



# Outline of Energy/Climate Policies in China



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## Basics of Energy Sector in China

- Excessive growth in energy supply and use (Total consumption: 2000: 1.455 → 2005: 2.36 → 2012: 3.617 billion tce).
- Energy structure is dominated by coal (Around 70% in total energy consumption).
- The second largest in the world in electricity generation and nearly 4/5 is currently from coal-fired power stations.
- Dependency of oil import increased from 26% at the beginning of this century to 57% in 2011.
- World leading producer of renewable energies:
  - ❑ Total output of hydropower in 2012: 860.85 TWh (17.43% of all the electricity generated;
  - ❑ World leader in investment in renewable energy during 2009-2011. In 2011, 87.7% was devoted to wind power and solar PV.
- 15 nuclear power units with a capacity of 11 GW and output of 54.8 billion kWh in 2012 (1.9% of the total electricity generation).
- Energy efficiency improvement: 19.1% ↓ during the 11<sup>th</sup> FYP and 5.5% in the first two years of the 12<sup>th</sup> FYP.

## Energy Development Target in China

Indicator	Unit	2005	2010	2015	Annual growth rate (%)
Production of primary energy	100 mill. tce	21.6	29.7	36.6	4.3
Among: Coal	100 mill. ton	23.5	32.4	41	4.8
Crude oil	100 mill. ton	1.8	2.0	2.0	0
Natural gas	100 mill. m <sup>3</sup>	493	948	1,565	10.5
Non-fossil energy	100 mill. tce	1.6	2.8	4.7	10.9
Consumption of primary energy	100 mill. tce	23.6	32.5	<b>40</b>	4.3
Power installed capacity	100 mill. kW	5.2	9.7	14.9	9.0
Among: Hydro power	100 mill. kW	1.2	2.2	2.9	5.7
Thermal power	100 mill. kW	3.9	7.1		
Coal-fired power	100 mill. kW		6.6	9.6	7.8
Natural gas power	10,000 kW		2,642	5,600	<b>16.2</b>
Nuclear power	10,000 kW	685	1,082	4,000	<b>29.9</b>
Wind power	10,000 kW	126	3,100	10,000	<b>26.4</b>
Solar power	10,000 kW		86	2,100	<b>89.5</b>

Data source: the 12<sup>th</sup> Five-year Plan of Energy Development.

# Energy/Climate Policies in China

Items	Descriptions
Targets	<ul style="list-style-type: none"> <li>➤ To reduce national energy intensity by 20% from 2005 level by 2010;</li> <li>➤ To reduce energy intensity by 16% and GHG emissions intensity by 17% from 2010 level by 2015;</li> <li>➤ To increase non-fossil energy in the national mix to 15% by 2020;</li> <li>➤ To cut GHG emissions intensity by 40-45% by 2020 from 2005 levels (Voluntary).</li> </ul>
Major policies	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy efficiency standards</li> <li><input type="checkbox"/> Top 10,00 (11<sup>th</sup> FYP) and 10,000 (12<sup>th</sup> FYP) energy-consuming enterprises program</li> <li><input type="checkbox"/> Subsidies and rewards for energy-saving</li> <li><input type="checkbox"/> Differential electricity pricing system</li> <li><input type="checkbox"/> Resource-related tax reform</li> <li><input type="checkbox"/> Pilot GHG ETS in 5 municipalities and 2 provinces</li> <li><input type="checkbox"/> Carbon tax policy in discussions</li> </ul>

## Challenges of Energy/Climate Policies in China

- The large gap between energy resource endowment and demand.
- Energy demand grows too fast due to the extensive and unsustainable development.
- A lack of investment in the grid connection is the biggest problem for the renewable energy industry.
- The irrational energy structure imposes high pressure to the environment and carbon mitigations.
- Energy-intensive development and high needs for further improvement in energy efficiency.
- Not capable of innovation in energy sector and high reliance of core technologies and advanced large equipment highly from abroad.
- The energy efficiency/climate policies are traditionally dominated by regulative and administrative approaches. China shall learn how to practice market-based instruments for realizing its climate target effectively and efficiently.

## Carbon Prices Affordable for the Businesses

Country	China (N=170; Unit: Yuan/t-CO <sub>2</sub> )			Korea (N=62; Unit: KRW/t-CO <sub>2</sub> )			
	Sector	Iron & steel (N=34)	Cement (N=17)	Chemical (N=27)	Iron & steel (N=11)	Cement (N=5)	Chemical (N=20)
MEANAFFORD		8.8%	7.7%	9.9%	2.5%	2.8%	2.6%
Affordable carbon price		42.7	38.6	83.7	3,770	2,600	3,950
Country	Japan (N=230; Unit: JPY/t-CO <sub>2</sub> )						
Sector	Food processing (N=29)	Chemical (N=26)	Iron & steel (N=11)	Electronics (N=12)			
MEANAFFORD	2.0%	3.1%	1.5%	2.6%			
Affordable carbon price	683	1,062	426	801			

Please refer to IGES policy brief No. 29 downloadable at:  
<http://pub.iges.or.jp/modules/envirolib/view.php?docid=5260>

*Thank you for your attention!*