

Status of China's regional trading programs: progress and challenge

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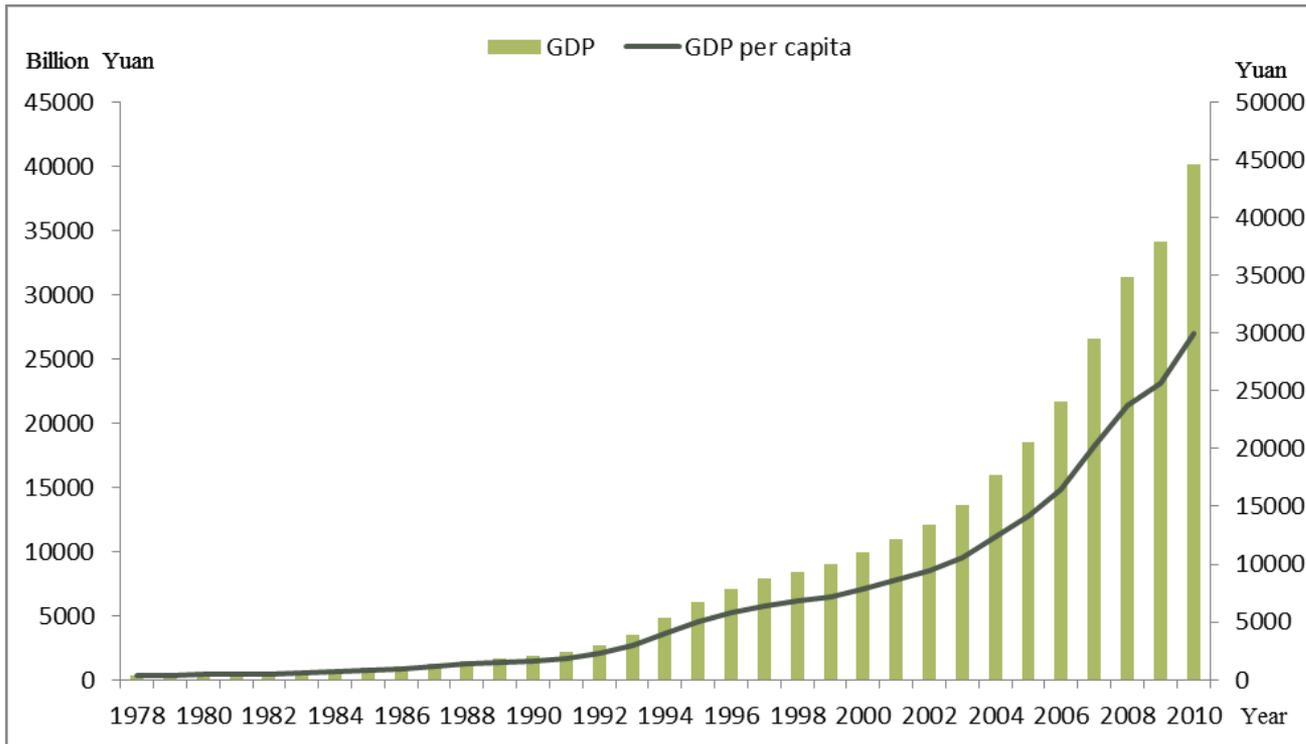
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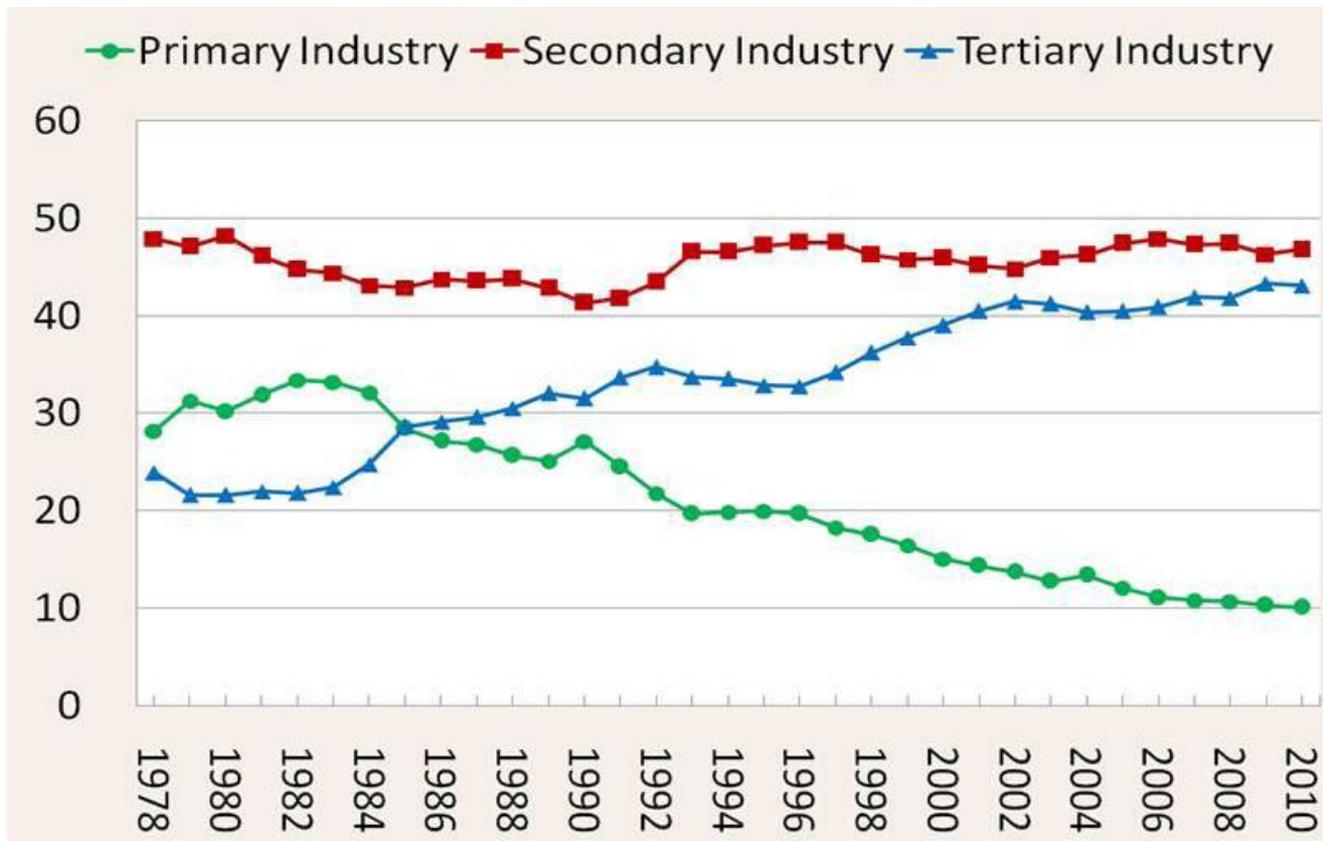
Background



- GDP:
 - 40 thousand billion RMB in 2010
- GDP per capita
 - 5,000 USD
 - Middle income level

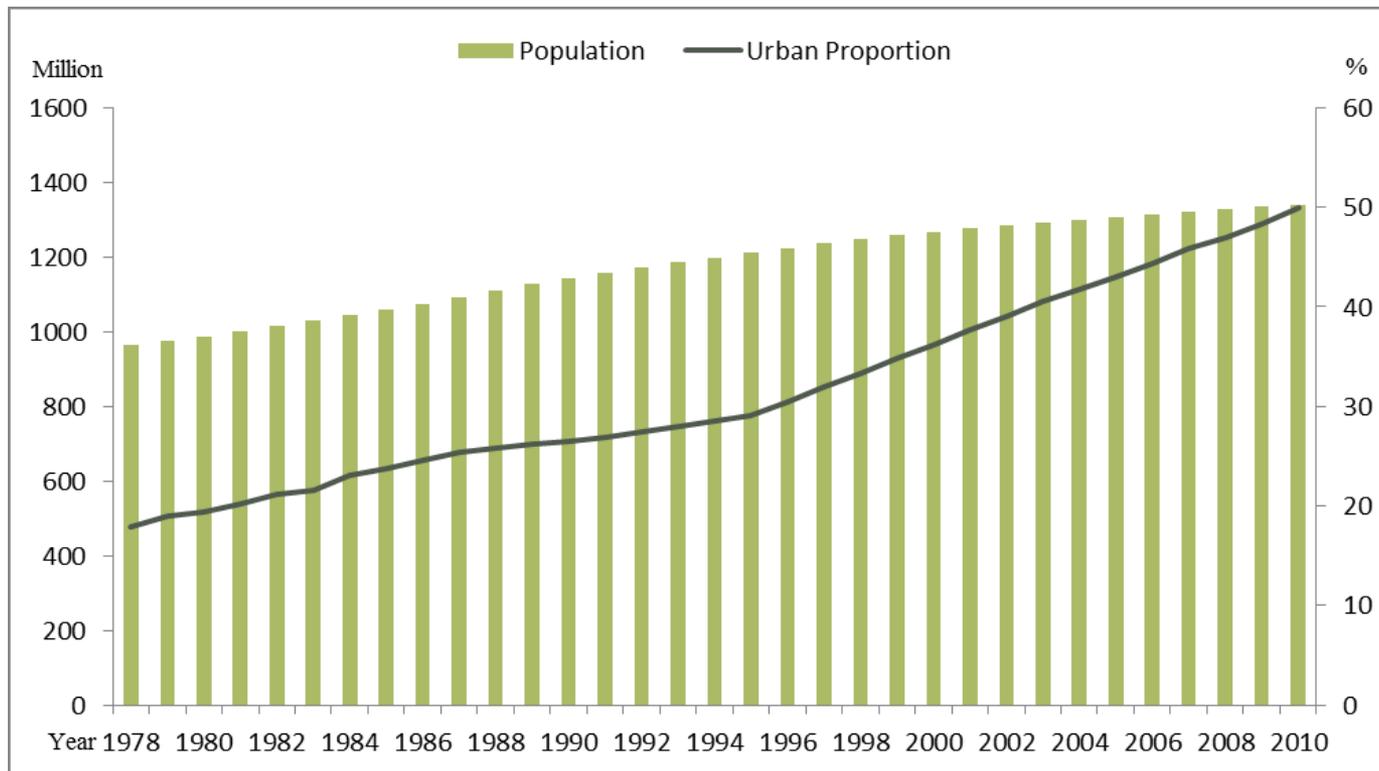
Background

- China's economic structure
 - During industrialization phase



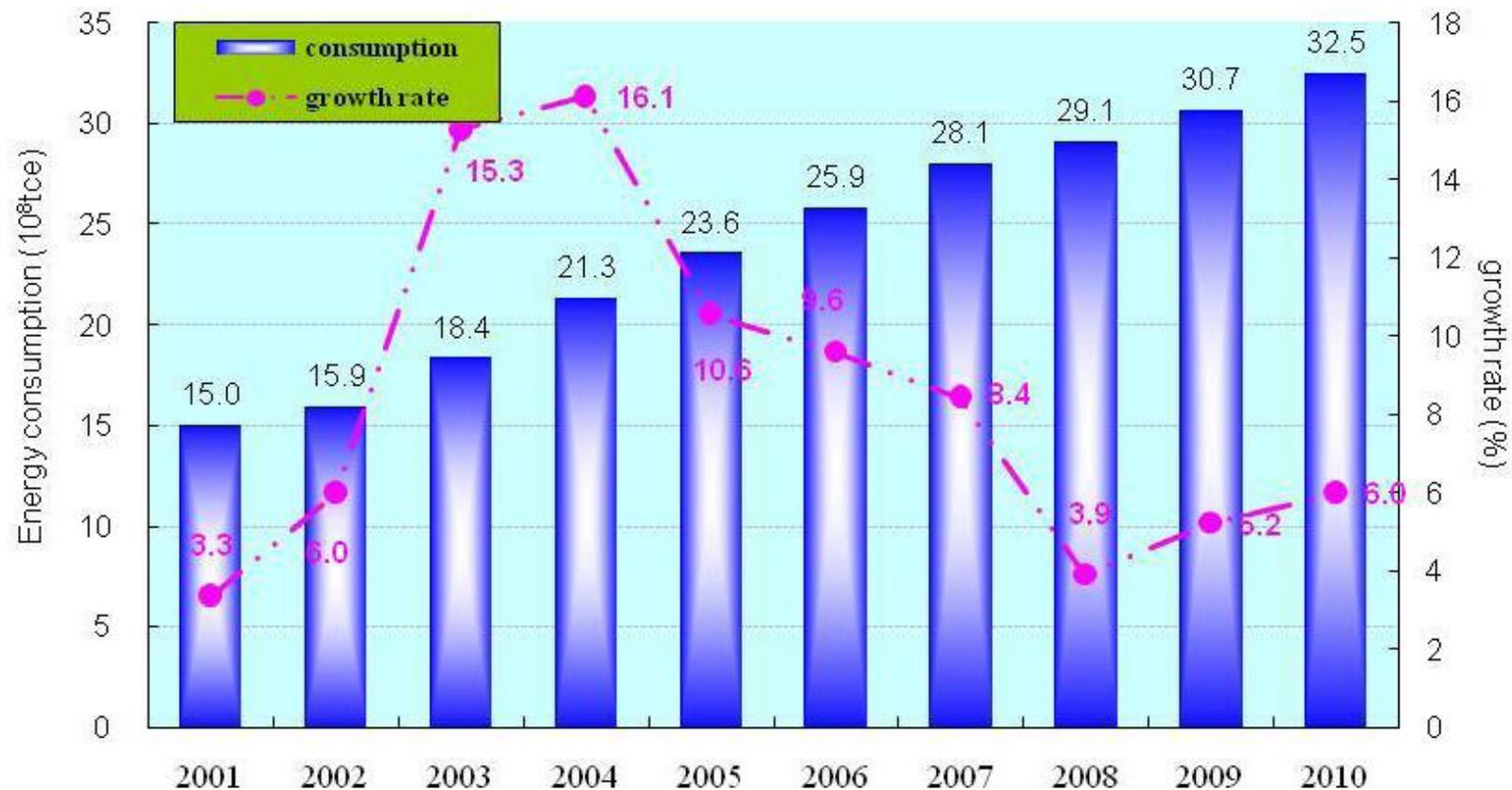
Background

- China's population and urbanization
 - Population: 1.35 billion
 - Urbanization: 50%



Background

- Energy consumption 3.25 billion tce in 2010
- Decoupling of economic growth and energy consumption during the 11th FYP

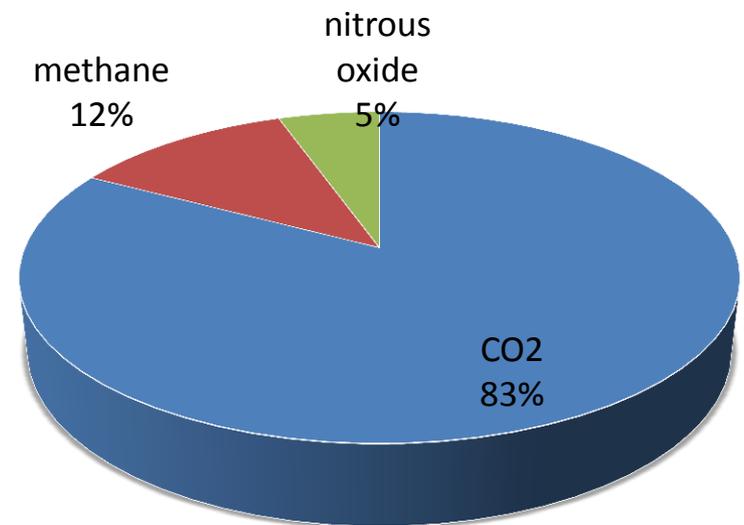


Background

- Policy context, objectives and envisioned role for new market instruments
 - China set the target to reduce its CO₂ emissions per unit of GDP by 40–45 per cent by 2020 compared with the 2005 level.
 - A binding target of reducing the CO₂ emissions per unit of GDP by 17% during the 12th Five-Year Plan period was established.
 - China initiated low carbon pilot projects in five provinces and eight cities.
 - The National People's Congress approved Outline of the 12th Five-Year Plan, which clearly mentions that China will establish statistical and verification systems for GHG emissions and gradually establish a carbon emissions trading system.

Background

- Overview of China's GHG emission
 - According to China's National Program on Climate Change, China's total GHG emissions in 2004 were 6.1 billion tons of CO₂ equivalents.
 - After removing the amount of carbon sink, the net emission of GHG in China in 2004 was 5.6 billion tons of CO₂e.
 - China is still at a lower stage of development with a huge population.



GHG emissions in 2004 in China

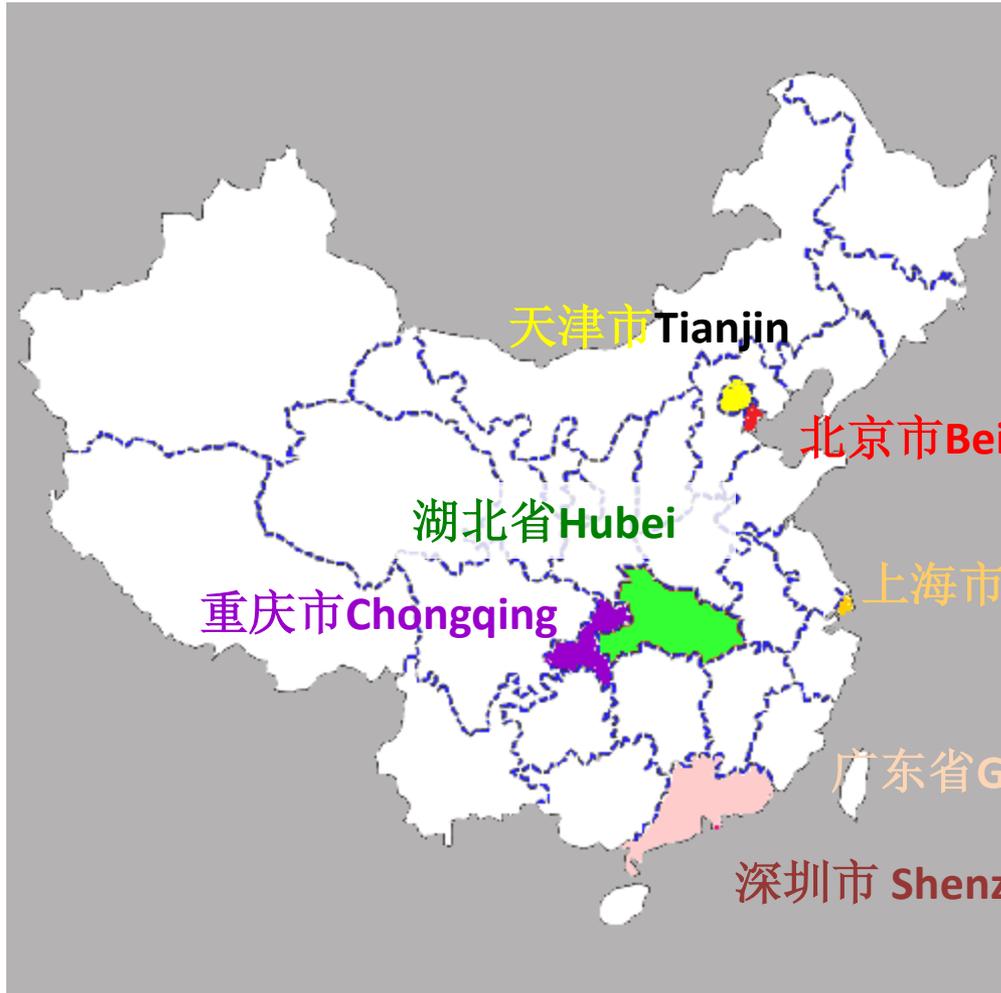
Background

- Interest in carbon market
 - Emissions trading could help achieve the objective of controlling GHG emissions at lower costs.
 - The Government of China will, according to the requirements of the Outline of the 12th Five-Year Plan, gradually establish a market system for carbon emissions trading to promote the achievement of its carbon intensity reduction objective.
 - The National Development and Reform Commission (NDRC), is prompting with great efforts the establishment of a carbon market.
 - To promote trading of voluntary credits generated on a project-by-project basis
 - To organize relative provinces and municipalities to introduce emissions trading systems.
 - Try to establish a unified national system in 2015.

Background

- Key relevant initiatives
 - Strengthening local capacity to compile local greenhouse gas inventories
 - NDRC has published guidelines for compilation of provincial greenhouse gas inventories, and initiated the work on the compilation of local greenhouse gas inventories.
 - Plans to organize research on guidelines for emission accounting for key sectors
 - NDRC is now organizing research on the methodology for emission accounting for key sectors, and will publish guidelines for emissions calculation.

Pilot project at local level



- **Why these regions?**
 - **Level of economic development**
 - Relatively development
 - Strong economic power
 - Large carbon emission volume
 - **Potential market volume**
 - Large cap
 - Many market players
 - Trading volume

Pilot project at local level

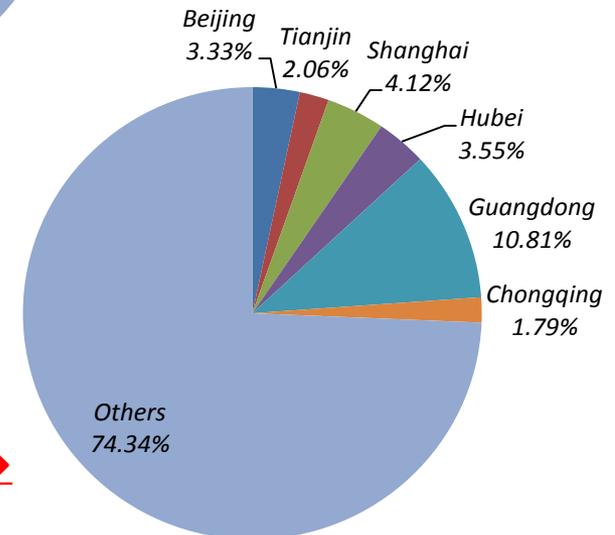
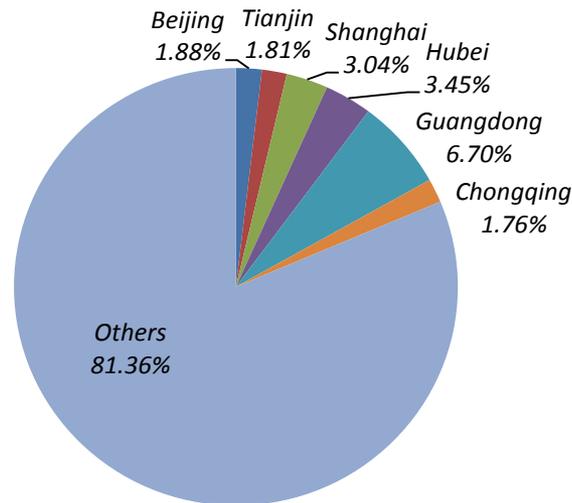
Key index of pilot project provinces

	GDP per capita (RMB)	rank	Energy intensity (tce/10,000 RMB)	rank
Beijing	71935	1	0.582	1
Tianjian	71012	2	0.826	7
Shanghai	65334	3	0.712	3
Chongqing	27472	14	1.127	14
Guangdong	44070	6	0.664	2
Hubei	27876	12	1.183	20

Pilot project at local level

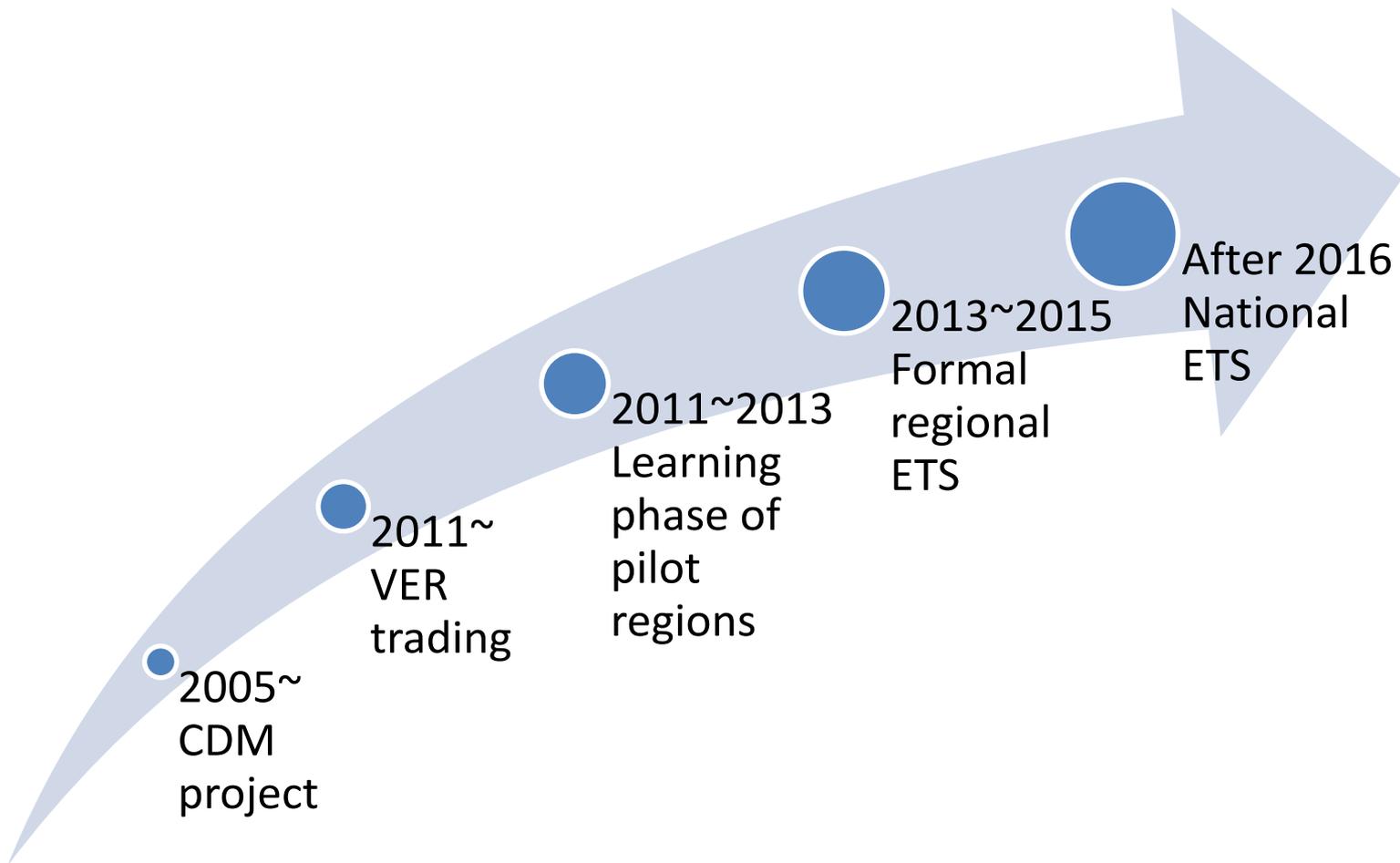
→ CO2 emission share: 18.64%

Regions	Targets in 12 th FYP
Beijing	18%
Tianjin	19%
Shanghai	19%
Hubei	17%
Guangdong	17%
Chongqing	19.50%
Shenzhen	(19.50%)



GDP share: 25.66% →

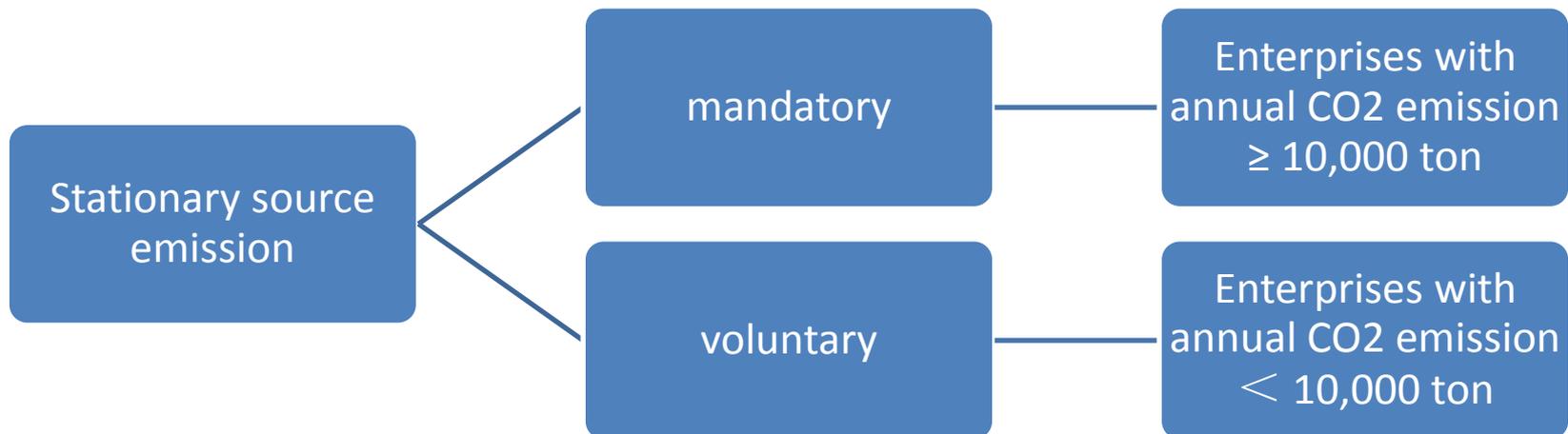
Pilot project at local level



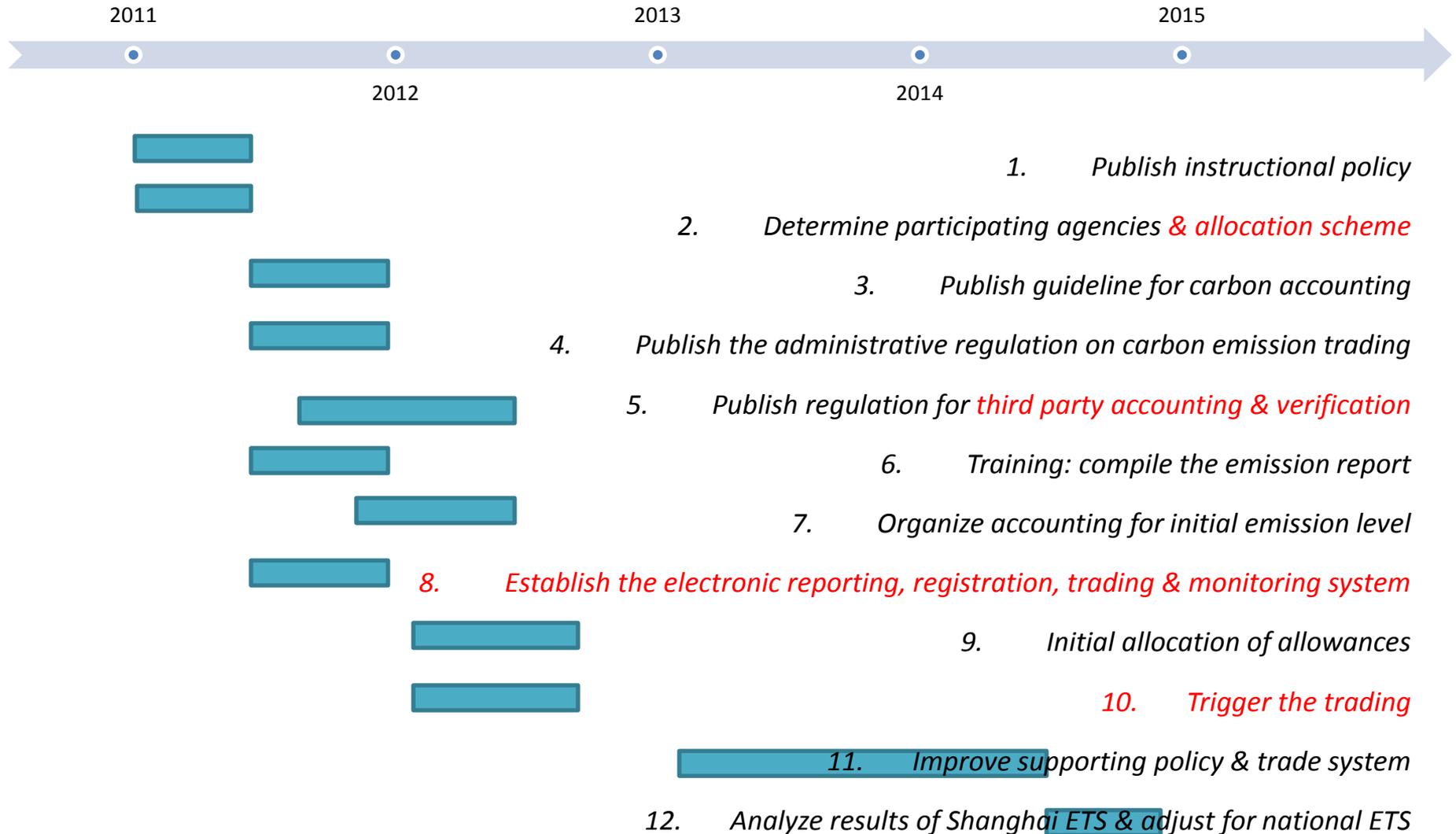
Overall layout roadmap of China's ETS

Pilot project at local level

- Beijing– published “**Proposal on the regulatory framework for the pilot emission trading scheme**”
 - Trade subject: enterprises with stationary source emission
 - GHGs included: CO₂
 - Trade system: under construction, prior to local exchange



Pilot project at local level

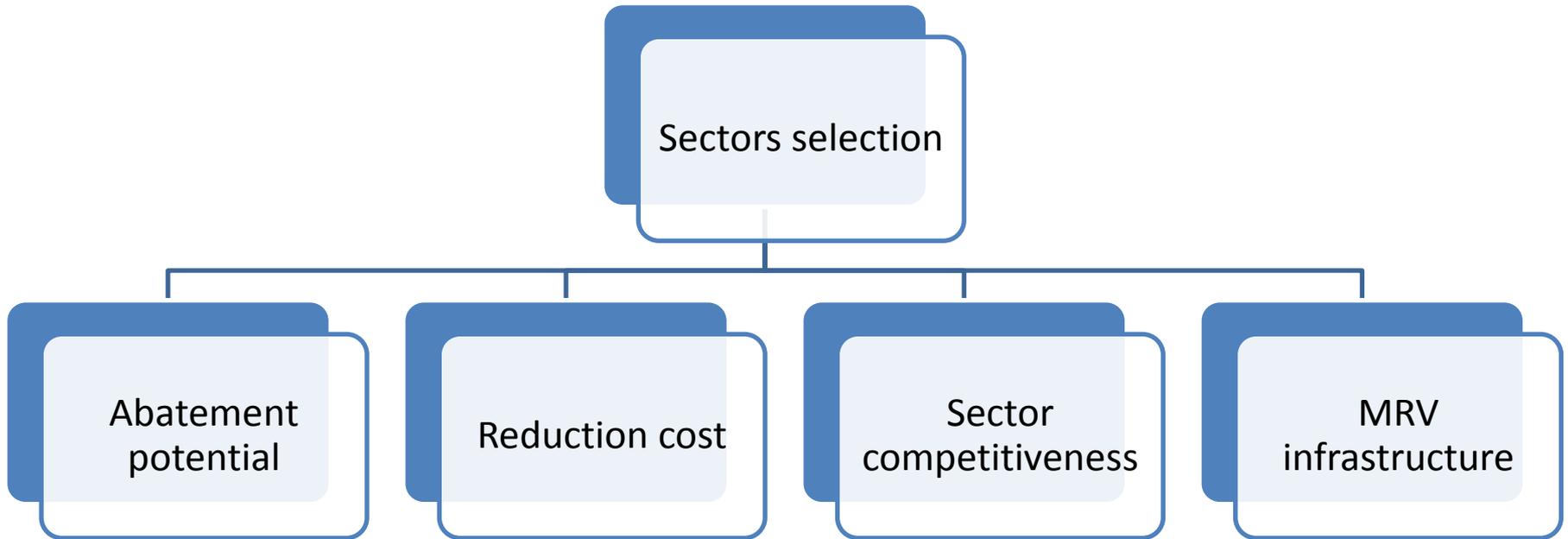


Pilot project at local level

- Cap
 - Account CO2 emission cap according to the target of carbon per unit of GDP decrease during 2011 to 2015
- Allocation
 - Free allowance of 2013 will be allocated according to average annual emission of 2009-2011
 - Little allowance will be auctioned by government in the future
 - Enterprises should submit allowance annually. Allowance can't be borrowed and will be cleared by the end of 2015.

Pilot project at local level

- Sector selection



Pilot project at local level

- MRV
 - Reporting system for enterprises entered into mandatory carbon market.
 - To publish “GHG accounting guideline” for various sectors
 - Appointed public and private energy service companies (ENSCos) to take on the responsibilities for the monitoring and auditing of the energy consumption in the city
 - Report GHG inventory at enterprise level including accounting methodology and monitor method adopted.
 - The report should be verified by the 3rd party.

Pilot project at local level

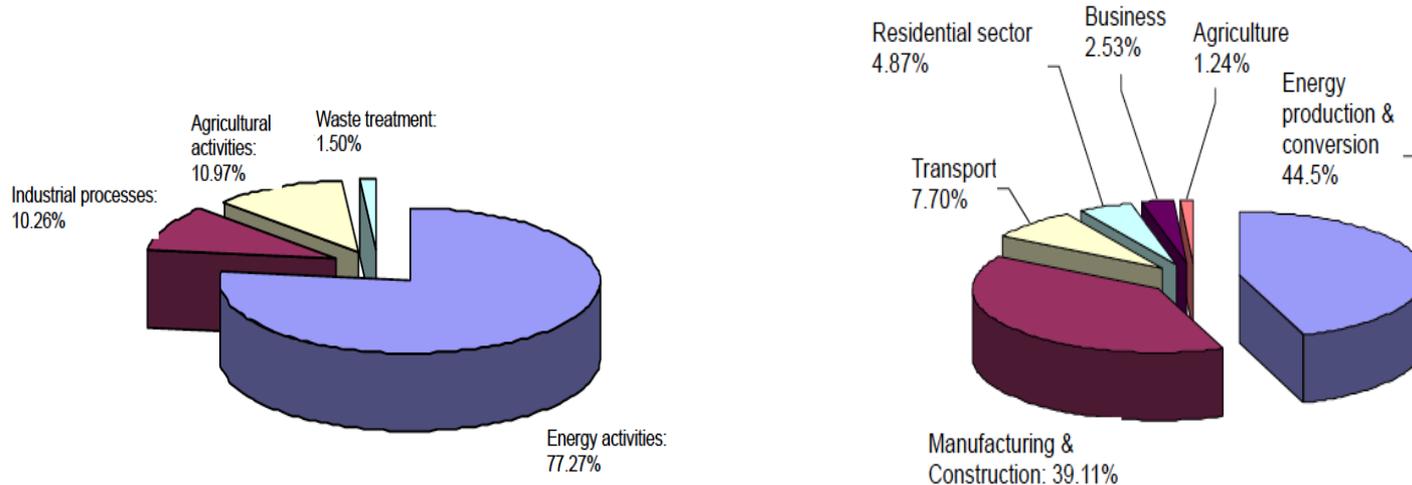
	2020 GHG emission	Industries covered	Allocation	Register system	MRV	Regulation
Beijing	GHG inventory, model forecast	≥ 10,000 ton CO ₂ e	Average emission of 2009-2011	Draft	Energy consumption report	Published
Tianjin	Forecast	Industries with high energy consumption		Draft	Database of emission factors	Draft under discussion
Shanghai	GHG inventory, model forecast	≥20,000 ton in industry sector; ≥10,000 in service sectors	2009~2011 history emission	Framework established	Report system according to sectors	Published
Hubei	2020 GHG emission report	≥60,000 ton	Under discuss	Research report	Draft “MRV regulation”	Draft incentive regulation
Guangdong	2015 GHG emission forecast (tech + economic structure)	Industries with high energy consumption	New entrance and existing		National key energy consumption enterprises investigation	Draft
Chongqing	Accounting report	Enterprises with annual emission beyond 20,000 ton CO ₂		Under design	Draft technical report	Draft under discussion

Pilot project at local level

Exchanges in China

	Beijing	Tianjin	Shanghai	Chongqing	Guangdong	Hubei
carbon trade	√	√	√			
CDM business	√	√	√			
voluntary reduction trade	√	√	√			
pollutant emission trade	√	√	√	√	√	√
EMC	√	√	√			
methodology	panda standard	energy efficiency methodology in building	China voluntary emission reduction standard			

Emissions of power industry



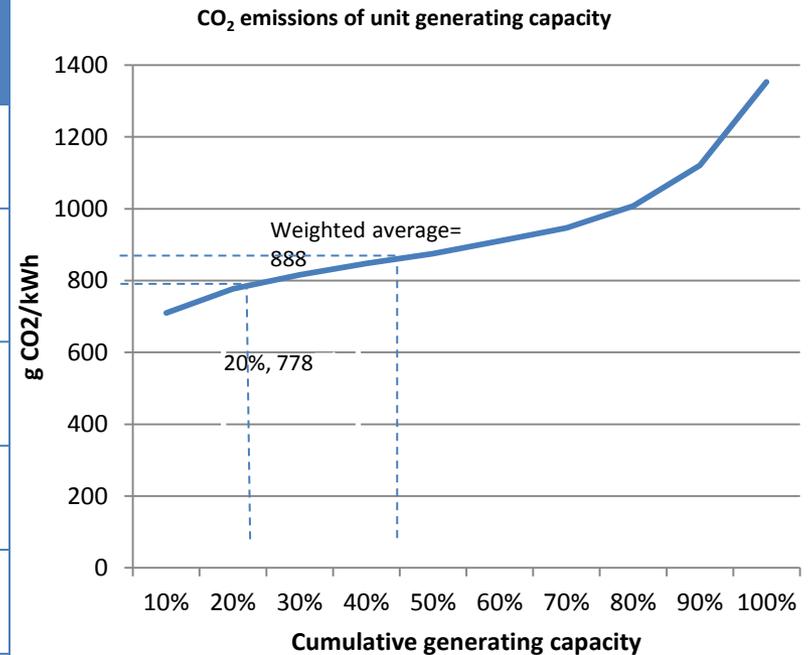
Source: Second national communication

Energy related emissions account for about 77% of China's total emissions, energy production and conversion account for 45% of the energy related emission. Electricity emissions accounted for about 30% of China's total emissions, or about 2.4 billion tons of CO₂ emissions in 2008.

Emissions of power industry

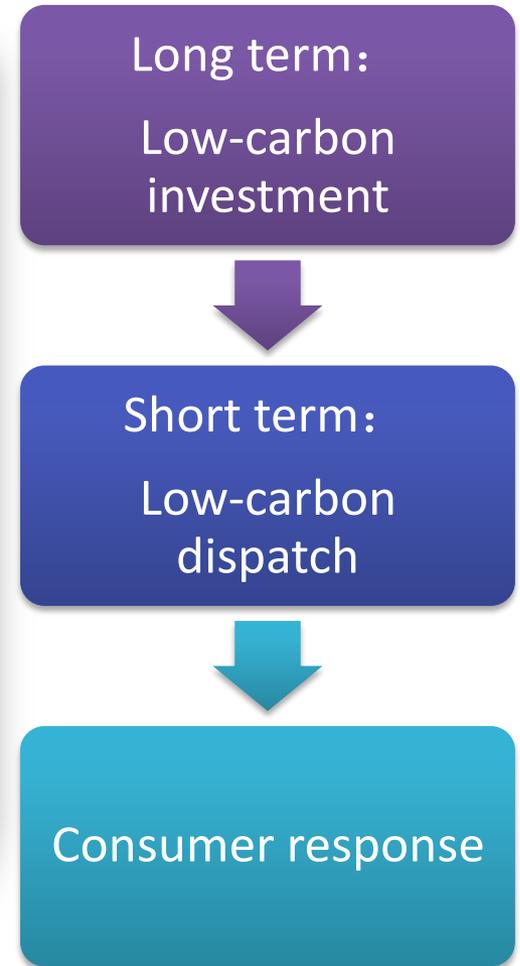
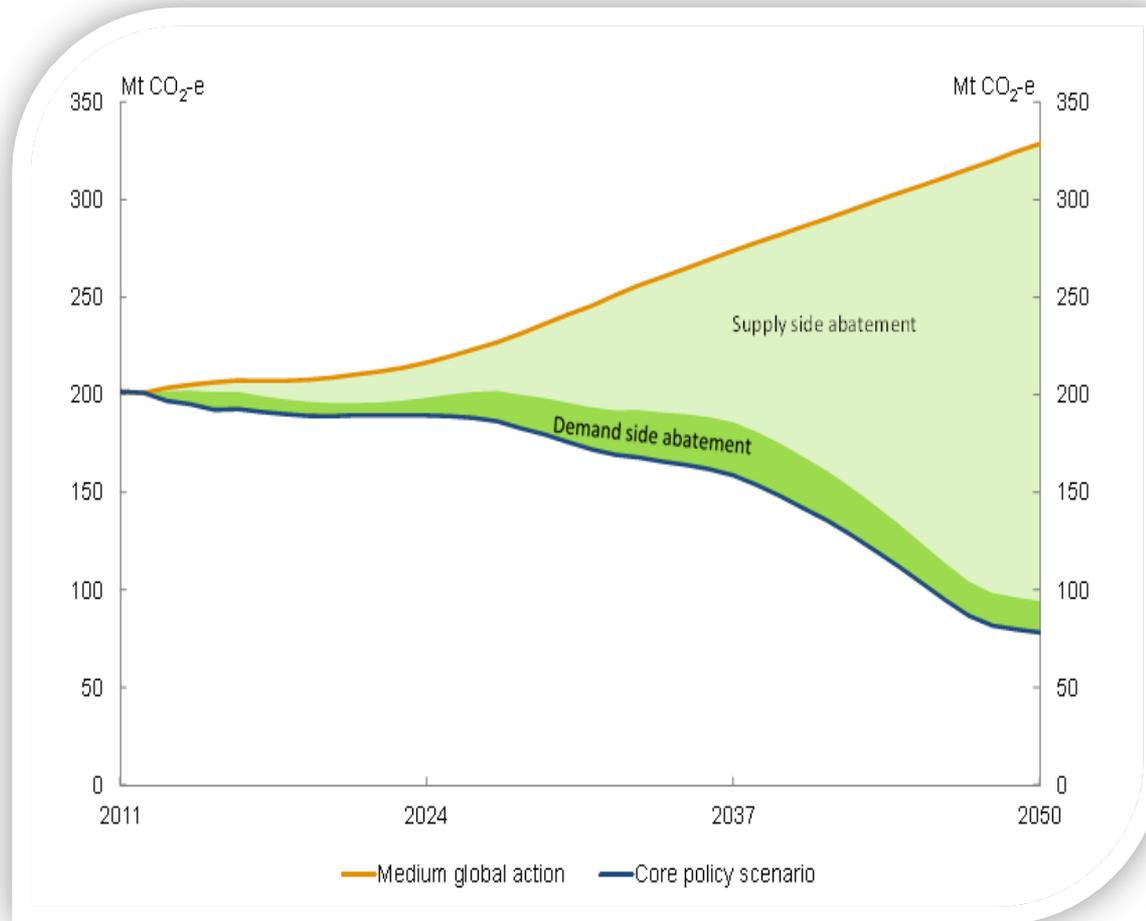
	Installed capacity (GW)	Generating capacity (TWh)	Operating hours
<100MW	68	300	4430
100—300MW	138	622	4500
300MW	210	1029	4900
600MW	245	1237	5050
1000MW	49	250	5100
Total	710	3438	4842

Source: IEA ERI (2012)



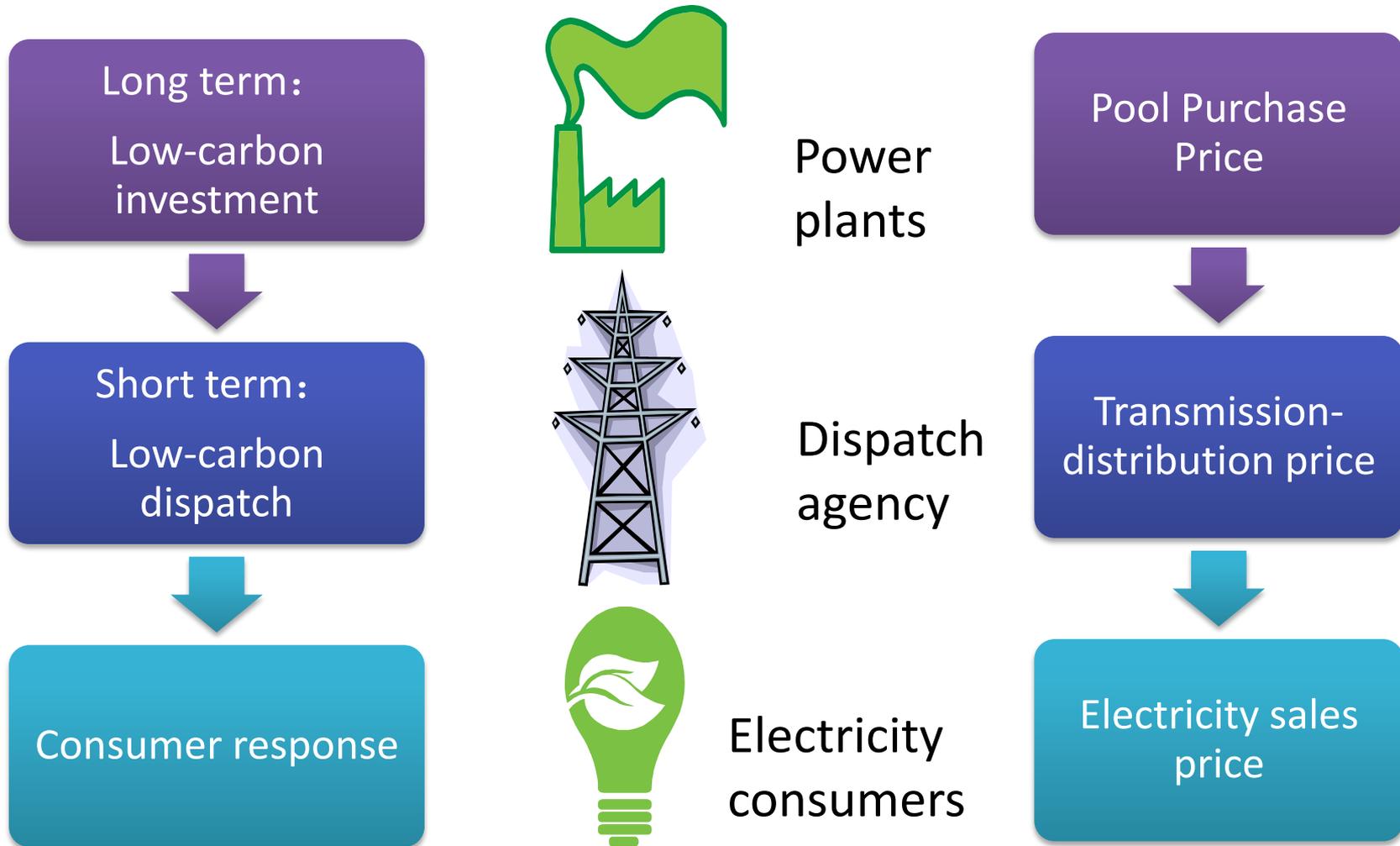
Source: author calculated

Emission reduction pathways of power industry



Source: Australia Government (2011)

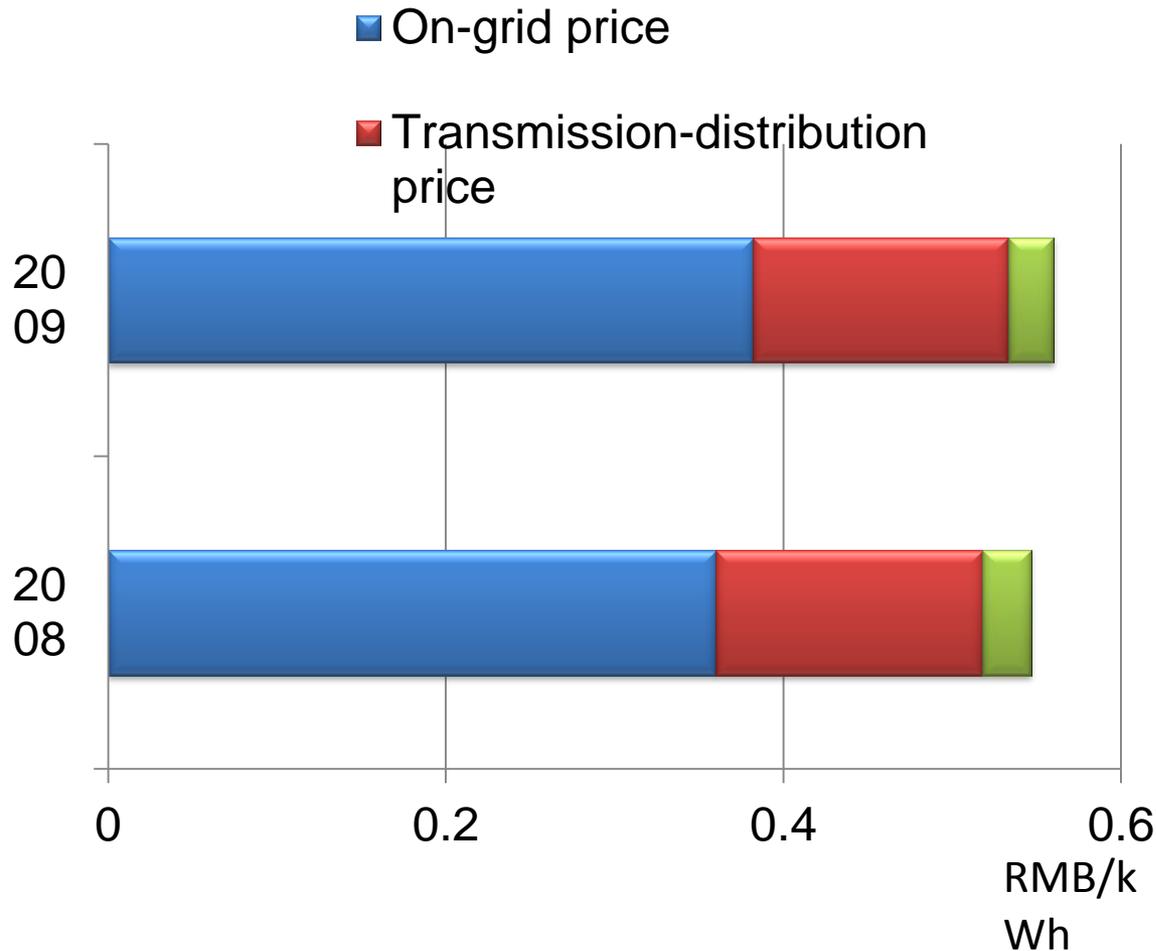
Emission reduction pathways of power industry



Electricity price reform Memorabilia

Data	Events
March 2003	The State Council approved the “power reform program”
March 2003	The State Electricity Regulatory Commission established
July 2003	The State Council promulgated the “power price reform program”, determining the power price reform objectives, principles and major reform measures
March 2004	Promulgated the benchmark electricity price policy, uniformly formulated and promulgated the Pool Purchase Price of new production units in each province
December 2004	The National Development and Reform Commission promulgated coal and electricity price linkage mechanism
March 2005	Promulgated 3 Interim Measures on Management of Pool Purchase Price , Transmission-distribution price and Electricity sales price
May 2005	The first coal-electricity price linkage
June 2006	The second coal-electricity price linkage, the adjustment of the various regions is between 1.5% and 5%
In 2007	“The Interim Measures for Allocation of additional revenue on Renewable Energy Power Prices”, “Small thermal power price cuts program”
July-August 2008	The third and fourth coal-electricity price linkage, electricity price raised twice
October 2009	Development and Reform Commission and Electricity Regulatory Commission jointly made “several opinions on accelerating electricity price reform(Drafts)”
October 2010	Development and Reform Commission promulgated “Guiding Opinions on the Pilot Implementation of Tiered Pricing for Household Electricity(drafts)”
December 2012	Canceled the two-track system of electric coal, perfected the coal and electricity price linkage mechanism

Electricity sales price and its components



- Electricity sales price consists of power purchase cost, transmission and distribution losses, transmission and distribution price and government funds;
- Power purchase costs account for about 65% -70% of the Electricity sales price;
- Government funds consists of Major national water conservancy project construction fund, Reservoir Resettlement Fund, the loan funds of rural power, additional city utilities, renewable energy power price surcharges.

Source : Electricity Regulatory Commission(2009, 2010)

Electricity price adjustment and linkage

- Pool Purchase Price adjustment and linkage
 - Pool Purchase Price assessed by the way “average social cost + reasonable income + tax”; New power plants in the same area implement the same price ;
 - Tender Pool Purchase Price is determined by the tender price ;
 - When fuel price volatility is too large, Pool Purchase Price will be adjusted accordingly.
- Electricity sales price adjustment and linkage
 - First determine the average Electricity sales price, which is the basis to determine the Electricity sales price of all types of users;
 - Household and agricultural production electricity price is relatively stable and lower than the average price ; Commercial, industrial and other category electricity price, is higher than the average price and linked with the average price;
 - Electricity sales price adjustment consists of regular price adjustment and linkage price adjustment; linkage price adjustment is coupled with Pool Purchase Price, but only applied to industrial, commercial and other users.

Challenges and Problems

- Lack of legislation
 - Except for Shenzhen
- Impact to industries, especially to power industries
- Allocation
 - Rule of fair and transparent to be achieved
 - Allocation to new entrance
- Unified emission trading system be established
- Interaction with other policies (e.g. regulatory reform in power sector)

Thanks for your attention!

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