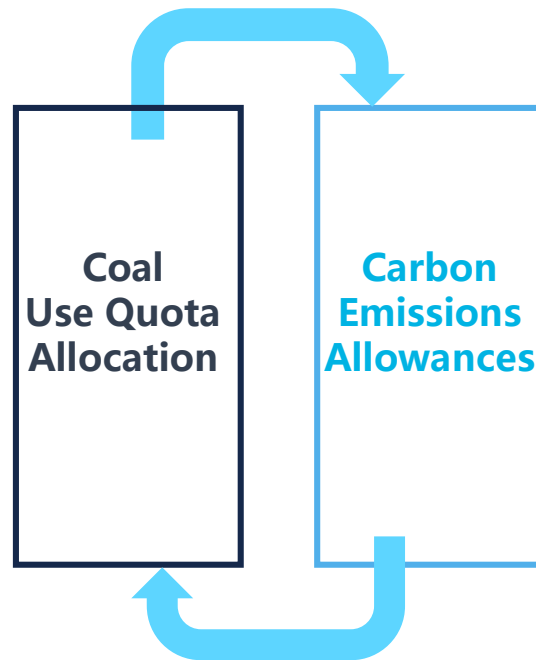
Coal consumption: 20.61 million TCE by 2020

Policy Recommendations:

- Cut excessive capacity in power, iron and steel, and cement industries
- Adjust the shares of three economic sectors – the tertiary sector reaching 61% by 2020
- Energy Structural Reforms – Coal share lower than 36.6% by 2020

3.1.4

Exploring the Coal Quota Initial Allocation Plan



By City

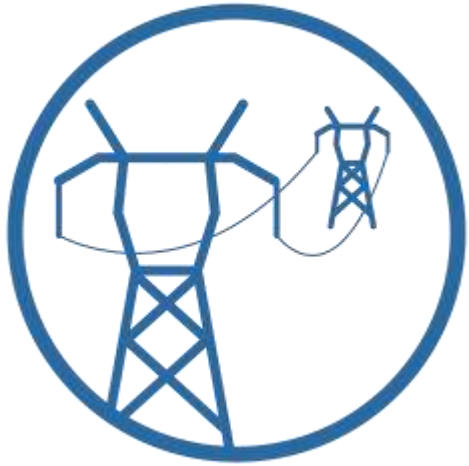
- Shijiazhuang – 1,120 companies under the coal use quota cap-and-trade program, aiming at improving air quality .
- Wuhan – Integrate coal use and CO2 emissions trading programs, aiming at improving air quality and peaking carbon emissions

By Industry

- Target at power, iron and steel, cement, and coal chemical industries
- Threshold of 10,000 TCE and above
- Prioritize use of baseline method for setting coal use quotas, design allocation plan based on local industry conditions and differences in regions

3.2.1

Coal Cap Implementation and Reducing Overcapacity in the Power Sector



Control the growth of coal-fired plants

- Over-capacity risk of coal-fired power plants
- Coal power installed capacity should be limited to 930-960 GW by 2020
- Suspend the construction and approval of plants in the 13th FYP; no new coal cap capacity after 2019

Upgrade the current plants

- Improve the efficiency of coal power plants based on local conditions

Speed the integration of renewable energy

- Focus on renewable energy integration, including generation, transmissions, distribution, operation, dispatch, and customers
- Implement deep coal power plant flexibility retrofits
- Expand energy storage and demand response

3.2.2

Coal Cap Implementation and Dealing with Overcapacity in Iron and Steel Industry



Cut excessive capacity

- Target crude steel capacity reduction of up to 140 million tons in the 13th FYP
- Mergers and restructuring
- Reduce to 700 million tons of production by 2020

Recycle steel scrap

- Guide scrap metal to be sent to appropriate iron and steel enterprises. Provide a 30% tax refund for steel scrap recycling.

Develop energy-saving technologies

- The 13th FYP will support R&D on several coal-saving and emissions reduction technologies
- Some mature technologies are already included in the National Promoted Low-carbon Technologies Catalog

Coal Cap Implementation and Dealing with Overcapacity in the Coal Industry



Phase out outdated capacity

- By 2020, phase out 1 bln tons outdated capacity, including 800 mln tons illegal capacity
- Production of 3.4 bln tons by 2020
- BY 2030, phase out 2 bln tons outdated, non-scientific production capacity.

Increase scientific production capacity

- 2.75 billion tons by 2020, 65% share
- Achieve 100% by 2030

Greening “One Belt One Road”

- Provide OBOR strategy for coal industry and green indices for coal companies

Coal Cap Implementation and Dealing with Overcapacity in the Cement Industry



Cut excessive capacity

- Target 300 mln ton reduction in cement clinker production capacity in 13th FYP
- Production of 2.1 bln tons cement by 2020

Innovation driven economy

- Encourage innovation and technology development in the industry
- More than 30% production line is equipped with new technology
- By 2020, 1/3 of the cement companies will build Energy Management Centers/Systems
- Vigorously promote cement co-processing of municipal waste

Greening “One Belt One Road”

Develop green, low-carbon indices for cement companies

Coal Cap Implementation and Inventory Reduction in the Buildings Sector



Limit the total energy consumption of buildings

- Limit the total energy consumption under 950 million TCE and coal consumption under 230 million TCE by initiating national and provincial projects over the 13th FYP period
- Built-up area limited to 70 billion m² by 2020

Apply energy-saving technologies

- Scaling the application of advanced building efficiency technologies to cut energy consumption in construction industry

Reduce Inventory

- The inventory reduction policy will effectively control the total built-up area but will have less impact on reducing the life cycle energy consumption of residential buildings

3.2.6 Coal Cap Implementation in Coal Chemical Industry



Development principles for the coal chemical industry in the 13th FYP

Respect environmental constraints, limit development to pilot projects, focus on development of technology, reduce pollution and carbon emissions, focus on benefits. Strengthen regulations on conducting water resources testimony of construction projects

- Water impacts should determine production, projects should protect water resources
- Air/water emissions should meet the highest standards
- All waste sludge should be treated, made harmless and recycled
- Zero liquid discharge is required, with strong measures to prevent leaks



4.1.1

Managing Dispersed Coal as One of the Key Solutions

Dispersed coal

- Small boilers of capacity less than 20 steam tons
- Dispersed coal for residential use (90% goes to heating)

Managing dispersed coal is the key to control air pollution

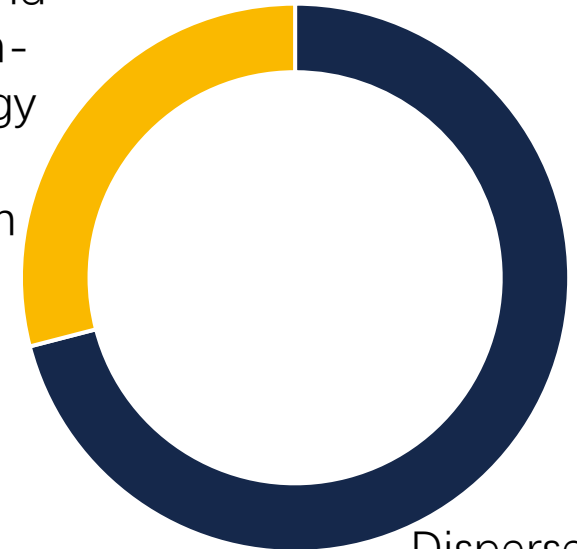
- The pollutants from firing one ton of dispersed coal are 5-10 times as much as those from a coal-fired power plant. The residential use of dispersed coal generates more pollutants than all the coal power plants in China do.
- Dispersed coal for residential use consumes less than 10% of coal, while it contributes to about 50% of the air pollution

Economic and social benefits:

- Pollution reduction
- Climate mitigation
- Improvement of human health and quality of life

93 million residents of rural areas use dispersed heating systems

Biomass and other non-coal energy sources
27 million

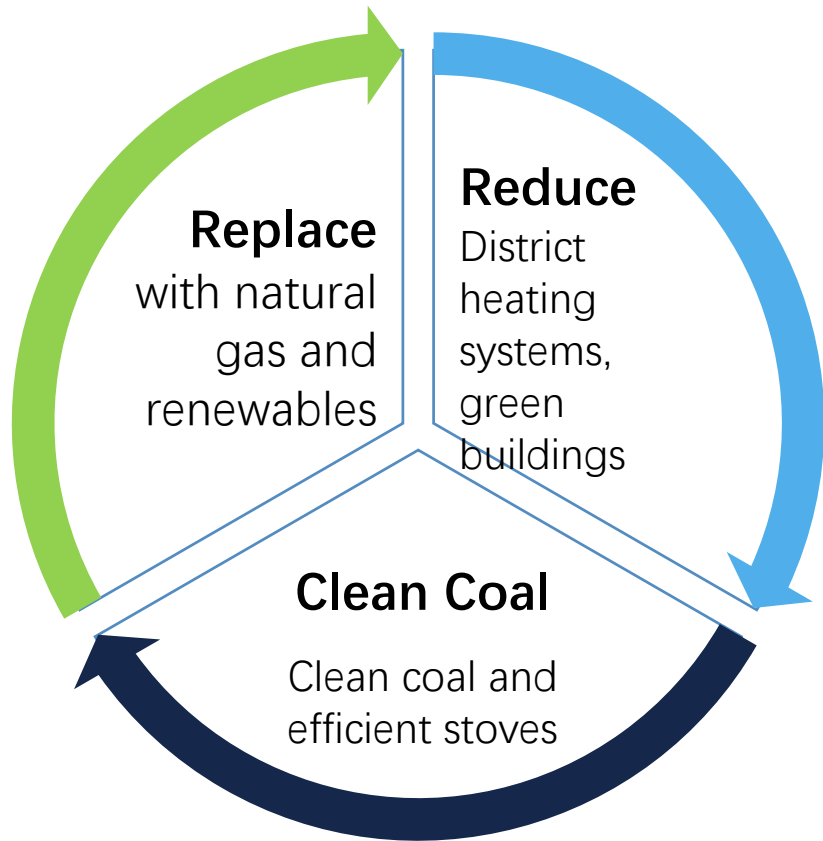


Dispersed coal
66 million



4.1.2

Demonstrative Projects for Managing Dispersed Coal



Xi'an

- Heavily polluting fuels are banned in specific areas
- Phased out or upgraded 602 boilers with capacity less than 20 steam tons in 2014 and 2015

Shijiazhuang

- No dispersed coal used in urban areas, and clean coal used in rural areas
- Subsidies provided to support the replacement of coal with natural gas, electricity, and clean coal for heating homes and business

Beijing-Tianjin-Hebei

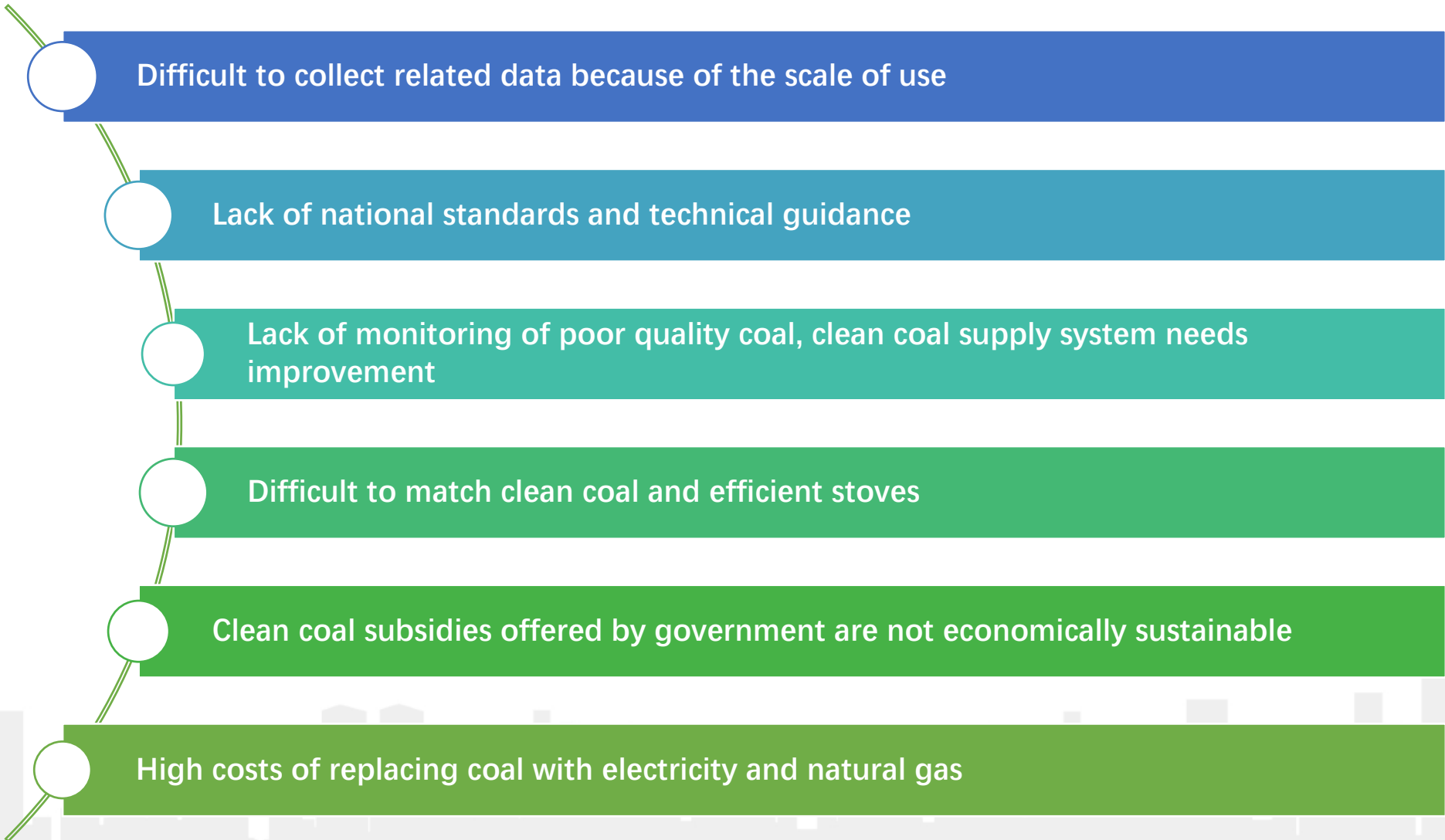
- Heavily polluting fuels are banned in specific areas in Beijing, Tianjin, Baoding, and Langfang
- Phase out boilers of capacity less than 10 steam tons

Wuhan

- Plan to upgrade boilers to reduce coal consumption by 674,900 tons over the 13th FYP period

4.1.3

Key Issues and Challenges in Managing Dispersed Coal



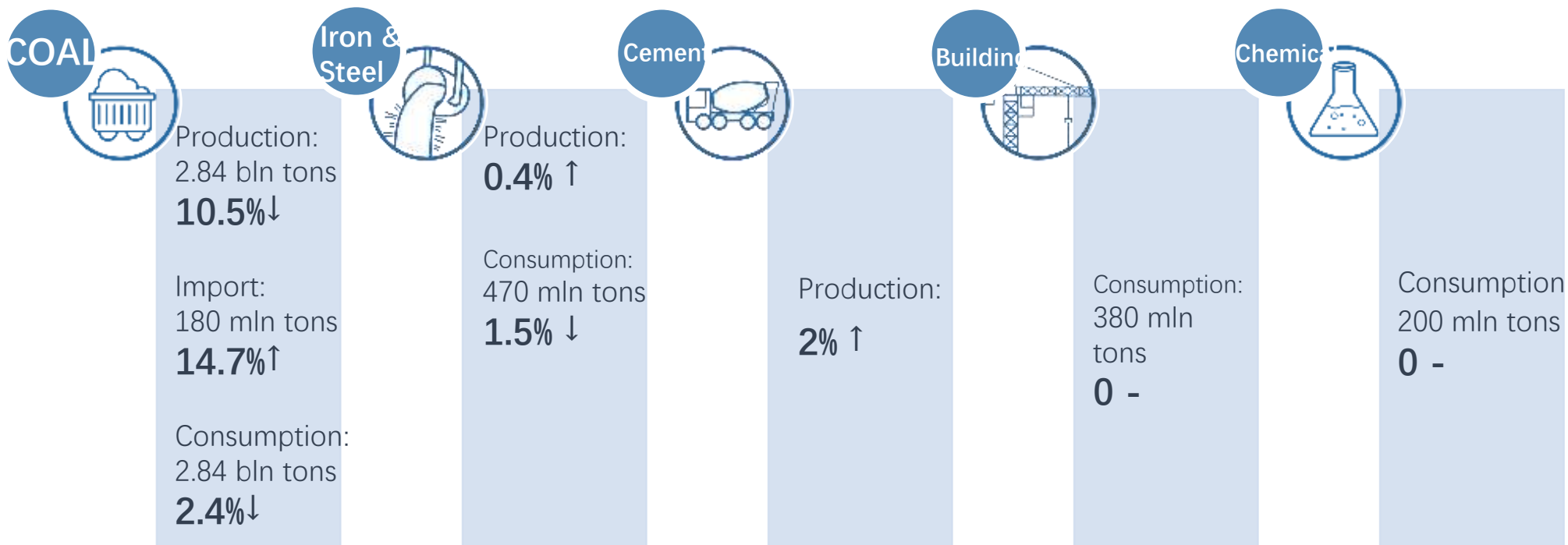
4.2

Social Impacts and Pressures of Capping Coal and Reducing Excess Capacity



4.3

Preventing the Rebound of Energy-Intensive Industries



5 Setting Higher Goals for Coal Cap Targets

Promote China's Green Leadership
in "One Belt One Road"

Address the Barriers to Eliminating
the Use of Dispersed Coal

Expand Coal Cap Local
Demonstration Projects

Research 1.5 °C Control Pathways

