

Policy initiatives to address climate change in China

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Policy initiatives to address climate change in China

- International climate pledges
- National legally binding targets
- Implementation mechanisms



International climate pledges

- **Copenhagen Climate Conference in 2009**
 - To lower carbon dioxide emissions per unit of GDP by 40-45% by 2020 from the 2005 level; and
 - To increase the share of non-fossil fuels in primary energy consumption to around 15% by 2020.

- **Paris Climate Conference in 2015**
 - **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 60-65% by 2030 from the 2005 level; and
 - To increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030.



National legally binding targets

- The 12th Five-Year-Plan (2011-2015)
 - Energy intensity target: reduce 16% relative to 2010
 - Carbon intensity target: reduce 17% relative to 2010
 - Non-fossil energy target: 11.4% of non-fossil fuels in primary energy supply by 2015
- The 13th Five-Year-Plan (2016-2020)
 - Energy intensity target: reduce 15% relative to 2015
 - Carbon intensity target: reduce 18% relative to 2015
 - Non-fossil energy target: 15% of non-fossil fuels in primary energy supply by 2020



Implementation mechanisms

- The 12th Five-Year-Plan (2011-2015)
 - Disaggregating national targets into provinces;
 - Yearly progress check and supervision organized by the *State Council*;
 - ***Subsidy program on energy conservation projects***;
 - Find-in tariff for renewable energy electricity;
 - Electricity surcharge for renewable energy electricity;
 - Taxes: fossil resources tax and transport fuel tax
 - Energy efficiency standards: building and transport fuel;
 - National R&D program: MOST and NSFC; and
 - ***Emission trading system pilots in five provinces and two cities***
- The 13th Five-Year-Plan (2016-2020)
 - Disaggregating national targets into provinces;
 - Yearly progress check and supervision organized by the *State Council*;
 - Find-in tariff for renewable energy electricity;
 - Electricity surcharge for renewable energy electricity;
 - Taxes: fossil resources tax and transport fuel tax
 - Energy efficiency standards: building and transport fuel;
 - National R&D program: MOST and NSFC; and
 - ***National emissions trading system (ETS)***



The Chinese ETS will focus on large enterprises in energy-intensive sectors (>10,000 tce / >20,000 t CO₂)

Industry	Code	Main Products	Allocation Methodology
Petrochemicals	2511 2614	Refined oil products Ethylene	Benchmarking
Chemicals	261 262 263 265	Calcium carbide Synthetic ammonia Methanol Other	Historical emissions intensity
Building materials	3011	Cement clinker	Benchmarking
	3041	Plate glass	Benchmarking
Iron and Steel	3120	Crude steel	Historical emissions intensity
	3140	Steel rolling & processing	
Non-ferrous metal processing	3216	Aluminum electrolysis	Benchmarking
	3211	Copper smelting	Historical emissions intensity
Pulp & paper	2211	Pulp Paperboard	Historical emissions intensity
	2212		
	2221		
Electricity	4411	Power generation Power and heat co-generation	Benchmarking
		4420	Electricity grid
Aviation	5611	Passenger air transport	Benchmarking except for airports (historical emissions)
	5612	Cargo air transport	
	5631	Airports	

An ETS based on multi- sector tradeable performance standards in nature

$$A = \sum_{i=1}^M \sum_{j=1}^N \rho_{ij} \times S_j \times q_{ij}$$

Local authority (points to ρ_{ij})
Central authority (points to S_j)
Company decision (points to q_{ij})

Where

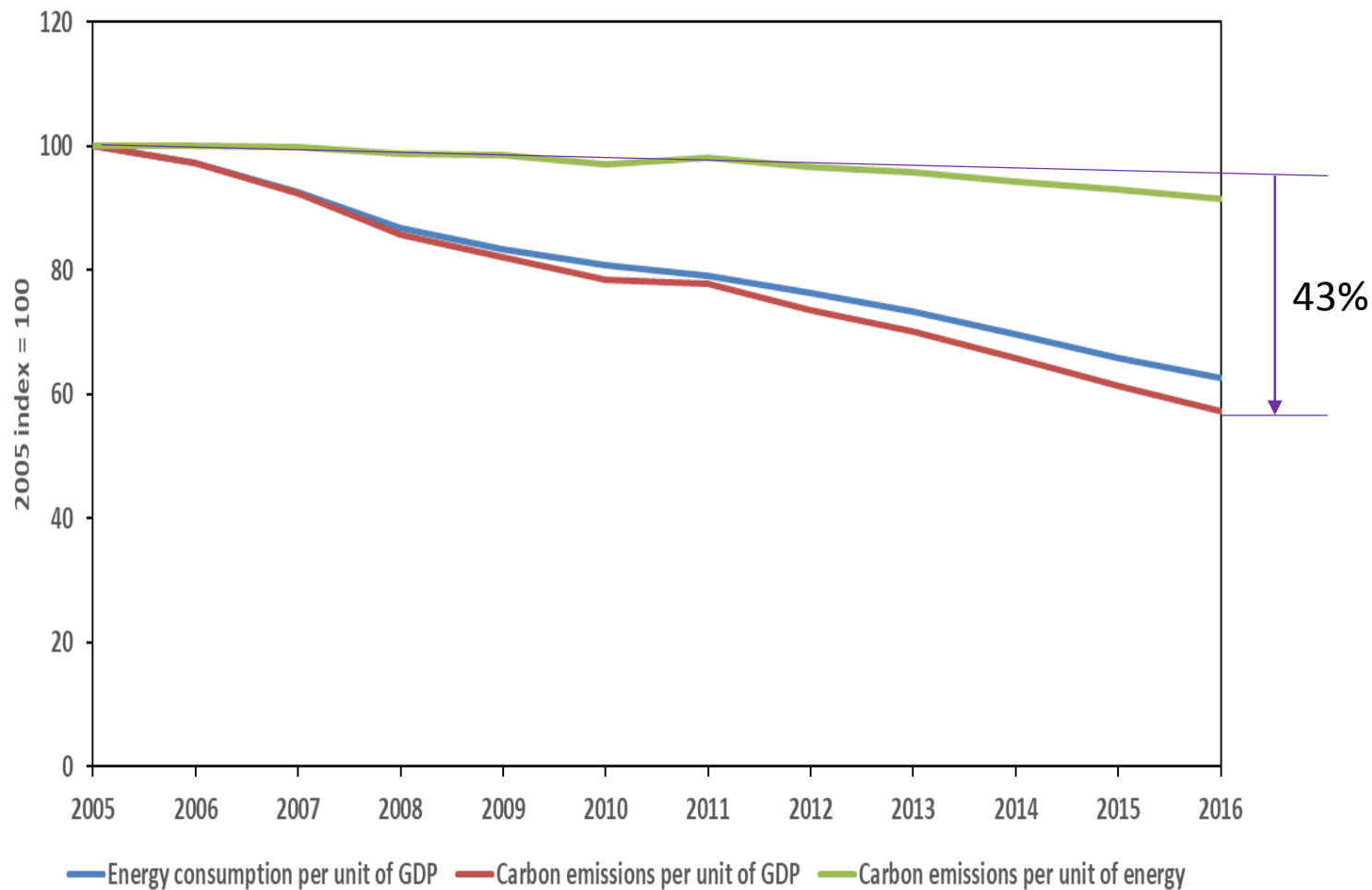
A — The total allowance of the national carbon market;

ρ_{ij} — The adjustment factor for the standard in sector j in province i , $0 < \rho_{ij} \leq 1$;

S_j — The national emission performance standard for sector j ; and

q_{ij} — The actual physical output of sector j in province i at the proposed year.

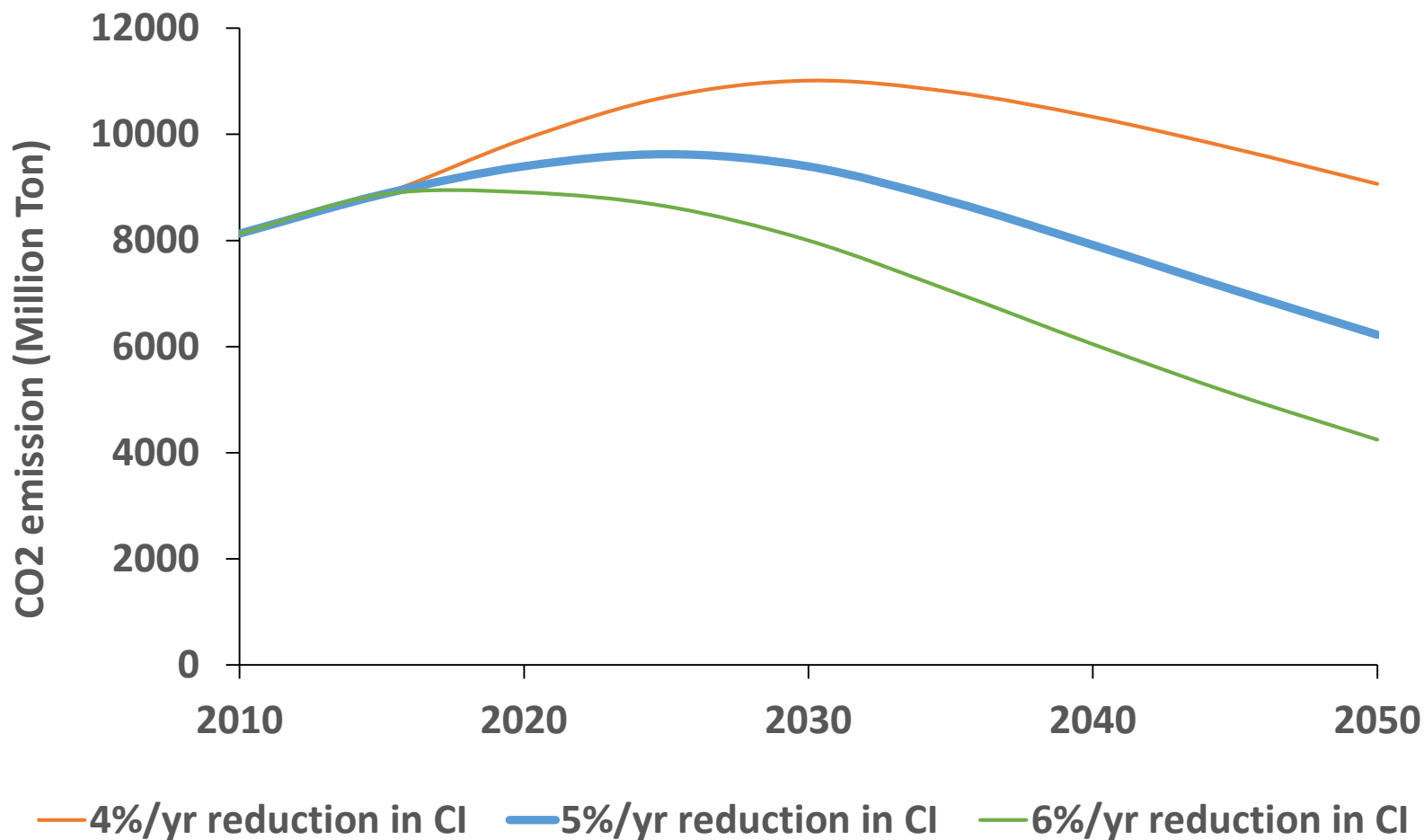
Progress in the transition to a low carbon economy



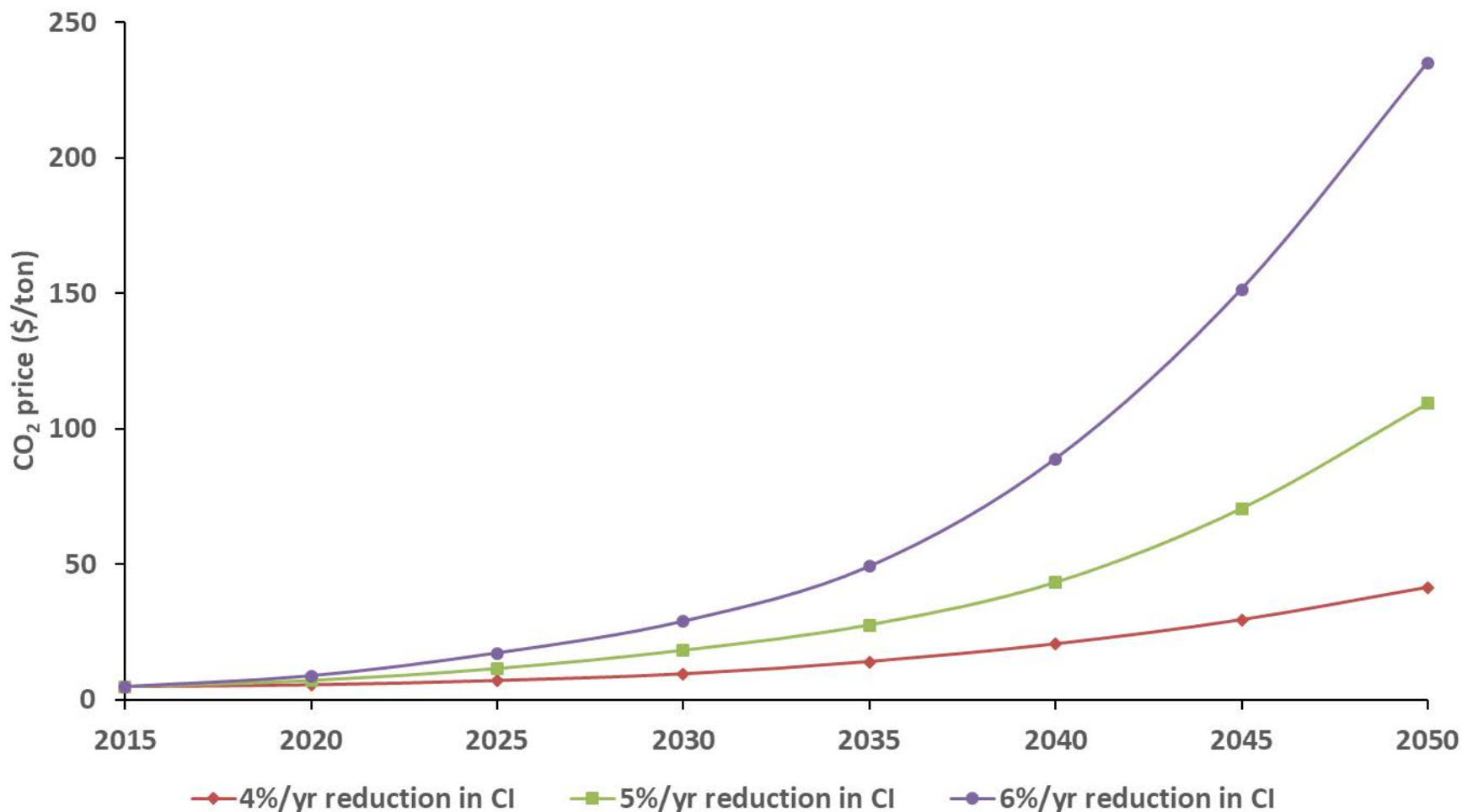
The share of non-fossil fuels in primary energy supply reached 13% in 2016.



CO₂ emissions under different rates of carbon intensity (CI) reduction Scenarios with C-GEM Model



The Carbon Price under different rates of carbon intensity (CI) reduction Scenarios in addition to Feed-in Tariff and Natural gas subsidy



International cooperation

- Research and Development
 - *Ministry of Science and Technology (MOST)*
 - *National Natural Sciences Foundation of China (NSFC)*
- Emission trading system
 - *National Development and Reform Commission (NDRC)*
- Global GHG emissions stocktaking
 - *National Development and Reform Commission (NDRC)*



Thank you for your attention.

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